Definition and Selection of Key Competencies

Contributions to the Second DeSeCo Symposium

Geneva, Switzerland, 11-13 February, 2002

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Table of Contents

Foreword

What competencies are necessary for individuals to cope with important challenges in the different spheres of life, such as the economic sphere, the political sphere, and family life? Is it possible to identify a finite set of competencies necessary for an overall successful life and a well-functioning society? If so, what is the nature of these competencies? To what extent are key competencies similar across countries and sectors? What are the implications of the concept of key competence for learning and teaching throughout life? And what are the challenges for enhancing and assessing key competencies? These are some of the questions that have served to stimulate the research within the OECD project *Definition and Selection of Competencies: Theoretical and Conceptual Foundations (DeSeCo)* and the contributions and discussions at the second international DeSeCo Symposium. Although DeSeCo may not have answered each of these questions completely or definitively, it fulfilled its mission to advance the theoretical and conceptual foundations for defining, selecting, and assessing important competencies. In a collaborative effort, it succeeded over the course of its work program in developing an overarching conceptual frame of reference for key competencies rooted in theory, yet relevant for policy.

DeSeCo has focused on competencies in terms of potential strategic resources not only for economic productivity but, more broadly, for sustainable democratic development. Education and investment in key competencies for all are thus critical instruments for promoting equality of opportunity and for strengthening respect for human rights and peace, thereby contributing to the quality of life and of society.

Many topics and issues that appear on today's political agenda are complex and thus need to be explored not only from various perspectives but also from a more holistic viewpoint, taking into account relevant socio-economic and historical factors in order to formulate adequate policy strategies based on sound information. Thus, the interdisciplinary, theory-oriented, and policy-driven approach adopted in DeSeCo seems a viable method to tackle in a more integrated way many of the questions that individuals and countries are confronted with and concerned about.

As lead country of this project, we hope that DeSeCo's conceptual work will prove a useful tool to guide the development of a long-term strategy for internationally comparative assessments of competencies, the design of policy strategies for enhancing key competencies in light of the desired societal objectives, and the evaluation of education and training programs. At the same time, we recognize the relevance and value of, and the need for, continuous sustained international and interdisciplinary collaboration and exchange in this research area, as well as in other new domains critical for monitoring the quality of education and training systems.

This publication contains contributions prepared for the 2nd international DeSeCo Symposium, held in February 2002. It is one of four publications that document the invaluable work, reflections, and creativity of the many researchers, experts, policy-makers, and policy analysts involved and engaged in the process of defining and selecting key competencies at the international level. The contributions in this volume reflect, on the one hand, the broad range of perspectives and issues at stake when attempting to define and select key competencies for a successful life and a well-functioning society and, on the other hand, the many conceptual and cultural commonalities that transcend these perspectives and issues and thus make possible the construction of an overarching frame of reference for key competencies and the identification of a set of key competencies.

Finally I would like to take this opportunity to thank the members of the DeSeCo Steering Group for their sustained support and commitment to the DeSeCo Project over the past 5 years. In particular I would like to thank Eugene Owen and the National Center of Education Statistics of the United States Department for the considerable resources contributed to the project. My thanks also go to Barry McGaw and Andreas Schleicher from the OECD and Scott Murray from Statistics Canada.

I would also like to extend my thanks to the many other individuals who contributed to the second international DeSeCo Symposium by authoring papers, giving presentations or leading discussions, as well as to others who participated in this international collaborative effort and contributed their time and reflections to DeSeCo in earlier phases of the project. Special thanks go to my Swiss colleagues, Norberto Bottani, Walo Hutmacher, and Uri Peter Trier, who played a key role in the initiation of the DeSeCo Project.

Last but not least, I am grateful to Laura Salganik and Mary McLaughlin of the Education Statistics Services Institute, American Institutes for Research, and to Dominique Simone Rychen, of the Swiss Federal Statistical Office, for their significant efforts during the past years and for bringing together in this volume the valuable contributions of the DeSeCo's second symposium.

Heinz Gilomen
Director of Social and Education Statistics
Swiss Federal Statistical Office

Editors' Note

This volume contains the contributions prepared in conjunction with the second international DeSeCo Symposium,[1] which constitute valuable source and reference material for the DeSeCo strategy paper (OECD, 2002) and final report. Thus, this symposium volume complements DeSeCo's final publication, *Key Competencies for a Successful Life and a Well-Functioning Society* (Rychen & Salganik, Eds., 2003).

The material in this volume, in particular DeSeCo's categorization of key competencies, reflects the status of the Project as of early 2002. We therefore ask readers to refer to the final report, *Key Competencies for a Successful Life and a Well-Functioning Society*, for DeSeCo's overarching conceptual frame of reference in its final form.

The contributions in this volume reflect the wide and varied range of input and perspectives received and discussed at the symposium. An effort has been made to preserve the original intent of each author or presenter, and style conventions have not been changed.

We would like to express our thanks to Caroline St. John Brooks and David Nohara for their invaluable editing; to Andreas de Bruin of Publi Duty for the cover art; and at Education Statistics Services Institute, American Institutes for Research, to Sanjay Seth for the graphic design and layout, and Tom Nachazel and Marion Scotchmer for their help in preparing this volume.

[1] http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_int02.htm

Introduction

1 Setting the background

Far-reaching changes in economic, social, and political life, as well as technological innovation, pose major challenges in all societies. To meet the demands of an increasingly interdependent and complex world, education is seen as a crucial investment and important asset for both individuals and societies. This recognition goes along with an increased interest on the part of policy-makers in many countries in the development of internationally comparable indicators of education and learning outcomes. The quality of education and training systems as well as the return on public expenditure on education constitute critical items on the political agenda. As a consequence, measurement of education outcomes, evaluation of the economic and social returns of investments in competencies, and identification of reliable predictors of educational success are topics that generate lively discussion among and within countries.

In response to these concerns, the OECD Project[2] *Definition and Selection of Competencies: Theoretical and Conceptual Foundations (DeSeCo)*, embedded in the long-term strategy of the OECD Education Indicators Programme (INES), was initiated at the end of 1997 as a complementary effort to past and ongoing empirical studies. The project was led and managed by the Swiss Federal Statistical Office (SFSO).

The main goal of DeSeCo was to develop theoretical and conceptual foundations for the identification of key competencies and to provide a conceptual basis for developing and interpreting assessments and indicators of education and learning outcomes.

The focal question for DeSeCo has been: Beyond reading, writing, and computing, what competencies are needed for individuals to lead a successful life and for society to face the challenges of the present and the future? DeSeCo has structured its efforts around the idea that defining and selecting key competencies relevant for individuals and the society depends on multiple factors – normative, scientific, and political (Rychen, 2001).

DeSeCo began with a critical analysis of several studies related to indicators of education outcomes conducted during the 1990s in OECD countries (Salganik, Rychen, Moser, & Konstant, 1999), a study reviewing scholarly work related to competence and proposing a concept of competence for DeSeCo (Weinert, 2001), and expert opinions by scholars from five different disciplines who were asked to construct a set of theoretically grounded key competencies (Rychen & Salganik, Eds., 2001). These inputs were discussed at the first international DeSeCo Symposium,[3] held in Neuchâtel, Switzerland, in 1999, which brought together academics, including the authors of the scholarly papers and representatives of leading social, economic, and international institutions.

[2] For additional information about DeSeCo, see http://www.deseco.admin.ch

[3] http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_int02.htm

Following the first symposium, a Country Contribution Process (CCP) was conducted in OECD member countries to review national experiences in the definition and selection of key competencies. Twelve countries – Austria, Belgium (Flanders), Denmark, Finland, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United States – participated in this activity by submitting national reports.[4] Three additional expert papers were commissioned to complement and extend the examination of key competencies: one from a human development perspective (Keating, this volume), one that examines the key competencies needed to participate in civic life (Fratczak-Rudnicka & Torney-Purta, this volume), and one that discusses the challenges involved with assessing key competencies (Oates, this volume).

The Second International DeSeCo Symposium

In February 2002, the Swiss Federal Statistical Office, the OECD, the National Center for Education Statistics, and Statistics Canada jointly convened the second international DeSeCo Symposium in Geneva. The Educational Research Unit (SRED) of the Geneva Department of Public Instruction hosted the symposium. Approximately 170 participants from 30 countries[5] – scholars, policy analysts, policy-makers, and leading representatives and senior officials in the public and private sectors and international organizations – met to contribute to the international debate on competencies and, in particular, key competencies.

The three main objectives of the symposium were to

- *highlight issues* related to the conceptualization and construction of a set of relevant (key) competencies that spans across spheres of life. Competencies should be linked to important societal demands, policy issues, and social practices;
- *create a dialogue* among the researchers, policy analysts and policy-makers at the national level, leaders in social arenas, and representatives of international organizations;
- *outline options and strategies* that contribute to the eventual development of assessments for key competencies in an international context.

The symposium provided an opportunity to address the definition and selection of key competencies from a variety of disciplinary, theoretical, and cultural perspectives. Topics of discussion included competencies in and across important social fields, similarities and differences among nations and cultures, lifelong learning and the development of key competencies, and assessment strategies. The symposium, thus, was a forum for debate, exploration, and reflection, with the purpose of working toward a common understanding and consolidating an overarching frame of reference for defining, selecting, and, eventually, assessing key competencies relevant for OECD member countries and possibly beyond.

In preparation for the symposium, a discussion paper was prepared (Rychen & Salganik, 2002). A number of propositions and statements about competencies and related topics were put forth for consideration and discussion at the symposium.

3 Structure of this volume

This volume is a compilation of the contributions provided in conjunction with the second DeSeCo Symposium. It includes papers commissioned for the purpose of prompting discussion at the symposium as well as summaries of presentations or comments provided during the symposium. The inputs are organized in sections that correspond to the topics of the symposium sessions. Each of the section divider pages contains the guiding questions for the session.

[4] http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_country.htm

[5] http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_participants_feb7.pdf

The first section of this volume consists of materials provided for the opening session, beginning with welcoming addresses – from Ruth Dreifuss, then Head of the Federal Department of Home Affairs; Martine Brunschwig Graf,[6] then President of the Geneva State Council; and Valena White Plisko, Associate Commissioner, National Center for Education Statistics, U.S. Department of Education – and a commentary on policy research in Canada from Satya Brink, Director of Child, Youth, and Social Development Studies at Human Resources Development Canada. Barry McGaw, Director for Education, OECD, also provided an opening statement.[7] Robert Kegan, from the Harvard University Graduate School of Education, presented the keynote address, discussing the mental demands of modern life and their implications for defining competencies. His contribution to DeSeCo is published in *Defining and Selecting Key Competencies* (Kegan, 2001).

The second section of this volume is entitled *Key Competencies in OECD Countries – Similarities and Differences*. A central issue of the DeSeCo Project was that the definition and selection of key competencies is largely a process of negotiation among various stakeholders, so national input into the process was important. During 2001, the Country Contribution Process was conducted. The main objectives of the CCP were to identify in the national context, competencies that are considered most relevant in and across various social fields; to understand the means or mechanisms by which the definition and selection of key or relevant competencies are arrived at in national-level initiatives, to provide information concerning DeSeCo-type country activities and perspectives, and to obtain feedback from the countries involved in the CCP about their views on the relevance of the DeSeCo Project and its findings. This section consists of a summary report on the country contributions, prepared by Uri Peter Trier of the University of Neuchâtel. The report served as the basis for a presentation at the symposium.

The third section, entitled *Key Competencies and their Relevance for Human, Social, and Economic Development Beyond the OECD*, addresses the topic of key competencies beyond the OECD and provides an overview of a panel discussion moderated by Albert Tuijnman of Stockholm University. Panel participants included Marit Granheim of the World Bank, Tom Griffin of the United Nations Development Programme, Denise Lievesley of UNESCO Institute for Statistics, and John Morley of the European Commission.

Papers in the fourth section address the topic of *Critical Competencies in Relevant Social Fields*. Barbara Fratczak-Rudnicka of Warsaw University, and Judith Torney-Purta of the University of Maryland, discuss the concept of citizenship in relation to key competencies. Also included are a contribution from Trevor Riordan and Gianni Rosas, representing the perspective of the International Labour Office (ILO); a commentary from the world of business and industry from Attilio Oliva, Executive President of the Associazione Treelle, Italy; and a presentation on competencies critical for family life by Sondra Stein of the U.S. National Institute for Literacy.

The fifth section of this volume contains a description of an overarching theoretical and conceptual framework for key competencies based on the status of conceptual work as of early 2002. During a session entitled *Toward a Framework for Defining and Selecting Key Competencies*, Dominique Simone Rychen, DeSeCo Program Manager, outlined a three-fold categorization for key competencies – joining and functioning in socially heterogeneous groups,[8] acting autonomously, and using tools interactively – and highlighted a number of key competencies within these categories. Following the presentation, symposium participants engaged in discussions during five concurrent workshops designed to provide an opportunity for feedback on DeSeCo's conceptual work and its usefulness in an international context.

The sixth section, *Lifelong Learning – Development of Key Competencies*, includes contributions from Andrew Gonczi of the University of Technology, Sydney, on developing key competencies in vocational education and training programs; and Adama Ouane, Director of UNESCO Institute for Education, on the topic of lifelong learning. This section also includes a paper by Daniel Keating of the University of Toronto that was prepared for DeSeCo but not

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[6] No written materials are available from this statement.

[7] This presentation is available in PowerPoint format, at http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_introduction_mcgaw.ppt

[8] The category "joining and functioning in socially heterogeneous groups" was subsequently renamed "interacting in socially heterogeneous groups" to better reflect its meaning.

presented at the symposium. During this session, Douglas Willms of the Canadian Research Institute for Social Policy, talked about the connections between key competencies and social background and discussed the implications for social policy.[9]

Key Competencies – Moving Toward Indicators and Assessments is the next section of this volume. It begins with a paper by Tim Oates, from the Qualifications and Curriculum Authority in London, that discusses general issues related to key competencies and implications for assessments from the perspective of his experiences in the United Kingdom. At the symposium, this presentation was followed by a panel discussion on issues related to the development of assessments. Remarks by Laura Salganik of the Education Statistics Services Institute, American Institutes for Research, are included here, along with comments from Jean-Claude Emin of the Department of Programming and Development, French Ministry of Education. Scott Murray[10] of Statistics Canada, discussed the Adult Literacy and Life Skills Survey and lessons to be learned from DeSeCo during this session (see Murray, 2003); and Andreas Schleicher[11] of the OECD, made a presentation from the PISA perspective (see Schleicher, 2003). Judith Torney-Purta, University of Maryland, highlighted relevant findings from the IEA Civics Education Study (see Fratczak-Rudnicka & Torney-Purta, this volume).

The concluding section is a summary of a presentation delivered by Heinz Gilomen, Director of Social and Education Statistics at the Swiss Federal Statistical Office, in the final session of the symposium. He highlighted what we have learned thus far regarding the definition and selection of key competencies from an international and interdisciplinary perspective and outlined some preliminary implications for comparative assessments. His contribution ends with a forward-looking perspective on DeSeCo's work.

4 References

Murray, T.S. (2003). Reflections on Future International Assessments. In D.S. Rychen & L.H. Salganik (Eds.), *Key Competencies for a Successful Life and a Well-Functioning Society* (pp. 153–159). Göttingen, Germany: Hogrefe & Huber.

Kegan, R. (2001). Competencies as Working Epistemologies: Ways We Want Adults to Know. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 192–204). Göttingen, Germany: Hogrefe & Huber.

Organisation for Economic Co-operation and Development. (2002). *Definition and Selection of Competencies (DeSeCo): Theoretical and Conceptual Foundations: Strategy Paper*. Retrieved June 13, 2003, from http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_strategy_paper_final.pdf

Rychen, D.S. (2001). Introduction. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 1–15). Göttingen, Germany: Hogrefe & Huber.

Rychen, D.S., & Salganik, L.H. (Eds.). (2001). *Defining and Selecting Key Competencies*. Göttingen, Germany: Hogrefe & Huber.

Rychen, D.S., & Salganik, L.H. (2002). *DeSeCo Symposium: Discussion Paper*. Retrieved June 11, 2003, from http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_discpaper_jan15.pdf

Rychen, D.S., & Salganik, L.H. (Eds.). (2003). *Key Competencies for a Successful Life and a Well-Functioning Society*. Göttingen, Germany: Hogrefe & Huber.

[9] No written materials are available from this presentation.

[10] This presentation is available in PowerPoint format, at http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_symposium_murray_130202.ppt

[11] This presentation is available in PowerPoint format, at http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_symposium_schleicher_130202.ppt

Salganik, L.H, Rychen, D.S., Moser, U., & Konstant, J. (1999). *Projects on Competencies in the OECD Context: Analysis of Theoretical and Conceptual Foundations*. Neuchâtel: Swiss Federal Statistical Office.

Schleicher, A. (2003). Developing a Long-Term Strategy for International Assessments. In D.S. Rychen & L.H. Salganik (Eds.), *Key Competencies for a Successful Life and a Well-Functioning Society* (pp. 161–179). Göttingen, Germany: Hogrefe & Huber.

Weinert, F.E. (2001). Concept of Competence: A Conceptual Clarification. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 45–65). Göttingen, Germany: Hogrefe & Huber.

Opening Session

The materials provided for the opening session include welcoming addresses from Ruth Dreifuss, then Head of the Federal Department of Home Affairs; Valena White Plisko, Associate Commissioner, National Center for Education Statistics, U.S. Department of Education; and commentary on policy research in Canada from Satya Brink, Director of the Child, Youth, and Social Development Studies, Human Resources Development Canada. Barry McGaw, Director for Education, OECD, also provided an opening statement. His PowerPoint presentation can be found on DeSeCo's web site at www.deseco.admin.ch. Following these addresses, Robert Kegan from Harvard University Graduate School of Education delivered the keynote address on the mental demands of modern life and their implications for defining competencies. Kegan's contribution to the work of DeSeCo can be found in its first book, *Defining and Selecting Key Competencies*.

Opening Speech

Ruth Dreifuss
Head of the Swiss Federal Department of Home Affairs
The Federal Council of Switzerland

On behalf of the Swiss Government – the Federal Council – I take great pleasure in welcoming you to Switzerland and to the second international symposium of the Programme "Definition and Selection of Competencies ". My purview covers federal policy on education, science and statistics, and I am delighted to see so many leading figures from the world of science, representatives of national and international institutions and experts from a wide variety of academic and professional fields present here today.

You have gathered in Geneva to take stock of a crucial process launched four years ago under the auspices of the OECD – a process of research and scientific exchanges that set itself ambitious targets. On the one hand, the definition of key competencies which enable individuals to participate successfully in the economic process and the social community. And on the other hand, the clarification of the relevant theoretical, normative and conceptual premises.

Switzerland was involved in this process from the outset. Its Federal Statistical Office took the initiative and directed this project with considerable support from the United States National Center for Education Statistics and Statistics Canada. During this time, the DeSeCo Programme has mobilized many experts who have produced reference material of undeniable quality and interest. A characteristic of this Programme has been the abandonment of the "ivory tower" to which scientific research is so often confined. DeSeCo has consciously fostered consultation and dialogue among academic circles, official institutions, economic players, social partners and numerous partners from civil society.

You opted for work methods based on a multidisciplinary approach which has proved extremely productive. In this way, the DeSeCo Programme is supported by a composite community in which philosophers and managers interact with statisticians and educational researchers. For, of course, a wide range of scientific and vocational skills is required to address the complex problems and high stakes involved in defining, selecting and measuring individual competencies.

The contributions published to date and the experts' reports drafted for this symposium impressively demonstrate the richness and complexity of the subject matter. Your work has culminated in the preparation of a number of national reports that testify to the importance our countries attach to defining and promoting the competencies needed to ensure that individuals participate in and are effectively integrated into the community, economic processes and political life.

It seems to me that this is what is really at stake in the DeSeCo Programme. The growing complexity of our society and fast-changing production methods call for new, demanding competencies to equip our citizens not only for adapting to social change but also for taking an active part in decisions about collective issues. Thus, the transmission of know-how, knowledge and the necessary competencies is especially important.

I am cognizant of this aspect of your work and particularly appreciate the social dimension that characterizes your approach to the concept of "competence". Education policies – in a life-long learning perspective – need to take account of a broad range of different skills that ensure participatory integration, not only into the economic process but also into family, social, cultural and political life. Education policies must strengthen individuals' ability to meet their social obligations in an autonomous, responsible fashion as well as to forge and implement their personal projects for life.

Your intention of clarifying the conceptual premises of defining and selecting key competencies in our society takes up a challenge that is both scientific and political. I would like to emphasize three guiding tenets which strike me as particularly crucial in developing an education policy worthy of the name.

First, I would like to recall the education system's central mission of equipping individuals with the qualifications they need for economic integration. It is not only the content of education that needs to be adapted to changes in the economic arena. Sometimes, education's very concepts are inconsistent with work and how knowledge is applied in working life. Any definition of key competencies in our society must take account of the fundamental function of the education system in relation to the economic system. It is therefore essential to involve economic circles in the definition, promotion and adaptation of the individual and social competencies required to guarantee productivity, competitive effectiveness and the ability to innovate.

My second point is, however, that the objective of acquiring and transmitting competencies should not just be confined to achieving an efficient economic system. Individuals are not merely economic players but take on many different roles in society, for instance, in politics, culture, the family and personal networks. Thus, while people's capabilities definitely help them to achieve their personal quality of life, at the same time, these competencies are indispensable tools for building qualities that benefit society, such as solidarity, intercultural communication, respect for human rights, etc. The concepts of social capital and sustainable development which are gradually creeping into scientific discourse and political practice are evidence of the importance of the societal dimension when it comes to defining key competencies. Today, as in the past, education policy and the encouragement of key competencies constitutes an important tool for ensuring integration and social cohesion.

In my view, there is a third factor which is fundamental to consideration of this subject: from the outset, the DeSeCo Programme initiators thought that promotion of the acquisition of knowledge and capabilities known as "competencies" should have the objective of ensuring equality of opportunity and thus of contributing to the actual achievement of human rights.

For me, education is particularly important as an instrument for reducing the inequality of opportunity which continues to blight population groups that belong to minority cultures or deprived sectors of society. At the international level, UNESCO reports on the world's education systems spotlight this inequality of opportunity, clearly illustrating the persistence of the vicious circle that links underdevelopment to lagged responses and gaps in access to basic competencies. And in the industrialized countries, the PISA international survey reveals the extent to which population groups made vulnerable by their economic and social situation are still doubly disadvantaged when it comes to accessing fundamental competencies. Such aspects should be given serious consideration in defining key competencies and in translating them into education policy measures.

Reflection on the conceptual premises of the definition and selection of competencies should allow identification of useful indicators for piloting education systems. I can assure you that Switzerland, like many other countries in the international community, is keeping a close eye on developments in such projects. We realize the importance of indicators for designing, implementing and evaluating education policy with a view to life-long learning. When it comes to promoting competencies, political will alone is not enough. Those responsible can only take coherent, targeted decisions if they have the appropriate information, based on sound concepts and a reliable empirical foundation, at their disposal. This explains why political leaders are looking forward to the concrete results of your work with such interest.

The key competencies needed for quality living and a society which is thriving in social, economic and ecological terms are the basic theme of this symposium. I am sure that the next few days will see some lively debates, given the complexity of the topics covered by the various sessions. However, I am equally sure that, when the debates are over, you will have managed to clarify your differences, establish a common bedrock and formulate scientifically valid and politically relevant guidelines. Political, statistical and scientific circles eagerly await your fundamental contribution to consolidating a common reference framework for defining, selecting and assessing key competencies for the population as a whole.

So let me conclude by wishing you a symposium that is full of stimulating ideas, productive debates and friendly exchanges, as well as a pleasant stay in Geneva.

Opening Remarks – A U.S. Perspective

Valena White Plisko
Associate Commissioner
National Center for Education Statistics, U.S. Department of Education*

1 Initial Thoughts on DeSeCo

Coming into the discussions late, I approached this body of work with some skepticism. My concern was that the level of abstraction required to elevate discussions above the specifics of time and place would take the work beyond practical application. In my role as an Associate Commissioner at the National Center for Education Statistics, I deal with meeting deadlines on annual reports to our Congress, seeking support for studies that run the gamut from infancy throughout adulthood, as well as advising on international studies. With my American pragmatism, I had to ask the question—how can we apply this work?

Yet out of this pragmatism also arises a concern with the theoretical foundation for our work. How can we ground it in theory so that it has some shelf life beyond the immediate, some generalization beyond the specific? I recognize that we may need to step back in order to move forward, that we need to strive for both practical and conceptual advances. I also acknowledge that this process necessarily takes time and will take more time and effort to come to fruition.

I also need to grapple with what this work is not. The work of DeSeCo is not about classrooms and curriculum, although in the future, its findings may have some application to discussions of schooling policy. While cross-national benchmarking studies provide useful indicators of the comparative status of nations and of the potential for future economic competitiveness, they can say little about learning and what supports learning opportunities. They are useful for illuminating differences, but they do not shed much light on why differences are apparent, why changes occur, and how policy can affect effect change. Yet, if these distinctions are to be useful for the policy debate, the studies can and must bring into sharper focus decisions about what matters for individuals and societies. Here lies the value of DeSeCo, in my estimation.

Decisions about what matters for individuals and societies should not be left to statisticians and psychometricians, and indeed not to academics. Such work must involve a broadly based consensus process that includes the input of policymakers, researchers, educators, employers, and parents. Deciding upon what competencies are relevant and related to the success and the quality of life of individuals and societies depends on how members of society define success within a given cultural and temporal context. Whether these competencies overlap across societies and time spans is a key issue.

2 Conundrums and Possible Uses of DeSeCo

I am thinking of how DeSeCo or the work growing out of it may be pertinent for addressing challenges of definition and measurement in the United States. Some of these ideas, however, may resonate with other countries; some may be unique to my country.

2.1 Assessing performance after 8th grade

Just last month, our Congress passed far-reaching legislation that will have a major effect on many aspects of schooling in the United States. The focus of the legislation is ensuring that all children have a solid foundation in

* The views expressed in this paper are part of ongoing research and analysis and do not necessarily reflect the position of the U.S. Department of Education.

reading and mathematics from which to build academic competence and school success. Because the individual states are responsible for education in the United States, the legislation is targeted to new activities at the state level. For the first time, it requires annual, statewide reading and mathematics assessments for all students in grades 3–8 starting no later than fall, 2005. It also requires that a sample of 4th- and 8th-graders in each state participate in the National Assessment of Educational Progress in reading and math every other year to verify the state's results on its own tests.

While states are also required to test students at least once in 10th through 12th grade, the new legislation generally does not address issues about what students should know and be able to do past the 8th grade. Despite its specificity in other areas, it leaves the field wide open for states to define standards for student competency in the later grades and for graduation. The work of DeSeCo may be useful in this respect, helping states consider competencies for their youth and their graduates that are broader than current requirements, and could conceivably trickle down to the lower grades. Given the past difficulty in developing state assessments and performance levels, the states may be looking for guidance nationally or more globally. DeSeCo may offer a common vocabulary, enabling states to speak about expectations for youth using the framework of underlying competencies.

The states may do well to look at what the American public says about the secondary school curriculum. According to a Gallup poll taken in 2001, more than half of Americans believe that secondary school students should study a broad range of subjects, extending beyond the core curriculum of English, mathematics, history, and science. Almost three quarters of young adults, the population with the most recent school experience and the most recent transition into the labor force, share this view.

2.2 Linking student and adult competencies

Application of knowledge and skills in adult life depends on broader concepts and capacities than what is learned through school curriculum. PISA—the Program for International Student Assessment—attempts to make the leap between the school curriculum and what is needed outside of school in the way it defines literacy and in the use of 'real-world' contexts for many of its assessment items. The countries participating in PISA selected age 15 for the assessment because it is the oldest age at which virtually all young people in OECD countries are in school. The Adult Literacy and Life Skills Survey picks up at age 16, just 1 year later. In the United States, the outer bounds of adolescence may extend as far as age 24, 26, or even 34, according to some social observers and learned organizations (including the Society for Adolescent Medicine and the MacArthur Foundation in the United States). While age 34 may be extreme, it is not unusual in many countries for young adults to be dependent on their parents for many years after age 15. Obviously, countries need to consider the transition to adulthood as a continuum that spans the ages covered by the two assessments. And the assessments themselves should be designed to consider the stages of the transition, along a continuum of autonomy and responsibility, as well as cognitive capabilities.

DeSeCo may be of particular value in providing information about competencies that can be interpreted across studies, providing the opportunity for coordination across studies and for accrual and honing of theory and know-how. Researchers who have an interest in human capital development need to draw connections between what qualities are needed in adolescents as they prepare to enter adulthood and qualities needed by adults. Empirical work is also needed to test the extent to which the selected competencies do indeed predict future success and what different social contexts contribute toward strengthening or weakening their influence. While an assessment based on the ideas we will be talking about in this symposium is probably a decade into the future, when this assessment is available, it may offer a measure of human and social capital that is more theoretically grounded than any of the measures currently used.

2.3 Assessing teaching quality

DeSeCo may also offer particular application for defining and selecting competencies in certain occupations that are of specific interest and concern to educational policymakers. Foremost would be teaching, an occupation vitally important to the development of competencies and another focus of activity in the OECD indicators program. Having a framework for competencies that holds in different teaching milieus, and across specialties and grade levels taught may be particularly useful as work continues to develop indicators about teachers and teaching. For example, such a foundation applied to teaching might include knowledge of the subject matter (content competency); a repertoire of teaching strategies and when to apply different strategies to different situations (procedural competency); knowledge of the children, their level of understanding, and how to engage them in learning (problem-solving competency); and motivation and self-efficacy.

3 The Value of DeSeCo Work

DeSeCo offers an important contribution to scientific inquiry by making the imponderable ponderable and capable of being investigated. It poses the philosophical question of what constitutes the 'good life', a query that dates back at least to Aristotle. Perhaps few questions are as basic to human existence. Most importantly, it poses this fundamental question so that it can be tested empirically.

DeSeCo explicitly links the development and selection of competencies to theories or explanatory models of how competencies contribute to the enhancement of individuals and societies. As has been shown in the DeSeCo book, *Defining and Selecting Key Competencies,* different theories may lead to conflicting predictions about what enhances the development and vitality of individuals and societies.

The DeSeCo work and future efforts involving competencies will be capable of being assessed. The predictive value of the development of competencies can be tested empirically. I would urge imbedding consideration of these constructs in longitudinal studies of youth, for example.

DeSeCo should be commended for bringing this discourse into the professional and public domain. Such discussion can lead to healthy criticism and a continual refinement of key concepts and measures. It can bring scientific inquiry to fundamental questions of value and direction.

4 The Future

DeSeCo should help to imbue the work of all the Networks in the OECD Education Indicators Programme (INES) with a foundation and a common vocabulary for coordinating work across the networks.

While providing a foundation for discourse and activities, future work should be prepared to consider and test alternative interpretations for what constitute competencies and whether key competencies can be universally applied to countries that share similar political economies. Future work should also address the issue of how short a half-life key competencies may have, given the rapidity of social change. The need for adaptation must continue to extend our focus and allow us to be open to change, new opportunities, and new challenges.

Policy Research in Support of the Skills Agenda of the Government of Canada

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1 The Skills[1] Agenda

Canada, like other western industrialized nations, has experienced the shift to the knowledge economy. The shift from brawn to brainpower places a greater emphasis on human resources and changes the balance between people and other factors of production. Furthermore, workers are not only able to build, use, and lose human capital, but they are also able to move, taking their knowledge and skill assets with them. Knowledge and skills have become an essential for comparative advantage in an economy where people embody, create, improve, and apply knowledge. Such skills and knowledge drive a virtuous cycle by ultimately improving the standard of living and the quality of life for Canadians. Both individuals and society make investments in human capital and the benefits flow to both. The desirable outcomes are a prosperous future for Canada based on a skilled labor pool and a high quality of life for every Canadian.

The changes flowing from this transformation have created new demands for knowledge and skills in the labor market. Such demands are not exclusive to intellectual or technical jobs but are pervasive in all industries and professions as workers carry out their jobs in ways that are more dependent on knowledge and technology. Such new demands arise because even existing jobs require more knowledge. For instance, the job of a car mechanic, once considered a traditional blue-collar occupation, now requires more knowledge and skills than the same job 10 years ago, due to the inclusion of computer chips in cars and computers for diagnoses of even mechanical problems. Furthermore, new knowledge and skills are required by the emerging knowledge-intensive sector. It is recognized that today's children will spend their entire careers in the knowledge economy, and steps must be taken now to ensure that future workers have the knowledge, skills, and attributes for the demands of the evolving economy.

[1] The word "skills" is more widely used in Canada than competencies, but it is largely the same concept. The term is used both as a noun and a verb—for instance, up-skilling, re-skilling. "Skills" includes knowledge, skills, and attributes which are more descriptive in French—*savoir, savoir-faire, and savoir-être.*

The Government of Canada has stated that investing in people is essential for both personal and public interest. Therefore, it launched a long-term (10-year) initiative: "The Innovation Strategy." The two lead ministries are Industry Canada and Human Resources Development Canada, dealing with both the demand and supply side of human capital. Two major documents were released for public and private sector comment and participation. The first, entitled *Achieving Excellence—Investing in People, Knowledge and Opportunity*, stresses goals relying on the potential of innovation in the Canadian economy (Government of Canada, 2002a). The second, *Knowledge Matters—Skills and Learning for Canadians*, focuses on developing knowledge and skills through lifelong learning, with milestones that show progress in Canada (Government of Canada, 2002b). The second document launched the Skills Agenda.

Three reasons were given for the Skills Agenda:

- *"First, the knowledge-based economy means an ever increasing demand for a well-educated and skilled workforce in all parts of the economy and in all parts of the country."* It is estimated that by 2004, 70 per cent of all jobs created in Canada will require some form of post-secondary education.
- *"Second, there is a looming demographic crunch that will exacerbate these skills shortages."* The Conference Board of Canada warns that the future labor force will be inadequate, with a shortfall of nearly one million workers within 20 years (The Conference Board of Canada, 2000).
- *"Third, our (Canada's) learning system must be strengthened if we are to meet the skills and labor force demands of the next decades."* One potential area for action is to improve access to post-secondary education, which continues to be difficult for persons with low income. (All quotes, Government of Canada, 2002b, p. 7–8)

The government of Canada is calling for a renewed effort by all sectors of Canadian society to ensure that the skills and learning requirements are met for the twenty-first century. The public-sector role consists of not only effectively implementing public policies towards this goal but of also providing policy research evidence and support to other sectors engaged collectively in this national project.

2 Policy Research for the Skills Agenda

The effectiveness of policies is enhanced by the reliance on research evidence for policy development. Because of the need to compete through the quality of knowledge and skills, rather than the quantity of workers, the Skills Agenda defined the concepts, objectives, and targets by consolidating existing research. In order to meet the requirements of the Skills Agenda, the Ministry of Human Resources Development Canada has developed a policy-driven data and research strategy to advance policy research.

The focus on skills, measured as knowledge, skills, and attributes, was linked to desirable outcomes for both the individual and society. To capture the public imagination by an inclusive vision for prosperity, the objectives were intended to result in lifelong learners, productive workers, nurturing parents, and involved citizens—in short, "Good Canadians." It is recognized that a mix of skills is linked to successful expressions of these multiple outcomes. For a good understanding of the process of capitalization through learning, a holistic, comprehensive view of human development, with more detailed and more specific research on the acquisition of human capital, was planned. It should be possible to explain and predict desirable and undesirable trajectories over the life course.

In this case, policy appears to be ahead of adequate theory and reliable measures. Currently, there are many shortcomings that pose difficulties. For instance, learning is largely measured as years of formal education, rather than lifelong learning. The concept of lifelong learning remains under-theorized and poorly measured since it should include formal, informal, and non-formal learning. There is little interdisciplinary research that links the bodies of evidence from education research and research on work and the labor force. The Skills Agenda requires research that better links the learning and earning systems. Despite these deficiencies, it is imperative to generate data and research results when the policy window is open and when the political will to act exists. If the opportunity is not seized, a whole generation could potentially be affected.

This may require the development of new theories, measurement strategies, and instruments. The education research tradition tends to favor 2-hour-long assessments. What is needed is something between the 2-hour-long assessment and the 1 minute that most employers spend on a résumé to determine if they are interested in the applicant. Short, simple, direct assessments, which are easy to administer as part of national longitudinal surveys, are required. This is particularly important for household surveys. New techniques for assessments should be developed, rather than the traditional paper-and-pencil tests.

The priority in Canada is for the development of good indicators of knowledge, skills, and attributes. It may not be practical to have a complete set of competencies. Measuring a complete set would also impose a response burden and be expensive to administer and analyze. However, it is important that the critical knowledge and skills are identified.

3 Building a Data System for the Skills Agenda

The collection of national data is expensive and time consuming; hence, the data strategy must not impose respondent burden while being cost-effective. Rather than a series of single-issue surveys, a data system that is linked, taking a comprehensive view of the ensemble of issues related to skills, provides the best solution.

The planned data strategy was characterized by policy-driven content, longitudinal design, outcome measures, and both holistic and specific approaches depending on the issue. It builds and complements existing surveys such as the Census and Labor Force Surveys. The system includes seven major surveys: The National Longitudinal Survey of Children and Youth (NLSCY), the OECD Programme for International Student Assessment (PISA), the Youth in Transition Survey (YITS), the National Graduate Survey (NGS), the Workplace and Employee Survey (WES), the Adult Education and Training Survey (AETS), and the International Adult Literacy Survey (IALS).

The data drawn from these surveys are inter-linked, so that the life course from 0 to 90 years is covered. NLSCY has a sample of about 30,000 children, who are being followed from birth to age 25. The human development framework is holistic; in that the cognitive, social, physical, and emotional outcomes related to maturing adult roles (four outcomes for good Canadians) are measured. The survey includes direct assessments from childhood to adulthood.

The process of human capital acquisition requires a more focused approach. Major assessments such as PISA are linked to a longitudinal survey called YITS, which allows the measurement of learning and the returns to learning over time for both the individual and society. About 30,000 15-year-olds will be followed every 2 years until they are 30, thereby capturing key decision points in both education and work trajectories. It is hoped to include further skills assessments at intervals.

NGS follows graduates (a sample of 60,000) from post-secondary education 2 years and 5 years after graduation. A full range of disciplines are included so that the match between skills and jobs can be gauged while also measuring the early returns to post-secondary education.

There are two major surveys that provide data on the working years. WES contains information collected from the perspective of the worker and the employer. About 23,000 workers from around 6,000 employers are surveyed. AETS focuses on training investments at work and through other means. Over 33,000 adults are in the sample. IALS measures the reading skills of over 5,500 adults aged 16 and over in Canada and can be used for international comparisons. The results also enable the tracking of skill acquisition and loss of different cohorts at various ages.

4 Research Strategy for the Skills Agenda

The research strategy must respond quickly to key questions raised by the Skills Agenda. These include questions such as: How does pre-school learning affect lifelong learning? Does learning occur outside of formal education (for instance, through part-time work and the use of the Internet)? Are there losses after formal education? Which skills are essential for continuous learning? Do specific outcomes (parent, worker) require different patterns of knowledge and skills, or is there significant overlap and complementarity? How are knowledge and skills gained and lost? Can lost skills be regained more easily than new skills? Is later learning more from experience, requiring new learning skills? Are there shifts between *savoir* and *savoir-faire* once formal education is ended? Does the mix of different types of knowledge held change with growing age—starting with analysis and specialization and shifting to integration and synthesis?

Timely data are essential for continuous research for the 10-year duration of the Skills Agenda. Longitudinal analyses can provide a dynamic view of how knowledge and skills are gained and applied for the key outcomes. The research should be able to measure outcome trajectories for young children as well as adults in order to understand the emerging skill pool in Canada. The evidence must on the one hand support policies to invest in the young, who will be future learners, workers, parents and citizens, and on the other make judicious investments for those who are already playing such roles. Such results should be viewed in tandem with research on societal and economic change so that the potential fit and projection of future demands are possible.

5 References

The Conference Board of Canada. (2000). *Performance and Potential*, 2000–2001. Ottawa: The Conference Board of Canada.

Government of Canada. (2002a). *Achieving Excellence—Investing in People, Knowledge and Opportunity*. Ottawa: Government of Canada.

Government of Canada. (2002b). *Knowledge Matters—Skills and Learning for Canadians*. Ottawa: Government of Canada. (Available electronically at http://www.hrdc-drhc.gc.ca)

For further information on The Skills Agenda, see http://www.hrdc-drhc.gc.ca/arb

Key Competencies in OECD Countries – Similarities and Differences

What is the relevance of key competencies in OECD countries? Which competencies (or sets of competencies) have been identified as necessary for individuals to cope with important demands and challenges?

To what extent are key competencies similar from country to country, sector to sector?

The following is a summary, written by Uri Peter Trier, University of Neuchâtel, of the reports submitted by participants in the DeSeCo Country Contribution Process.

Twelve Countries Contributing to DeSeCo: A Summary Report

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1 Introduction

In December 2000, the Swiss Federal Statistical Office (SFSO) and Directorate for Education, Employment, Labour, and Social Affairs (DEELSA) of the Organisation for Economic Cooperation and Development (OECD) invited the OECD Member countries to participate in the Country Contribution Process (CCP) phase of DeSeCo. With an overall goal of introducing national views to the process of defining and selecting key competencies, the specific objectives of this phase were described as follows:

- to provide information on national efforts to define key or core competencies;
- to identify, in the national context, the competencies that are considered most relevant to success in important areas of life (e.g., business and the labor market, political and civic spheres, and family life);
- to understand how key competencies are embedded in national skill development and evaluation strategies and how these are negotiated among the different stakeholders;
- to obtain national views on the relevance of the DeSeCo Project and its interim conclusions;
- to provide views on the assessment of core competencies, nationally and internationally.

Eighteen countries expressed initial interest in participating in the CCP phase. A comprehensive Background Note on the CCP's objectives, procedures, tasks, guiding questions, expected products, and time schedule was sent to the interested countries. Some countries were unable to proceed, the tight time schedule being the main reason in most cases. Of the 18 countries, 12 countries participated in the CCP and submitted Country Reports: Austria, Belgium (Flanders), Denmark, Finland, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United States.[1]

The ways and means by which the countries collected the requested information differed from country to country. (Annex 1 provides more detail on the processes followed in each country.) In most countries, relevant documents were reviewed and analyzed. In some countries, this work was either part of or supplemented by special DeSeCo National Work Groups (two countries); interviews, surveys, or statements of key individuals; or special workshops, seminars, or symposia (eight countries). As might be expected, the length, scope, structure, and focus on different topics in the Country Reports vary considerably. Some reports are organized around the Guiding Questions included with the Background Note and some use other structures, but all provide valuable information to be referred to in this summary.

This report summarizes and analyzes the findings of the 12 Country Reports.[2] It is structured in four sections on the basis of the sets of Guiding Questions, with those questions used to introduce each section. The sections are (1)

[1] Copies of the Background Note and Country Reports are available at www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_country.htm.

[2] In the text, the reports are referred to by country (e.g., "the German Country Report"), but in the References section they are listed by the authors (e.g., Witt, R. & Lehman, R, National Agency for Education). When a specific country or Country Report is mentioned in the text, the source should be assumed to be the Country Report for that country listed in the References section (and found at www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_country.htm). No further reference citation is provided, except in cases requiring page number references, information on secondary sources, or additional clarity. These citations use the names of the authors of the reports.

Identifying Key Competencies; (2) Assessment, Indicators, and Benchmarking; (3) Public Debate – Negotiating and Legitimating; and (4) Key Competencies and Education. The report concludes by highlighting some essential findings.

2 Identifying Key Competencies

- *Which competencies (or sets of competencies) have been identified or discussed as being necessary for individuals to cope with important demands and challenges in particular social arenas (such as the political and civic spheres, business and labor, or family) or for a successful life in general?*
- *Are some of the key competencies identified/discussed specifically related to different periods in life and age groups or are they universally applicable? Which ones?*
- *To what extent do the identified/discussed key competencies correspond to DeSeCo's three generic key competencies?*[3]

This section will deal with (1) Inputs from different sectors on competence-setting and key competencies,[4] (2) Research-based projects not associated with one particular sector, (3) Similarities and differences between countries: identifying and aggregating key competencies, (4) Relationship to DeSeCo's generic key competencies, and (5) Analytical remarks and issues. Annex 2 contains a detailed overview of the sources used in the Country Reports.

2.1 Inputs from different sectors on competence-setting and key competencies

2.1.1 Education

Education and schools have a long tradition of defining educational goals and learning objectives. In the last 30 years, curriculum development shifted away from merely dealing with subject-driven knowledge and began to be more and more interested in transversal/transferable/cross-curricular competencies, long before the term *competence* became fashionable. Curriculum development involving key competencies took different forms in the different countries contributing to the CCP, but generally fell into three main categories. In some countries curriculum development remained mainly a pedagogical strategy to improve schools, in others it was embedded in broad national efforts of societal renewal, and in yet others the triggering motive was to maintain or improve national competitiveness in an increasingly global economy.

Examples of the first category include countries such as Germany and Switzerland, where curriculum reform at the end of the 1960s was rooted in a mixture of a sense of political urgency to improve school quality (and equality) and as a response to research findings (Robinsohn, 1969; Deutscher Bildungsrat 1970, 1974). In this context "overarching goals" were seen as functionally necessary to integrate curricula.

In the second category are the Scandinavian countries and New Zealand. Here the reform impulse was broader: the search for a visionary renewal of education. The focus on overall goals for education led to a debate on the purpose of education, which in turn implied a search for key competencies.

Reform efforts in the United States illustrate the third category. In the United States, there was an acute feeling that schools were not producing what was needed for the country to be at the forefront of international competitiveness. The politically driven debate on national goals for education led naturally to a debate on standards and key competencies in education.

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[3] The generic key competencies were further conceptualized, resulting in the three-fold categorization of key competencies: interacting in socially heterogeneous groups, acting autonomously, and using tools interactively (Rychen, 2003).

[4] In the Country Reports and the underlying documentation, many terms such as *essential knowledge, core knowledge, skills, learning goals, attainment goals, qualifications,* etc., are used. For practical reasons, in this section there is no differentiation between these terms.

Whatever the reasons, in the 1980s and 1990s, comprehensive documents on curriculum reform were produced in most of the reporting countries, some covering all levels of education, but mostly treating primary, secondary, vocational, and adult education separately.[5]

Over time transversal educational objectives have come to play an increasingly important role when developing the curriculum. In the early days, they might have been found woven into programs of study, some years later they would appear in the form of explicitly defined overarching goals, and finally – particularly in the last decade – the discussion as to which competencies matter most has intensified and some curriculum documents have begun to introduce this terminology in their texts, primarily in the area of vocational education.

Some examples of competency areas and lists of relevant competencies as documented in the Country Reports are presented below. Of course, this cannot be a comprehensive survey covering every country and the whole existing body of information. We ask our readers to indulge our choices. Our aim is to demonstrate the wide variety that exists.

We begin with the venerable German Abitur, which certifies the successful conclusion of higher secondary education. It builds on old academic pedagogical traditions in Central Europe that push subject-based knowledge to the fore. In recent revisions (1995 and 2000), besides the main learning objectives in German language, foreign languages, and the competent use of mathematical symbols and models, emphasis was put also on

- understanding the structure of knowledge
- self-directed learning
- reflecting on one's own learning
- thinking, judging, and acting
- metacognitive evaluation of one's own capacities
- cognitive flexibility and creativity
- concentration, precision, and perseverance
- understanding basic social, economic, political, and technological perspectives
- ability to apply knowledge in different contexts
- communicative competence
- ability to cooperate in teams
- ability to make decisions (German Conference of Ministers for Culture and Education [KMK], 1972/2000, as cited in Witt & Lehman, 2001, p. 16)

In the discussions around the elaboration of this list of competencies – which we may easily also see as key competencies – the relevant committee, which was working on behalf of the KMK, decided to avoid the notion of key competencies, as they considered it too vague.

In Switzerland, the corresponding definition of transdisciplinary goals at the end of secondary education includes the following goals:

- competence for lifelong learning
- holistic personal development: integrating knowledge, intention, and feeling
- integrated thinking: logical, analytical, intuitive, and symbolic
- open-mindedness, displaying curiosity, and the ability to search and find new knowledge
- capacity for research work
- orientation in the natural, social, and cultural environment

[5] Strangely enough, tertiary education (universities) was exempted from this endeavor.

- ability to make autonomous judgments
- sensitivity to ethical and aesthetic issues
- ability to master complex social tasks, willingness to take responsibility for oneself, others, society, and the environment
- ability to communicate: to express oneself precisely and sensitively; language competence in the mother tongue, in another national language, and in other languages
- ability to work alone and in groups
- development of physical capabilities, relating to one's own body (Ministries of Education of Central Switzerland [EDK], 1995, as cited in Trier, 2001a, p. 18)

Some countries report impressive nationwide initiatives to develop curriculum frameworks covering all educational levels. The New Zealand National Curriculum Statement states that all learners should

- gain the knowledge, skills, and attitudes that enable them to go on learning in a changing world
- develop the knowledge, skills, and attitudes they need to participate fully in everyday life
- develop an awareness of their cultural identity and traditions
- develop an understanding of and respect for themselves and others, and the knowledge, skills, and attitudes they need to live and work well with other people (New Zealand Department of Education, 1988, as cited in Kelly, 2001, p. 6)

In 1993 the New Zealand Curriculum Framework was published. It comprised the following set of skills:

- communication skills
- numeracy skills
- information skills
- problem solving skills
- self-management and competitive skills
- social and cooperative skills
- physical skills
- work and study skills (New Zealand Curriculum Framework, 1993, as cited in Kelly, 2001, p. 7)

Norway produced in 1997 a beautifully edited comprehensive Core Curriculum for Primary, Secondary and Adult Education. It draws on Education Acts governing education in Norway and is organized around chapters covering the following headings:

- *The spiritual human being*: familiarity with Christian and humanistic values; awareness of cultural heritage, identity, and local traditions; the ability to meet other cultures openly; respect and knowledge for other religions and faiths;
- *The creative human being*: development of creative abilities and a critical sense; the ability to find new solutions to problems; the ability to use scientific thinking and methods: the ability to wonder, to pose new questions, to invent possible explanations, and to test one's explanations;
- *The working human being*: learning and work habits; learning to learn; the ability to take responsibility for one's own learning; the ability to plan and organize one's own work and learning process;
- *The liberally educated human being*: a sound foundation of knowledge and broad frames of reference; the ability to organize knowledge; methodological skills; respect for facts and sound argument; familiarity in using information technology; an understanding of internationalization and an appreciation of tradition; the ability to acquire and attain new knowledge; entrepreneurial skills;

- *The social human being*: trust in one's own abilities; communication skills; the ability to solve conflicts; social responsibility; concern for others; knowledge of rights and duties; the ability to take responsibility; the development of an independent and autonomous personality;
- *The environmentally aware human being*: the ability to experience joy in nature and physical activity; an awareness of nature; an awareness of the natural environment and conflicts of interest. (The Royal Ministry of Education, Research and Church Affairs, 1994, as cited in Knain, 2001, pp. 22–23)

In a Swedish government report discussing learning objectives in schools, three perspectives were underlined:

- *the constructive aspect of knowledge*: knowledge is not a mirror of the world, but a way of making the world understandable;
- *the contextual aspect of knowledge*: knowledge is dependent on context;
- *the functional aspect of knowledge*: knowledge as a tool. (Swedish Government Official Report, 1992, as cited in National Agency for Education, 2001, p. 5)

In 1999 the Swedish National Agency for Education considered the following competence areas as being particularly appropriate to be developed and assessed in schools:

- to see connections and be able to find one's way in the outside world
- to make conscious ethical decisions
- to understand and apply democracy
- creative ability and communicative skills (National Agency for Education, 1999, as cited in National Agency for Education, 2001, p. 5)

Austria developed in 1999 a reformed curriculum, which aimed at enhancing personality-driven competencies and reinforcing a real-life orientation without giving up the already existing science orientation. The 1999 curriculum defined five educational areas with the aim of constituting a framework which would encourage a closer interrelation among the subjects of teaching, as well as a basis for cross-disciplinary and interdisciplinary cooperation. The five areas are

- language and communication
- mankind and society
- nature and technology
- creativity and design
- health and physical ability (Lassnig, Mayer, & Svecnik, 2001, p. 13)

In 1999 Finland produced a framework for evaluating educational outcomes. It defines three key competencies that "cannot be achieved through any particular subject alone": learning-to-learn, communication competencies, and lifelong learning. The main elements of these competencies can be summarized as

- *Learning to learn*: the ability to assess how new tasks can be tackled; the capacity to transfer skills and capabilities to a new situation; internal acceptance of a given task, internalization of motivation; autonomy and self-control; willingness and readiness to engage in task-oriented activity;
- *Communication competence*: social and interactive skills; cooperation and negotiation; verbal and nonverbal perception and expression; metacognitive communication skills; information technology (IT) and media competence;
- *Lifelong learning*: internalization of a sustainable motivation to learn; assessing and analyzing one's own skills and learning processes and outcomes; mastering IT; seeing culture as having an intrinsic value; openness to internationalization. (National Board of Education, 1999, as cited in Etelälahti & Sahi, 2001)

To end this *tour d'horizon*, we offer a concrete example of a list of competencies considered essential when setting educational goals. We refer to *Forum Bildung*, a German initiative of special interest because it already draws on DeSeCo work, Weinert's (1999) expert paper, "Concepts of Competence."[6] *Forum Bildung* is a joint initiative of the Federal- and the *Länder*- (province) based Ministers of Education that uses proposals from six fundamental competence areas for general and vocational education. The following are summaries of these competence areas:

- *intelligent knowledge*: transfer and linkage to lifelong learning; "deep" understanding and problem solving, mostly acquired in domain-specific settings, but also facilitating transfer across domains;
- *applicable knowledge*: emphasizing authentic experience in real situations; project-based learning and horizontal transfer; developing flexible schemata of planning, behavior, and self-control;
- *learning competence*: conscious expertise on one's own learning processes; "lateral transfer": the integration of vertical and horizontal transfer in variable situations and contexts; both conscious and highly routinized learning strategies;
- *method-related/instrumental key competencies*: multiple, flexible, variable, and highly routinized applications (mother tongue, foreign language, mathematics, media, and information technology);
- *social competencies*: social comprehension, skills, and responsibility; the ability to resolve conflicts; reflection on social experiences;
- *value orientation*: norm-based patterns of action social, democratic, and individual values; they comprise not only universal moral norms but also individual competencies such as acting autonomously, reliably, and responsibly; tolerance; socially acceptable behavior, cultural engagement. (Forum Bildung, 2001, as cited in Witt & Lehman, 2001, pp. 18–19)

Taking an overall view of all of the Country Reports, some issues related to the definition and selection of competencies in and by the education sector are raised here briefly.

The issue of aggregation of competencies to competence areas: The problem is that the aggregations of competencies in some cases mean hierarchical orders, in others they are an attempt at classification, and in still others they simply serve the pragmatic aim of grouping related competencies inductively. These different methods for aggregating competencies create a difficulty when looking, for instance, at the relation of such competence sets or areas to generic competencies as proposed by DeSeCo. In Germany and Switzerland, for example, the trios of competence areas, self-competence, social competence, and factual competence (*Selbst-, Sozial-, Sachkompetenz*), were and are frequently used classification models, sometimes broadened by methodical competence.

General versus domain-specific: In some cases domain-specific competencies considered especially important are included when listing essential competencies; in others they are not. This is not merely a technical issue; it reflects traditions of education systems. The more recent the curriculum documents are, the more they explicitly recognize overarching (transversal) goals or competencies. In some cases, this development has resulted in the fear that too much of a focus on the general or transversal may be detrimental to the learning of specific subject knowledge.

Individual or group competencies: New Zealand makes the case – relating not only to schools – that clear criteria must be established in order to value both individual and group competencies and that the importance given to one or the other has much to do with cultural and societal traditions.

Are key competencies in demand in general education similar to those in vocational education? The overall answer is "yes." The shift toward integrating general and vocational education was very pronounced in the last decade. This fact is reflected in the overarching educational goals, which are now found also in vocational education. In general education, such broad goals have become commonplace over the last 30 years. In some vocational training curricula, we may identify additional technical competencies, with some variation between countries. For instance, in Germany and Switzerland, methodical competence is added to the competence areas (self-, social, and factual

[6] Weinert (2001) is a revised version of this paper. The German report mentions explicitly that the categorization chosen for the competence areas was based on Weinert's proposals.

competence). The Finnish report mentions the need to internalize the phases of a work process, occupational ethics, manual skills, the ability to apply information in practical situations, and a commitment to work. Entrepreneurial skills are also mentioned in describing vocational curriculum competencies in some countries.

Variation among countries as to how often competencies are mentioned in curriculum documents and the importance given to them: Although inter-country variation will be discussed for all sectors later in this section, some specific information related to education will be mentioned here. We can identify three categories: competence areas which appear in all Country Reports with generally high priority, competencies mentioned by all countries but with different weighting, and competencies mentioned only in some Country Reports. The following table permits an overview.

Mentioned in all reports	Mentioned in all reports but with different weighting	Mentioned only in some reports
Learning/Lifelong learning	Autonomy/Self-management/Action orientation/Taking decisions	Creativity/Expression/ Aesthetic competencies
Mother tongue literacy	Value education/Ethics	Foreign languages/ Internationalization
Social competencies/ Cooperation/Teamwork		Cultural identity and tradition/ Intercultural competencies
Communication competencies		Religion
Information/Problem solving/ IT-media competencies		Political competencies/ Democracy
Numeracy/Mathematical literacy		Ecological awareness/ Valuing nature
		Physical ability/Health

Table I: Inter-Country Variation in Frequency and Weighting of Mentions of Competence Areas in Curriculum Documents

Particularly interesting is the very different weight given to competence areas related to the self and to the autonomous action of learners. In some reports, these are described as the core competence par excellence, supporting all other competencies. This is the case, for instance, for Switzerland where, in an analysis of all curricula for primary, secondary, and vocational education in the years 1980–2000, *Handlungskompetenz* (Competence for action), an individual competence of autonomous actors emerged as the most frequently found educational goal-dimension (Grob & Maag Merki, 2001, as cited in Trier, 2001a, p. 14). Other reports, such as New Zealand's, contain warnings that we should ask ourselves how much individualism is needed and desirable. The views of a third group are represented in the Netherlands Country Report, which draws our attention to the risk that overemphasizing "self steering" – the concepts of inner direction and self-confidence – may privilege middle- and upper-class learners, thus increasing inequity.

2.1.2 The economy

Two generations ago – or even one – it would have been difficult to detect initiatives coming from the economic sector that conceptualized the demands of businesses in terms of the competencies required either for their own functioning or as desired educational outcomes. Education and the economy were seen as separate spheres. As we know, this began to change fundamentally in the 1970s with accelerating economic growth, technological change, international competitiveness, and global interdependency. The enormous mass of theoretical and empirical research and development work on concepts such as human capital, and later, to a lesser degree, social capital, is evidence that educational outcomes are more and more seen as economic assets. Thus, the economic sector today has a say when discussing which competencies are most important as educational outcomes.[7]

[7] For a broad discussion, see Resnick and Wirt (1996).

So it comes as no surprise that in practically all Country Reports, competence demands from the economic sector take a prominent place. Demands are documented from employer associations, trade unions, education-business partnerships, labor-market agencies, and accountability bodies. As before, we must restrict the presentation to some salient examples.

We begin by quoting the Swedish Country Report:

> *For the Swedish Metal Workers' Union, a competence is a combination of what one knows, what one can do, what one wants, and what one dares to do. "Know" means theoretical knowledge, "can" implies practical knowledge and informal knowledge, "want" deals with ambition, attitude, goals and outlook, and "dare" reflects self-confidence and self-esteem.* (National Agency for Education, 2001, p. 13)

Coinciding with this dynamic approach of becoming competent, the Swedish Trade Union Conference focuses on establishing in businesses the "learning workplace," where lifelong learning is considered a matter of "individually related competence development" and of "organizationally related competence development" (as cited in National Agency for Education, pp. 9–10).

The Swedish Country Report also states that employers emphasize the following personal characteristics:

- secondary virtues, such as punctuality, accuracy, a feeling of service, and the ability to adapt
- the ability to take the initiative
- self-confidence
- creativity
- the ability to solve problems
- the ability to communicate
- the ability to cooperate
- flexibility and the ability to adapt to change
- the ability to look after one's health (National Agency for Education, p. 12)

In developing a model for professional continuing education, the Swiss Association of Employers of the Machine, Electrical, and Metal Industry listed the following key competencies as essential:

- learning competence
- working competence based on process and methodological knowledge
- ability to assess risks
- awareness of ecological and environmental problems
- autonomy and self-control
- ability to assess impacts and effectiveness
- ability and willingness to work in teams
- creativity
- flexibility
- ability to cope with innovation (to accept, promote, and implement change) (Arbeitgeberverband der Schweizer Maschinenindustrie [ASM], 1998, as cited in Trier, 2001a, p. 21)

We may compare the above catalogue with another one, which aims at defining standards for professional education in Germany as follows:

- vocational action competence
- problem solving
- cooperation capabilities
- knowledge about work process in different business contexts
- participation in shaping the workplace
- self-directed learning
- lifelong learning
- international linguistic and vocational cultural competence (Sachverständigenrat Bildung, 1998, as cited in Witt & Lehman, 2001, p. 35)

In the United States, a most influential input into the process of defining "workplace know-how" was the 1992 SCANS Report prepared by a commission appointed by the Department of Labor. The analysis was based on 50 jobs and 900 specific tasks and was one of the first major efforts to define the required competencies based on job analysis. The report determined the demands as being made up of five "competence areas" and three sets of "skills and personal qualities" as follows:

- *resources*: allocate time, money, materials, space, and staff;
- *interpersonal skills*: work on teams, lead, negotiate, and work with people from culturally diverse backgrounds;
- *information*: acquire and evaluate data, interpret, communicate, and use computers to process information;
- *systems*: understand social, organizational, and technological systems; monitor and correct performance; and design and improve systems;
- *technology*: select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment;
- *basic skills*: reading, writing, arithmetic and mathematics, speaking, and listening;
- *thinking skills*: ability to learn, to reason, to think creatively, to make decisions, and to solve problems;
- *personal qualities*: individual responsibility, self-esteem, self-management, sociability, and integrity. (SCANS, 1992, as cited in Trier, 2001b, p. 7)

Analyses of job advertisements can be valuable sources of up-to-date and realistic information on the competencies that are in demand in the economy, with the proviso that these analyses have no programmatic ambition and that the aggregation and categorization in different investigations is heterogeneous. The German report provides two examples of such investigations, one carried out in the year 2000 by the *Bundesinstitut für Berufsbildung* (BIBB) (Federal Institute for Professional Training) on about 23,000 advertisements; the other by Dietzen in 1999 on about 4,000 advertisements.

One finding from the BIBB study regarding the demand for key competencies is that key competencies are mentioned more frequently in a subsample of advertisements related to "new qualifications" (described as "information technology and the like") than in the total sample of all advertisements (Bundesministerium für Bildung und Forschung, 2000, as cited in Witt & Lehman, 2001, p. 34). In the Dietzen study, more key competencies were in demand in advertisements for academics than for nonacademics (Dietzen, 1999, as cited in Witt & Lehman, 2001, p. 34). These two studies cannot be precisely compared because of the heterogeneity of the categories. Furthermore, one should bear in mind that the apparent differences in demand for competencies simply reflect what writers of advertisements think should be made explicit. But insofar as comparison is possible, highly valued competencies include motivation to achieve and perform, team spirit, and communicative capacities. Cognitive competencies are also mentioned frequently, but less so than these other qualities.

The last of the examples from inputs coming from the economic sector draws on the Danish National Competence Account (The National Council for Competence, 2000, as cited in Otterstrom, 2001). Although this report was a joint effort between public authorities, educational institutions, and private enterprises, it is included in this subsection since the largest representation was from industry and since it is part of the Danish national strategy for industrial development. The account builds on a foundation of three basic values that are considered essential for Denmark in the "knowledge society": creativity, competitiveness, and cohesiveness. Key competencies are presented under the following headings:

- *learning competence*: indexes for professionalism, organizational learning, and cross-cultural learning
- *change competence*: indexes for innovation and mobility
- *relationship competence*: indexes for networking, communication, and responsibility
- *meaning competence*: indexes for focus and identity

A total of 127 indicators drawn from very different sources are integrated in comparative country profiles to benchmark the standing of Denmark against six other countries in becoming competent in the "knowledge society. " It takes "competence" as the basic analytical unit. Remarkable are the harsh self-critical conclusions coming from this national comparative effort (comparable only to the U.S. report, *A Nation at Risk*) including "Denmark fails to nurture all and invests too little in developing the elite," "Institutional thinking blocks the sharing of knowledge," and "Denmark suffers from an innovation trauma."

Below are listed some issues that are becoming evident in the economic sector when identifying key competencies:

The aggregation issue: Even more than in the education sector, the wildly heterogeneous levels of abstraction and criteria of categorization that are being applied in attempting to grasp and list competence areas and competencies pose serious problems when trying to compare and synthesize them. In the economic sphere, the fact that some competencies are defined as external and task-related and others as internal dispositions becomes particularly apparent.

Individual or organizational/institutional competencies: Many of the competencies in demand are quite clearly as much the competencies of the individual members of an organization (or business) as of the organization itself. Some reports emphasize explicitly the fact that developing competencies is as much an institutional as an individual affair, involving, for example, organizing the workplace or creating a learning environment.

Implications of enhancing personal qualities: From the point of view of the economy (but not only of the economy), personal traits and personality qualities such as honesty, integrity, responsibility, loyalty, and sociability are highly valued. When examining these personal traits, the developmental perspective is particularly important. It can be assumed that such competencies are not usually formally learned; they are acquired through socialization, experience, maturity, and life itself. This poses the problem of how far such competencies are the business of education, and more specifically the question of where they are acquired (family, peer group, sports activities, cultural environment, etc.).

Competencies demanded by whom and for whom? This question may be posed inside and outside the economic sector. In the economy we see clearly that it makes a difference if the demand is intended to cover competencies acquired by the whole population or only by persons working in new professions or academics. Austria reports, for instance, that Chambers of Commerce (representing traditional trades) have a much more traditional approach in their competence preferences than do industrial companies (Lassnig, Mayer, & Svecnik, 2001, p. 24). The first underline traditional virtues while the second enhance such competencies as teamwork, entrepreneurship, or understanding economic processes. Differences can also be observed in the analyses of job advertisements described in the German Country Report (Witt & Lehman, 2001, p. 34). This is an important issue because it signals that the circulating lists of desirable competencies may be inspired by innovative subsectors of the economy for advanced workers, but may overlook competencies still in need and in use for a sizeable proportion of the workforce.

What is not wanted? Sweden tried to identify the competencies that are not considered especially important by the employers (National Agency for Education, 1997, as cited in National Agency for Education, 2001, p. 7). One finding was that foreign languages other than English are not valued by employers. This shows that there are some discrepancies between the views and needs of the economy and general aims of educational policies. The same is true for other European countries.

Contextualization of competencies in the workplace: Trade unions in the Scandinavian countries of Denmark, Finland, and Sweden particularly emphasize the importance of relating competencies to specific workplaces. It is proposed that the discussion on competencies should be focused, in a developmental perspective, on constructing "learning workplaces."

Variation of frequency and weighting of mentions of competencies as viewed by stakeholders from the economic sector: Due to the already mentioned extreme heterogeneity of the inputs, it is not possible to assemble here a set of figures on inter-country variation analogous to the table presented for the education sector (Table I). The overall impression is that the variety of different inputs coming from stakeholders in the economy within countries is wider than in the educational sector. This can be explained by the homogenizing effect of institutionalized school and curriculum development traditions within countries and across neighboring countries.

2.1.3 Other sectors

Stakeholders coming from politics, civic society, youth development, and cultural organizations were in some cases invited to DeSeCo workshops, but their specific inputs cannot be identified sufficiently well through the Country Reports to be presented here under special headings. From politics, the few CCP inputs point to concern over a deficit of political awareness and competencies for political participation (National Commission on Civic Renewal, 1997, as cited in Trier, 2001b, p. 11; Trier, 2001a, p. 6; Oser & Reichenbach, 2000). Representatives of civic society emphasize the importance of having the overall societal balance (equity, security, social networks) in mind when discussing competence issues. Youth development projects (e.g., the 4-H Youth Development Model and the Search Institute framework described in the U.S. Country Report) underline the importance of family and community support in the development of key competencies (e.g., family and school rules, neighborhood boundaries, and adult and peer role influences) and emphasize value orientation and ethics, exemplified by respect and care for others, tolerance, civility, and, in some cases, spirituality and religion.

2.1.4 Summary

The convergence between inputs from the two sectors is larger than the divergence. The meanings of the words used and the categorizations employed when labeling and discussing key competencies differ widely. Stakeholders (especially those outside education and research) are not concerned with the semantic and conceptual subtleties differentiating such terms as *core knowledge and skills, core qualifications, standards, essential competencies,* or *key competencies*. All these are in use as synonyms. In education, key competencies are mostly not addressed explicitly as such, but are enunciated as "overarching educational goals." Over time, however, there has been an increasing tendency to consider transversal competencies as an issue to be dealt with in curriculum development. However, when competence demands come from the economy, a discourse including the term *key competencies* seems to have become widespread. The variation of different inputs within countries is at least as large as the variation between countries.

The following table gives a rough picture of some differences between reports from the education and economic sectors in their descriptions of competencies.

Competence areas	Emphasis in education sector	Emphasis in economic sector
Self-management	Autonomous learning, meta-cognitive competencies	Action orientation, responsibility, taking decisions and risks, resource management, planning, shaping the workplace, management of time, assessing the impact and effectiveness of action, flexibility
Communication competencies	Linguistic competencies, foreign languages, cultural identity, intercultural competencies, media competence	IT competencies, presentation capabilities, internationalization
Learning competencies	Learning in domain-specific settings, mastering of learning strategies, metalearning and reflection, evaluative skills	Lifelong learning, motivation to learn, methodological skills, applying knowledge, putting learning into context in the workplace
Social competencies/ Teamwork/Cooperation	Social comprehension, positive social attitude	Interpersonal competencies, working in teams, cooperating and negotiating, resolving conflicts
Value orientation	Ethics, social and democratic values, tolerance, awareness of human rights	Personal virtues: integrity, reliability, loyalty, honesty
Creativity (medium weighting)	Aesthetic education, expression (medium weighting)	Innovation and change, entrepreneurship
Health, physical skills, attitude to body (medium weighting)	Physical education	Risk behavior, resilience
Ecological orientation	Attitudes to natural environment	Ecological responsibility at the work place

Table II: Competence Areas as Emphasized by the Education and Economic Sectors

2.2 Inter-sector inputs/research-based projects

Research related implicitly or explicitly to competencies and key competencies may go back over a period of 20 to 30 years, and has already been partially addressed in earlier DeSeCo work (Rychen & Salganik, Eds., 2001). In a few Country Reports, namely, those of Finland, Germany, and the Netherlands, we find extensive reference to competence-related research that is highly relevant but is international in scope rather than country-specific. One track of research work important for DeSeCo is being carried out within the framework of large international comparative studies, primarily those conducted by the IEA and INES/OECD (Salganik, Rychen, Moser, & Konstant, 1999; Salganik, 2001).

Of the many research-based, specifically competence- and indicator-focused projects mentioned in Country Reports, only two are both of a national scope and described extensively. These projects are particularly important for DeSeCo because they had to deal explicitly with some of the same theoretical and methodological problems with which DeSeCo is confronted.

The first project is the Young Adult Survey (YAS) aimed at assessing and measuring key competencies of 18- to 20-year-olds in Switzerland (Grob & Maag Merki, 2001, as cited in Trier, 2001a). The project developed a system of 15 constructs based on a comprehensive analysis of overarching educational goal dimensions in all existing Swiss school curricula for primary, secondary, and vocational education. Each of the constructs (encompassing 0–8

sub-constructs) is precisely defined, related to the goal-dimensions of the curriculum analysis, discussed theoretically, and measured through empirically tested and validated scales. The 15 constructs – with sub-constructs indicated in parentheses – are

- self-esteem
- effective self-management
- autonomy (relative)
- the ability to be self-reflective
- the capacity to perceive one's own emotions
- the ability to deal with stressful emotions
- creativity
- responsibility for health (risk behavior, somatic indicators)
- social competencies; cooperation (ability to act autonomously and to cooperate, learning by cooperative action)
- continuous learning (willingness, motivation)
- motivation to perform well
- strategic competencies (learning and working, planning, transfer of skills, elaboration, monitoring, perseverance, evaluation skills)
- ecological knowledge and attitude
- social responsibility (responsibility for other individuals, societal responsibility, attitude to gender issues and migrants)
- political competence (interest, knowledge, engagement, sense of legitimacy) (as cited in Trier, 2001a, p. 15)

The Swiss project outlined above was initially based on an analysis of pedagogical goals – a not atypical approach among European countries. But the most ambitious project so far undertaken in the identification of key competencies, Equipped for the Future (EFF) (Stein, 2000; Merrifield, 2000, both as cited in Trier, 2001b), was built on a painstaking and comprehensive analysis of the real-life activities of adults in the United States in their roles as citizens, family members, and workers. Initiated in 1993, it involved 114 focus groups and expert panels of major stakeholders and researchers in a multilevel process to develop "role-maps" (descriptions of frequent activities in each role) and descriptions of role-overlapping activities and core competencies related to them. This pragmatic inductive method – asking "which competencies really matter?" in concrete contexts and in relation to actual activities – is typical of other U.S. research and developmental work on competencies and standards.

The EFF project summarized its findings in a two-fold listing of 13 "common activities" related to the roles of citizen, family member, and worker, and 16 "generative skills" christened "The 16 EFF Standards." The common activities for the three roles (citizen, family member, worker) are

- gathering, analyzing, and using information
- managing resources
- working within the "big picture"
- working together
- providing leadership
- guiding and supporting others
- seeking guidance and support from others
- developing and expressing a sense of self

- respecting others and valuing diversity
- exercising rights and responsibilities
- creating and pursuing vision and goals
- using technology and other tools to accomplish goals
- keeping pace with change (as cited in Trier, 2001b, p. 6)

EFF identifies four major dimensions of human behavior and action which are reflected in these activities: access, voice, independent action, and bridge to the future.

The 16 EFF generative skills were defined as "integrated skill processes that are durable over time in the face of change in technology, work processes and societal demands" (as cited in Trier, 2001b, p. 6). In addition to inductively reviewing the competence needs which surfaced in the listing of activities, research assumptions coming from the social sciences went into the selection and definition of the generative skills. They were directly related to the following common activities as being necessary for successful action:

- *communication skills*: read with understanding, convey ideas in writing, speak so others can understand, listen actively, observe critically;
- *decision-making skills*: use mathematics to solve problems and communicate, solve problems, make decisions, plan;
- *interpersonal skills*: cooperate with others, advocate and influence, resolve conflict and negotiate, guide others;
- *lifelong learning skills*: take responsibility for learning, reflect and evaluate, learn through research, use Information and Communication Technology. (Trier, 2001b, pp. 6–7)

It is worth noting the very different approaches of the two competence projects presented here. One is grounded in overarching educational goals and constructs its categories iteratively by integrating theoretical thinking rooted in the social sciences with technical considerations related to the construction of scales. The other defines roles, searches for activities typical of these roles, and then defines the core skills necessary to carry out the roles. Besides the content aspect – the well-founded lists of key competencies produced as a result – we may learn from this comparison that the methodological approach and the process of identifying key competencies affect profoundly the categories and the form in which the competencies are aggregated to construct key competencies.

2.3 Similarities and differences among countries: Identifying and aggregating key competencies

When trying to identify national profiles in relation to areas of competence, key competencies, or competencies, we have a problem that results from the nature of our information base. Every Country Report contains multifaceted information on a wide array of governmental or private initiatives and projects and other developments related to our theme. This information is highly heterogeneous and our collection of data related to what (we would think) matters for each of the 12 countries involved in the CCP cannot avoid being impressionistic. We want to avoid drawing comparisons that imply greater accuracy than the information would warrant. Four of the countries – Austria, Germany, New Zealand, and Sweden – have each explicitly contributed a consolidated list of prioritized key competencies in their reports. Belgium (Flanders) proposed a provisional list for discussion. So far as Switzerland and the United States are concerned, summaries in the reports offer hints. In discussing some of the other countries, we may refer back to some of the most important sources documented in their reports, such as Norway's Core Curriculum or Finland's Learning to Learn Project.

To begin with, similarities are much more significant than disparities. The overall impression when going through the Country Reports is that the same competence areas and competencies are addressed, often with different wording choices and levels of categorization but bearing an almost identical content. Some differences show up when countries give more or less weight to one or another competence, or give them a different flavor by wording them differently. In some cases, the absence of an explicit mention of a competence area may be significant.

2.3.1 Competencies mentioned in all or most Country Reports

Aggregating competencies as reflected by the Country Reports into key competencies remains a hazardous and somewhat arbitrary business. Our listing below is no exception to the rule. First are the big issues, always prominently present in different versions.

Social competencies/Cooperation: This domain comprises all interpersonal skills such as cooperating with others, advocating and influencing, resolving conflict, and negotiating. In a narrower sense, it addresses working together, guiding and supporting others, and seeking guidance and support from others. One crucial dimension is the understanding of and cooperation with people from culturally heterogeneous backgrounds. In some cases, communication and social competencies are combined into one category; in others, communication may appear as a subcategory of social competencies, or vice versa. Usually they are separate.

But even though social competencies are seen by all countries as essential, stepping down one level and looking at the meaning of "understanding of and cooperation with people from culturally heterogeneous backgrounds," we may assume that significant differences exist between countries according to their populations and social conditions. A selection from the New Zealand report illustrates this vividly:

> *At the level of community and social development, New Zealand's unique history and cultural mix calls for*
>
> - *competencies based on self-knowledge, tolerance and respect, to enable New Zealanders to accommodate the diverse range of views, philosophies, traditions, backgrounds, and cultures, and through this build a socially cohesive nation;*
> - *competencies, determined by Mäori, related to Mäori language, culture, values, protocols, and practices;*
> - *competencies, determined by Pacific peoples in New Zealand, related to Pacific languages, cultures, values, protocols, and practices.* (Kelly, 2001, p. 14)

Literacies/Intelligent and applicable knowledge: This domain is multilevel. It comprises the classical notion of literacy linked to language processing and the basic skills: numeracy and the ability to read, write, speak, listen, and understand. On a deeper level, it is linked to the use of mathematics, highly complex information processing, problem solving, critical thinking, metacognition, and reflexivity. It may include also IT and information-processing competencies, although some countries prefer to list IT competencies separately. The same applies to metacognition and metaknowledge (e.g., reflecting on knowledge, having criteria for the structure of knowledge, assessing the validity of knowledge, etc.) which could be seen as a specific competence. One observable difference between countries is the degree of emphasis put on the closeness of the link between learning and knowing that is domain- and subject-specific and that which is transversal. Another difference appears in the weight given explicitly to critical thinking.

Learning competencies/Lifelong learning: This competence area implies technical/methodological, strategic, and motivational dimensions. It requires "conscious expertise in relation to one's own learning processes" (Witt & Lehman, 2001, p. 19). This expertise may be partially internalized as routine, and it partly means being able to plan and assess one's own learning processes, thereby enabling autonomous learning. Crucial is recognizing links, and applying transfer from one learning situation to another and from relatively simple problems to more complex ones. Some countries emphasize the cognitive and metacognitive aspects of learning to learn, while others emphasize the motivational element.[8] Curiosity as a driving force is frequently mentioned. Some countries value resilience and perseverance more than others. The report of Belgium (Flanders) provides an attractive illustration of the concept of motivation to learn: "Having the courage to explore and being eager to learn" (Dunon, 2001, p. 9).

Communication competencies: As reported above, some countries subsume this competence area under social competence, but beyond this classification dilemma all countries address it in one way or another. One obvious element in this competence is the command of languages. While mastering the native language is obviously seen as a basic competence by all countries, often categorized as literacy, there are substantial differences in how far foreign languages are seen as being an essential ingredient of communicative competencies. And an additional controversial issue is which languages should be taught, how much of them, and at which age and level.

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[8] Etelälahti & Sahi (2001) elaborate extensively on the relevance of learning and lifelong learning competencies in Finland.

On the other side, communication stands as an integral part of interpersonal competencies: being able to understand, to participate in dialogue, "to stand up for oneself" (Dunon, 2001, p. 9), to interact in discussion, to negotiate controversial positions, and so on. It is made clear in some reports that communication has cognitive, instrumental, and technical aspects, which are all required for being able to maintain discourses, and an emotional aspect that relates to attitudes, deeper personality traits, and empathy. But whatever the specific flavor given to this competence area by different countries may be, it still holds its central position for all.

2.3.2 Competencies mentioned in some Country Reports

The following sets of competencies are not so unanimously and broadly reflected in all Country Reports:

Value orientation: Regarding the inputs of most reports, the following broad definition of this area as given in the German Country Report could probably be taken as valid:

> *Value orientations (norm-based patterns of action, social, democratic, and individual values) are acquired through the experience of living in a community with shared values and a functioning democratic environment (especially in educational institutions). They are enhanced by "unspecific transfer", i.e., usage, insight, experience, reflection. It should be noted that they comprise not only universal moral norms, but also individual values and competencies (e.g., the ability and motivation to act autonomously, reliably, responsibly), social values (e.g., tolerance), and cultural values (socially acceptable behavior, cultural engagement).* (p. 19)

The disparities between countries are partly related simply to preferences for certain categories applied to aggregations of competencies. Political and civic competencies, for example, could be addressed separately, as could cultural and intercultural competencies. More importantly, there are considerable differences in relating to a value orientation.

One difference is that in many countries value orientation seems not to be front stage. This may be for two reasons, one of which is that value education is not seen as an issue for schooling. Many stakeholders, when discussing competencies, are implicitly discussing the demands on formal education. The other reason is that value orientation is not seen as a competence in itself, but as a necessary general foundation for becoming competent.

Another difference relating to value orientation is that mentions of this competence are very heterogeneous: some relate to attitudes and personal virtues such as integrity, responsibility, a caring attitude, and honesty; some relate to the acceptance of universal ethical norms; and a few make specific reference to spirituality and religion, such as the description of the "spiritual human being" in Norway's Core Curriculum (The Royal Ministry of Education, Research and Church Affairs, 1994, as cited in Knain, 2001, p. 22). More general is the mention of the political dimension of value orientation. We come back to this under a separate heading below.

Self-competence/self-management: This competence domain may be defined on the action level of "acting independently as parents, citizens, and workers" or on the level of subjective awareness, that is, "developing and expressing a sense of self." The first level is nearer to constructs like self-management and self-efficacy, and the second nearer to developing a positive identity, which includes personal power, self-esteem, sense of purpose, and a positive view of personal future. Connected also are competencies related to lifelong learning skills such as taking responsibility for learning, reflecting, and evaluating. The way in which these competencies converge is in selecting goals for oneself, planning and implementing self-defined goals, coping with obstacles, and redefining one's goals.

Implicitly, but not under this particular heading, many of the competencies subsumed in this competence area are addressed in most of the Country Reports.[9] It may be of considerable importance at the workplace, as exemplified by the Swedish Metal Workers' Union's description of competence as a combination of "what one knows, what one can do, what one wants, and what one dares to do" (as cited in National Agency for Education, 2001, p. 10). No

[9] In Switzerland and Austria (partially Germany), the explicit mention of self-competence may have to do with the tradition, going back to Roth (1971) and the Deutscher Bildungsrat (1974), of establishing a triangle of competence areas: self- social and factual competence.

less obviously, it is a part of descriptions of the mastery of learning and lifelong learning. In Austria, participants in a DeSeCo-related workshop included in their description of lifelong learning "self-organized learning, flexibility, adaptability to changing requirements, curiosity, self-assessment, perception of trends" and "the ability to reflect and to criticize, coping abilities, sense of meaning, sense of wonder" (Lassnigg, Mayer, & Svecnik, 2001, p. 37).

Motivation, being at the core of self-competence, is seen as a specific competence in some reports, particularly in the German report, where its increasing importance in developments in vocational education is addressed. In others, however, motivation is viewed as an integral part of most competencies. The Swedish report refers to motivation in a comprehensive way, seeing it as a "competence to develop competence," which is, "having the ambition and the motivation to develop oneself and one's interests" (p. 12).

One very relevant objection in emphasizing self-competence without also considering collective competencies is made in the New Zealand report, which highlights the assertion that the discourse on the self as an autonomous actor is largely a traditional Western paradigm. Referring to the Maöri culture and philosophy, it is emphasized that "individual behaviors spring from, reflect upon and are supported by the collective community" (p. 8). And going one step farther, the report argues that although autonomous and reflective behavior may be legitimated, the assertion of individual rights and the behavior of individuals should be positioned within the context of the individual's collective responsibility.

In my view we should not be too quick to respond that the Western perspective also views the individual as part of collective contexts and communities, the autonomous actor being reflective in relation to his or her societal environment. There *are* significant cultural differences (both within countries and between countries) when considering the role of collective identities and collective actors, although these are not so visible in the CCP because of the relative cultural homogeneity of the participating countries. This issue will be addressed further when discussing DeSeCo's generic competencies.

Political competence/Democracy: This domain implies competencies that reinforce democratic civic life on all levels of society from the neighborhood to the nation. It includes not only individual competencies which enable democratic participation, but also the collective creation of environments – including educational institutions – that enhance the democratic cooperation of citizens. Relevant dimensions are being aware of and exercising political rights and responsibilities, valuing social justice, and the achievement of peaceful conflict resolution. In the U.S. project mentioned above, Equipped for the Future (EFF), the role of the citizen is defined broadly as follows: "effective citizens and community members take informed action to make a difference in their lives, communities and world" (Stein, 2000, p. 9).

This broad interpretation of political competence as social participation is expressed in many Country Reports, echoed in such phrases as "living in a community with shared values and a functioning democratic environment" (Witt & Lehman, 2001, p. 19). On the other hand, some countries do not mention political competencies explicitly. In some countries, it seems that the civic and political agenda is more or less absent from the school curriculum. In some others, exactly the opposite is the case. The Danish report, for example, in stating that there are "normative objectives for the formation of citizens as social individuals who are bearers of democratic and humanistic values" (p. 10), quotes the official educational targets for the Danish *Folkeskole* (primary and lower secondary education) as follows: "School prepares pupils for participation, sharing responsibility, rights and obligations in a free democratic society. The school's teaching and the entire daily routine must therefore be based upon intellectual liberty, equality and democracy" (Notification of primary and lower secondary school law, 2000, as cited in Otterstrom, 2001, p. 11).

This understanding of education for democracy is much in line with international findings by the IEA Civic Education Study (Torney-Purta, Lehmann, Oswald, & Schulz, 2001) which states that civic competencies relate (1) to ways in which individuals become increasingly closely connected to communities at the personal, local, and national (and international) levels; and (2) to processes of civic learning that involve the growth of meaning, practice, relation to the community, and the formation of identity. On the systemic level, this means, "first consolidating and replenishing democratic systems and, second, creating communities that accommodate and/or foster diverse identities and modes of engagement among the members" (Torney-Purta, 2001, as cited in Trier, 2001b, p. 11).

We may bear in mind that for this area of competence it is particularly true that having competencies or not is not merely an individual but an institutional and a societal matter.

Ecological competence/relationship to nature: This competence area has a knowledge, attitude, and action orientation, both at the individual and collective levels. Although some references to the area can be found in most Country Reports, the weighting given to it differs considerably from country to country. In the curricula of some countries, such as Switzerland and Norway, environmental education occupies a prominent position. The reports of Austria and the Netherlands note that the need to think and act while remaining mindful of the balance between technological change and nature (sustainable development) is present in newer curricula. While ecological competence is mostly invoked in relation to educational goals, there are a few mentions of it in those inputs coming from the business community. On one hand, environmental management ensuring ecological organizational conditions in businesses is emphasized (Kelly, 2001, p. 14); on the other, an individual's personal responsibility for ecologically sound behavior in the workplace is emphasized (SWISSMEM, 1998, as cited in Trier, 2001a, p. 21). The New Zealand report contains additional, if indirect, references to the importance of competencies in this area when it states that future economic development will depend on the application of "knowledge, creativity, and innovation" to areas of traditional economic importance, including "producing food and textiles; developing niche products and markets that build on natural advantages; and biological developments to enhance animal, plant and human health" (p. 13).

2.3.3 Competencies mentioned in few Country Reports

Finally we come to areas of competence that are only weakly supported by Country Reports.

Cultural competencies (aesthetic, creative, intercultural, media): Overall it is remarkable how weakly this very heterogeneous area of competencies is represented in the reports and in projects related to key competencies. For the CCP this may have to do with the fact that stakeholders coming from the cultural realm were mostly absent from the process. But even when looking at curricula and projects across the board, the marginal position of aesthetic competencies is very noticeable, with Norway being one of the few exceptions. This is not the place to reflect on this astonishing phenomenon – astonishing when we consider the central role that cultural activities (playing, dancing, movies, TV, music, etc.) play in our lives, and particularly in the lives of young adults. Should we perhaps assume that there is no need for or demand for competencies in this area? This is without doubt a DeSeCo issue, and worth further reflection.

Creativity is relatively frequently mentioned, but mostly it is linked to thinking processes, rather than to aesthetic expression. (The extent to which it is legitimate to subsume this category under "cultural competencies" could be another matter for discussion.) In this cognitively oriented understanding, "creativity" means divergent and lateral thinking, maintenance and processing of dialectic tensions between deconstruction and construction, tolerance of ambivalence, acceptance of different options, working with play strategies, and openness and flexibility. Typical for this cognitive orientation is, for instance, the wording in the New Zealand report describing creativity in a list of generalized competencies as "including the ability to identify and define a problem, and apply existing knowledge and understanding to its solution; the ability to think laterally, to take risks, to make new connections between old ideas" (p. 12). Creative abilities and imagination are frequently mentioned by the economic sector in the sense of being instrumental in the improvement of planning and production processes.

Intercultural competencies are also emphasized in some reports as being essential and as candidates for being key competencies. Intercultural competence demands may be based on different needs: (1) the needs of multicultural and multilingual countries, (2) needs having to do with communicating and living together with migrant populations (partially aiming to integrate them), and (3) needs evolving from globalization processes, mainly in the economy but existing also in other sectors. The needs described in (2) and (3) exist in all countries involved in the CCP. However, the emphasis placed on enhancing intercultural competencies differs substantially from country to country. Multilingual Switzerland, for instance, mentions intercultural competencies, but not very prominently, and mostly in relation to communication and languages. In New Zealand, they are defined as being indispensable for social development. Also, the Belgian (Flanders) report describes "participat[ing] actively in society with respect for its multicultural dimension" (p. 9) as a component of social competence. But the overall picture is that intercultural competencies are referred to less than might be expected.

The same is true for media competence. To quote the German Country Report: "Distinctions are necessary between reality and virtuality, between relevant and irrelevant information, and between authentic and less credible information" (p. 21). But there are surprisingly few references to this much-needed competence. One reason could be that most countries consider it as part of more general competencies, but this could be worth discussing.

Last and least are aesthetic competencies. They are almost absent from Country Reports. One possible technical reason for this has been already mentioned. Another reason may be easily assumed: the position of aesthetic education in most school curricula. The arts are viewed positively, but as not essential. Their functional position may be exemplified by quoting from the summary of findings of the Austrian DeSeCo Workshop: "The question arose as to what specific contribution the fine arts subjects could make to the development of competencies" (p. 36).

Health/sports/physical competence: Exaggerating somewhat but not too much, reading through Country Reports you could forget that humans are corporal beings. Even considering that the discussion forums, workshops, and documentation and reporting procedures in the CCP may have unwittingly discriminated against voices coming from realms linked to these domains, it is not easy to understand why competencies related to health care, relationship to one's body, physical fitness, and sporting activities remain ignored when countries are asked to identify key competencies. It is difficult to judge if this is a result of some misunderstanding of DeSeCo intentions, namely, thinking that DeSeCo is narrowly linked to indicator development in the OECD/INES tradition; associated with the idea that international comparative studies are not necessary for assessing sport; or to do with other reasons. But all of these reasons would not hold for health awareness, health-care attitudes and capabilities, competently relating to one's body, or integrating one's physical being within a holistic development of one's identity.

Not surprisingly, it is mainly in youth development programs that these demands are taken into account. One of these programs mentioned in the U.S. Country Report is the so-called 4FYD Skills Program, 4FYD meaning "Four Fold Youth Development Model," where one of the four dimensions is a broad conception of health (p. 10). Another example is the Austrian 1999 Curriculum, where "Health and exercise" is mentioned as one of five broad areas in which cross- and interdisciplinary cooperation is required (Lassnigg, Mayer, & Svecnik, 2001, p. 13). Health is also present in the Swiss constructs used for building an indicator system for a Youth Adult Survey (Grob & Maag Merki, 2001, as cited in Trier, 2001a, p. 14), but even the constructors of this system mention that health is not very frequently put forward as an educational goal in Swiss curricula. But across all the reports, mentions of health are scarce. And even where indicators related to this area of competencies exist, health competencies are not integrated into consolidated lists of desirable key competencies. All the same, the Swedish Report mentions that employers asked in interviews considered health most important (National Agency for Education, 1997, as cited in National Agency for Education, 2001, p. 7).

We close this review of key competence areas as documented in the Country Reports by mentioning that there are some competence areas which are identified only in one report. This does not mean, of course, that these areas should not be discussed seriously. One example is economic competencies, mentioned in the German report and justified by a thorough argumentation. Another would be system orientation, which appears in the U.S. report as "competencies aimed to understand social, organizational and technological systems" (p. 13).

High	Medium	Low
Social competencies/Cooperation	Value orientation	Cultural competencies (aesthetic, creative, intercultural, media)
Literacies/Intelligent and applicable knowledge	Self-competence/Self-management	Health/Sports/Physical competence
Learning competencies/Lifelong learning	Political competence/Democracy	
Communication competencies	Ecological competence/Relation to nature	

Table III: Frequency of Mentions of Competence Areas in Country Reports

2.4 Relationship to DeSeCo's key competencies

The Country Reports rarely offer explicit statements on the convergence or divergence between the many competencies considered under different headings in their texts and DeSeCo's key competencies. But there are a few exceptions. Here, we consider these inputs and make some additional inferences.

Austria, Germany, Sweden, and Switzerland point out the parallels between categories of overarching goals described in their school curricula – for the German-speaking countries, namely, the categories self-, social, and factual competence – and in the generic competencies. The German report reflects more extensively on the general congruence between the catalogue of key competencies it proposes and the generic competencies (pp. 23–24). It considers particularly the concept of tool – "using knowledge as a tool" and "doing things with knowledge" – very relevant. The DeSeCo thinking "that this generic competence implies not only using the tool and being able to use it effectively but also understanding how the tool affects the way one interacts with the environment" is emphasized as being essential by underlining the relevance of knowledge about knowledge (metaknowledge). Some other countries explicitly support this comprehensive interpretation.

Similarly, there are no problems with the generic key competence "joining and functioning in socially heterogeneous groups." The prominence of social and communicative competencies is evident among all participating countries. Many of these competencies of course are not restricted to heterogeneous groups. Even where that is the case, some countries (e.g., Germany) consider that stressing "heterogeneous groups" makes sense both socially and politically.

More controversial are attitudes to the generic key competence which states that "competent actors are able to act autonomously and reflectively." One issue related to autonomy is raised in the Austrian Country Report as a conflict "between freedom and control" (Zilian, 2000, as cited in Lassnigg, Mayer, & Svecnik, 2001, p. 17). Resolving this conflict requires a definition of the limits of autonomy, or perhaps of autonomy itself: What if autonomy merely meant people doing what they were expected to do, but doing it "self-steered," that is, by themselves?

The dilemma facing New Zealand has already been touched on briefly in the discussion of self-competence. The arguments brought forward considering New Zealand's Maöri community are of considerable weight. The individual autonomous actor is seen as a traditional Western paradigm grounded on competitiveness. We are invited to reflect on the relationship between the three elements in this generic competence: individual, autonomous, and reflective. Reflectiveness may not necessarily be conducive to the assertion of individual action. Individual behaviors and actions may be rooted in or legitimated by the collective community striving for consensual solutions. There may be collective actors. Autonomy may be desirable, but limited by the collective community. We may argue, of course, that DeSeCo is working in the OECD context of Western societies, but we should bear in mind that when looking at cultures that are fundamentally different from ours, the universal validity of our assertions should at least be questioned.

Going back to considerations on all three generic competencies, we can see that the problem of universalism is not often raised in other Country Reports when considering generic key competencies as such, but rather when considering key competencies in relation to changing learning and working contexts. "Competencies are not static and not universal" states the Swedish Country Report (p. 13). Another criticism appearing in some reports refers to the high level of abstraction in formulating the generic competencies. The Austrian report, for example, mentions that stakeholders in the discussions expressed the view that discourses rising to such heights of abstraction may become irrelevant for practical purposes (p. 29). But as far as this can be assessed, most countries take a positive position.

Our last remark on this topic refers to the catalogue of key competencies as assembled in Table III and described in detail above. These competencies could be partially related to DeSeCo's generic competencies as follows:

- Self-competence, self-management, learning competencies and lifelong learning, and, to some degree, value-based competencies in fields such as politics, ecology, culture, and health could be related to "competent actors who are able to act autonomously and reflectively."
- Social competencies, communication competencies, and value orientation are related to "join and function in multiple heterogeneous social groups." And these competencies are applicable to competence areas such as sport, intercultural contexts, democratic participation, and so on.
- Literacies/intelligent and applicable knowledge are obviously "tools in particular language, knowledge, laws, technology." And the definition of this generic competence points to the fact that the tools are functional and specific to areas where competencies are applied (in our list: communication, politics, culture, nature, and health).

2.5 Analytical remarks and issues

2.5.1 Key competencies: Are they prerequisites for competent action, or fields of competence?

We are only signaling the problem here. We note here that Table III shows clearly the two types of key competencies. No list of competencies delivered through the Country Reports could conceptualize competencies only as internal dispositions or only as external tasks, though the action orientation could be stronger or weaker.

2.5.2 To what extent should specific contexts influence the identification and selection of key competencies?

The DeSeCo philosophy strives to cover all arenas. As mentioned already, many Country Reports put a strong emphasis on context. The question has both a fundamental and a methodical dimension.

As to the fundamental dimension, some countries express doubts as to how far it is possible to define competencies not related closely to concrete knowledge and skills in circumscribed societal fields. One view described in the Belgian (Flanders) report, for instance, contests the feasibility of a "common project" both in terms of the labor market and personal development: "The only thing that may be left is a fairly 'grey' list of key competencies that are formulated in an extremely generic way and establish no more than a vague frame of reference" (p. 3).

As to the methodological dimension, the problem of how to proceed may be alleviated by using a multilevel strategy: first defining "roles," meaning fields of activity and prototypical activities in these fields, and then searching for competencies based on overlapping activities and roles. This strategy is suggested implicitly in some Country Reports and it was adopted effectively in U.S. projects, namely the EFF project.

2.5.3 Role-specific or role-transcendent key competencies

Methodologically, this strategy of first mapping role-specific activities and then looking for role-overlapping activities to identify key competencies seems to make sense, since the underlying supposition is that by definition competencies are key because they cover various social fields. However, this creates a problem if it is the case that when defining roles the *differential* profile (the competencies specific to a given role) matter at least as much as the overlap between the roles; that, for example, when living in a family or partnership the decisive (key) competencies would *not be* the overlapping ones with other roles (see Kegan, 1994). In this interpretation "key" means "specially suited to best performing a specific role" (or role-category). This issue is not simply redundant with the call for context. The difference is that roles have already a high degree of abstraction and are context-free. Some countries, namely Finland and the United States, have thus defined competencies related to roles.

2.5.4 Convergence or divergence between key competencies postulated by sectors

This issue, though being related to the one above, deals not with strategies and categorization but with content. The Swedish report boldly points to possible divergences: critical thinking (as learned in school) may create conflicts at the workplace, which represents a less "up-to-date reality" than schools (p. 8). And, also quoting the Swedish report, "Working life must be able to lean towards and accept the kind of competencies offered or produced by schools" (p. 9). This is a remarkable statement because it is not drawn from the usual discourse in describing power relations between the economy and education. Mostly, schools are criticized by business for not delivering what is in demand. But the Swedish quotation may serve as a stimulus to reflect on the balance between key com-

petencies oriented toward emancipation and human capital. The German Country Report also describes possible tensions between an economical versus pedagogical rationality. And the Finnish Country Report points to possible polarizations between functional and social key competencies and to the unique position of human rights. While – at least on the surface – the convergence in the Country Reports between demands coming from the economic and the educational sector is high, more hidden divergences may remain.

2.5.5 Developmental perspective when defining and identifying key competencies

Where addressed in Country Reports, for example in the German, Swiss, and Swedish reports, the necessity of such a perspective was, in principle, supported. But this was more in the sense of assuming that the acquisition of competencies has an inherent developmental dimension than in the belief that there are specific key competencies appropriate for different age groups, although this question was not taken up directly in most Country Reports. Several Country Reports (e.g., Germany, New Zealand, and the United States) stated explicitly that it is important to always bear in mind that key competencies are only partially (and maybe not even largely) acquired in schools and formal education but are also learned throughout life, through experience in one's family, through interaction with peers and the community, and in other contexts.

2.5.6 Key competencies: Of whom, for whom, and at what level

The question of whether key competencies should focus on individual, collective, or societal competencies is raised in some texts. Implicitly, one may sense the criticism that DeSeCo is focusing too much on the individual – which is not entirely justified, since DeSeCo is also interested in group competencies and focuses as well on assessing the demand for societal competencies. But the criticism is mainly aimed at the problem of *possible collective and institutional actors*. In the contribution from France, the importance of taking into account the competencies of organizations is emphasized. Another aspect is network competence, advocated, for instance, in the German and Swedish Country Reports. This represents at least as much the network's collective competence, as it is the competence of individuals participating in the network. Still another aspect of this issue is highlighted when communities are not only postulated as desirable bearers of responsible action, but when they actually fulfill this role. The case of the Mäori society in New Zealand, in which collective actors may prevail on an individual actor, has already been mentioned.

2.5.7 Should basic skills and literacy be included in catalogues of key competencies?

Most countries do include them, but some ask if this is pertinent. In what sense could basic skills be described as being transversal? The question is posed, but the position of the majority is more in line with the DeSeCo position that sees literacies as tools. Also, carrying on this line of argument related to inclusion and aggregation, there is the question as to whether IT competencies should be listed separately or not in catalogues of key competencies. Most countries emphasize the importance of these competencies, but opt to include them as a subcategory of literacy.

3 Assessment, Indicators, and Benchmarking

- *When measuring educational and training outcomes and evaluating the meaning of learning outcome indicators in your country, are overarching key competencies considered important? If yes, which ones?*
- *Could you relate qualification standards and assessment practices in the business world (e.g., hiring and evaluating employees) and other social fields to key competencies? If so, which ones? How?*
- *When participating in international comparative studies on student outcomes and life skills, are there indications in your country of an increased interest in key competencies by policymakers? Are there competence areas in which it would seem especially important for your country to be benchmarked against others?*

The above questions request specific information on assessment, indicators, and benchmarking related to the DeSeCo thematic key competencies. Nevertheless, most reporting countries take rather an unspecific stance and offer a broader picture covering general issues of assessment in the education system and in the economy. Evidently this broader framework is relevant and would add to our comprehension of the narrower focus dealing with key competencies. But the scope of this report forces us to restrict ourselves to the latter.

It is helpful to bear in mind that the subjects and objects of assessment may be individuals (micro-level), institutions and organizations such as schools or businesses (meso-level), or systems (education, the economy, other sectors, nations). Discussions in the Country Reports may refer to all or to specific key competencies and discuss existing projects as well as the desirability and feasibility of future ones.

We will begin with evaluation, assessments, and indicators within the education system, then go to the economic sector, and finally come to the national level.

3.1 Education

Generally speaking, there are virtually no existing assessment systems in education that are explicitly directed at measuring key competencies. Literacies and knowledge (which are related to the generic key competence "tools") are obviously assessed, since they represent a substantial part of the school curriculum, but these are mostly classic subject-bound assessments. There are some exceptions as follows:

- The Finnish report contains a description of a framework for evaluating educational outcomes where the assessment of effectiveness of education is based on learning-to-learn skills, communication skills, and the skills needed for lifelong learning (p. 15). The methodology does not involve attempting to measure these skills directly, but rather assessing the factors (e.g., attitudes, beliefs), both at the learner's level and in schools, that demonstrate the presence and impact of the acquisition of those key competencies.
- New Zealand is implementing a "Curriculum Stocktake" (2000–2002) to evaluate the impact of its curriculum reforms of the 1990s (pp. 7–8). As its 1993 curriculum framework builds on sets of competencies that are completely in line with key competence areas, it can be expected that the results will throw some light on these.
- Also relevant for DeSeCo is the increasing introduction of systems of certification for achievements and competencies, as reported by Finland, France, and Sweden, but also developed in most other countries. In 1991, France initiated an assessment of competencies at the national level to evaluate personal and professional competencies, attitudes, and motivation through interviews, portfolios, autobiographical journals, and other means (pp. 5–6). Through this instrument, behaviors such as participation in the civil society (associations, trade unions, etc.) are used as proxies for the existence of competencies. A second example is provided by the Swedish government, which set up a special committee to propose ways of certifying proficiency and competence within and outside the formal education system (p. 4). Even when these certification modules are not targeted directly at assessing key competencies, it is clear that by explicitly addressing competence problems, they are potentially an important source of information when inquiring into the meaning of key competencies in adult lives.

As to the desirability of developing evaluation instruments and indicators targeted to assessing key competencies in education and particularly in schools, the opinions expressed differ substantially from country to country. Some countries indicate some interest, in principle, in developing such instruments; others are strictly against it, fearing standardization and negative side effects, such as the "negative labeling and classification of groups at risk" cited in the Netherlands report (p. 8). Sweden, for instance, takes a critical position as to indicators related to key competencies at the micro-level (individuals), but supports the development of organizational indicators to assess conditions in schools favorable to the development of key competencies (school climate, curriculum) (p. 13). Other countries, such as France and the Netherlands, also consider meso-level indicators (schools, organizations) as options to be considered – and preferred over the micro-level.

The problem of the feasibility of developing key competence-oriented assessment instruments in education is an issue in some reports, mainly referring to difficulties involved when looking at competence areas such as social competencies, value orientation, and even learning competence. On the other hand, there are Country Reports, such as those of Germany and the United States, that point to research, studies, and surveys that represent progress in this area. The German report provides comprehensive information on research in Germany covering intelligent (domain-specific) knowledge, applicable knowledge, learning competence, method-related key competencies, social competencies, and value orientation. It is also worth mentioning that there are particular domains such as foreign language learning and value orientation where measurement instruments, scales, and standard criteria have already

been devised. For example, the Finnish report mentions DIALANG, a diagnostic language test featuring 14 languages developed by the Council of Europe that was operational at the end of 2001 (p. 27). Foreign language standards are being also developed in the European Community. Indicators related to value orientation are present in youth surveys and some international comparative studies.

3.2 The economy

In the economic sector, it is the norm to work with qualification schemes that are closely related to key competencies, at least in the labels employed. Categories such as cooperating in groups, communicative competencies, initiative, and ability to cope with change are widespread. The information available through the CCP does not offer much detail of actual practice in the business sector. Probably, it is largely pragmatic, but if we were to survey this area, we might well find research-based measurement instruments, scales, and even indicators. A few hints as to such developments are given in Country Reports, including the report from Belgium (Flanders), which points to the development of special assessment techniques in businesses contexts (pp. 15–16). For example, assessing social and communicative competencies involves the simulation of group problem-solution exercises, systematically observed by assessors.

In many countries, registers and frameworks of standards (labeled also *essential skills and knowledge, core qualifications*, etc.) have been developed by industries, labor-market departments and organizations, and other groups. Examples include the register of standards that form the National Qualifications Framework described in the New Zealand report (p. 15) and the SCANS report described in the U.S. report (pp. 7–8). These lists of standards are partially categorized in a similar fashion to catalogues of key competencies. So the way is open for studies that would, for example, document by inference the extent of provision or demands related to sets of competencies that may be aggregated to key competencies in relation to the labor market. Methods might include analyzing job advertisements or entering data banks of organizations operating in the labor market.

3.3 National framework

Many Country Reports include information on countries' participation in international comparative studies, including IEA-Reading Literacy, TIMSS and TIMSS-R, IALS and SIALS, IEA-Civics, PISA, and ALL. The fact that these studies are mentioned (and in some reports also commented on) is evidence that they are for most of the countries participating in the CCP a powerful developmental lever, not only for benchmarking, but perhaps even more for gaining an overview which affords a deeper insight into educational outcomes within their national framework. We will not go into details here, but three points may be touched on.

Studies such as IALS, IEA-Civics, PISA, and ALL already cover – implicitly or explicitly – DeSeCo-relevant elements by showing specific (key) competencies (e.g., in civics) or by including transversal perspectives in the development of measurement instruments (e.g., defining literacy as understanding information on different levels of complexity in IALS, PISA, and ALL).

In many countries considerable research effort has been invested in analyzing results, expanding the scope, and further developing aspects of these comparative studies. In other cases the studies have triggered research aimed at developing instruments linked to transversal dimensions (e.g., problem solving). The German Country Report, in particular, gives impressive examples of such research (p. 27). The enormous amount of data accumulated in recent international comparative studies – if enriched by analytical research – would be for DeSeCo and its follow-up activities an invaluable source of knowledge on possible directions in developing assessment instruments and indicators related to key competencies. Some of the reporting countries have such possible developments in mind.

The participation of countries in international comparative studies may be in most cases a useful proxy for establishing their interest in being benchmarked internationally, with two caveats. One is that benchmarking is not the only and often not the strongest motive to participate in these studies. Countries profit from the possibility of assessing their own situation nationally and regionally. The other caveat is that some countries participate in these studies but have considerable reservations as to the benchmarking philosophy.

Particularly interesting for DeSeCo is the route chosen by Denmark to assess fundamental dimensions of societal competence in its National Competence Account. As already described, 127 indicators taken from very different

sources are assembled to provide a Danish profile of competencies benchmarked against six countries. What is challenging is the fact that this analysis is not constructed simply around criteria of economic effectiveness but based on an encompassing concept of key competencies.

As described above, a few projects have been developed at the national level specifically to assess key competencies, such as in Switzerland and the United States. Clearly, these are highly relevant and should be taken into account in any further development of indicator systems related to key competencies.

3.4 Benchmarking

Finally, do countries want to be benchmarked against others on key competencies or not? The answer – some do, some do not – may not be sufficient.

Some countries state simply that the political pressure to do so is low, at least in practice. Others put forward arguments against such a development. For example, Sweden – a country that traditionally scores high in international comparative studies – takes, as mentioned above, a strongly critical attitude to the development of indicators based on measurements at the individual level, whether nationally or internationally. The Swedish message appears to be to not measure individuals on key competencies directly, but instead to focus on the prerequisites for the development of key competencies. "Otherwise," reads the Swedish report, "there is a risk that the solution will become the problem itself, i.e., the measurement of competence will block the way of developing competence" (p. 13).

Belgium (Flanders), which expresses a general interest in developing indicators related to key competencies, nevertheless has doubts as to the feasibility and desirability of benchmarking in international comparisons related to key competencies. Instead, Belgium favors a network approach, proposing that "countries … select for themselves the key competencies they want to study whilst taking account of their own context" (p. 17).

Some countries did not specifically address the benchmarking question. The positive position taken by Germany, Switzerland, and the United States may best be expressed by the following simple argument: Benchmarking between countries on students' and adults' knowledge and skills (and, implicitly, competencies such as literacies or civics) is a fact of considerable weight in today's educational policies and it is difficult to imagine that this development is reversible. As far as possible (and somewhat limited by difficulties in developing adequate, valid instruments), it would make sense to enrich the indicator systems which already exist and are being developed for international comparative studies (benchmarking being one of their ingredients) by adding instruments which would assess transversal (key) competencies. But care should be taken – as is already done when actually constructing indicator systems – to make sure that cultural and other biases are taken into account.

3.5 Summary

With few exceptions, in education, no assessment systems related to key competencies are reported. Systems of certification could serve as valuable sources of information for DeSeCo developments. Issues surrounding the desirability and feasibility of developing measurement instruments on key competencies in the education domain are controversial.

Key competencies (in various configurations, catalogues, and aggregations) are used frequently in qualification systems in the economic sphere. But mostly the approach is pragmatic; no sophisticated instruments have been developed.

The research and development work directly or indirectly connected to large international comparative studies in national frameworks is highly relevant for DeSeCo. It is also encompassing research and development on key competencies. A few large projects at the national level aimed explicitly at assessing key competencies will be an important foundation for further developments of scales and indicator systems.

There are clear-cut arguments for and against benchmarking on key competencies put forward by countries.

4 Public Debate – Negotiating and Legitimating

- *In the last decade, has there been a public and/or professional debate in your country on key competencies in different arenas and social fields (politics, civil society, economics, business, labor, mass media and communication, education)? What are the main topics being addressed? What is the relationship between education and key competencies? Has the debate spanned different arenas and social fields?*
- *In the field you are coming from, do you perceive relatively consensual or controversial positions regarding the definition and selection of key competencies? Could you describe the most influential positions? Who are the main actors and stakeholders?*
- *Are there mechanisms in place to define, negotiate, and select "what really matters" in terms of key competencies? Are these negotiating procedures and decision-making processes on the agenda of educational, social, or economic policies?*

We may begin with a plain but significant statement: In all reporting countries, a public debate related to key competencies has taken place, but on very different levels and in very different formats and styles.

There is an example of nationwide public debate in the United States, where the National Educational Goals addressed areas such as "Student achievement and citizenship" and "Adult literacy and lifelong learning" (National Education Goals Panel, 1999, as cited in Trier, 2001b, p. 17). This led to extensive political and development work around desirable and needed competencies, partly carried out by governmental committees and panels and partly through research. Or, consider the case of the Danish National Competence Account 2000, which, with its very critical judgment of Denmark's overall competence, doubtless provoked public debates. A third example is the initiative of the President of Germany in creating the *Forum Bildung*, an expert panel convened to elaborate on crucial educational goals (Witt & Lehman, 2001, pp. 18–19). Also, the following Austrian summary of the DeSeCo Workshop mentions that the DeSeCo discourse is embedded in a broad debate on a national framework:

> *The question as to which competencies are required at the point of transfer from school to working life is currently being addressed nationwide, at the working group level, and in studies … with particular emphasis on the trade-off between the generality and the vocational specificity of competencies.* (pp. 33–34)

But most of these reported debates are fairly low key. Usually the debate is not explicitly about key competencies, but implicitly so. Many countries reported that it tends to arise when educational programs and curricula are being planned, conceptualized, and developed, especially, it seems, in vocational education. Occasionally, the debate is led by initiatives based on economic development policies, though the demands of the economy are obviously in the forefront when discussing key competencies.

We may also distinguish between an open political debate – most probably controversial – and an insider debate taking place during consultative procedures or in committees, which brings in opinions from government, businesses, trade unions, teacher associations, educational institutions, political parties, and research, and which is more likely to be consensual. The latter case is reported much more frequently than the former.

4.1 Debate in the education arena

Most often, key competencies are discussed as overarching educational goals when educational reform is envisaged, and a process of developing school programs and curricula has been initiated. In many countries today, this is no longer an insider affair restricted to educationalists. Stakeholders in all the relevant sectors are involved. What follows are some issues mentioned in the Country Reports:

Key competencies as a term is becoming an important buzzword in debates on educational change, without ever being specified or defined. The call for key competencies is used as a lever to energize criticism on what schools *do not* deliver (Austria).

Key competencies are invoked when conceptualizing economic and social requirements and subsequent demands on schools. They appear not merely as vague terms but more directly related to specific key competencies.

The process of giving meaning and content to key competencies occurs when discussing new curricula and programs. What does it mean in a school context to stimulate social participation, or to educate for citizenship in a democratic society? How should social and cognitive development be linked? An intense dialogue on key competencies when constructing new curricula in general education could lead to a better understanding and convergent priorities (New Zealand).

A debate arises between supporters of transversal competencies and supporters of subject-specific knowledge and skills in discussions of new school curricula. The German report states that in Germany, "key competencies sometimes seem to be understood as substituting for knowledge or even as antagonistic to the idea of knowledge" (p. 35). This debate may be highly controversial, and even emotional: the German report gives the example of the president of the German Teacher Association publishing a criticism against key competencies, which he describes as "a destruction of educational content" (p. 35). But in most cases mentioned in the reports, even antagonists find ways of understanding that key competencies are in demand as a way of enlarging domain-specific qualifications and not as a substitute for them.

Related to this is a debate, mostly in education circles, on the acceptance and feasibility of assessing key competencies as "soft" versus the "hard" tradition of assessing knowledge (New Zealand, among others).

In many countries, an opportunity for widespread debates on key competencies seems to have been the introduction of new modules, programs, and curricula in vocational training. One obvious reason for this is that here the interface between education and the economy is particularly extensive. Projects described in Country Reports demonstrate that the overarching goals are defined very similarly to key competence catalogues. But we also find some classical topics opened up to discussion: How important are personal competencies as opposed to job-related? How much should flexibility and transversal learning be emphasized versus skills related to professional life? But overall the reports signal more consensus than disagreement on this topic.

Similar to the stimulus offered by developments in vocational education, dealing with adult education leads to dialogues and debates on the required competencies. This was reported in both the Swedish and French Country Reports. France is currently engaged in constructing an inventory of competencies for adult education comprising literacies and numeracy, among others (p. 6). One of the issues is identifying the skills, knowledge, and competencies that should be taught and learned and on which level. What attainments should be taken for granted, for instance, at the end of schooling?

4.2 Debate in the economic arena

Not much public debate is reported on key competencies from within the economic sector, although this is probably an artifact of the methodology of the CCP. Denmark, when shaping its industrial development policy, looked for areas of competence related to innovation (as cited in Otterstrom, 2001, p. 5). Topics discussed were the use of IT, the ability to acquire new knowledge, a vision of lifelong learning, and entrepreneurship. Sweden reports a pilot study stating: "One important result of the study was that employers very often had an unclear picture of young people's competence. On the other hand, … employers could often give a concrete description of the knowledge and skills they believed were important to have" (National Agency for Education, 1997, as cited in National Agency for Education, 2001, p. 7). This is – without too much irony – quite consistent with the fact that in the political realm employers freely refer to "key competencies" when identifying the needs of the economy related to technological change.

Many reports discuss the general question: Is the public debate on key competencies characterized by convergence or divergence between the economy and education? The general conclusion is that there is a large and increasing convergence, especially in the last decade. Nevertheless, some reservations are also expressed, as exemplified by a pointed comment in the German report: "There is much rhetorical but little substantial overlap in Germany between lists of skills or qualifications, attitudes and values presumably required by the economic sector, and the articulation of educational objectives in the pedagogical field" (p. 36).

The above quotation, of course, opens the door to a question still to be answered: What happens beyond discourses, declarations, debates, and programs? This is a question perhaps better left to follow-up activities in DeSeCo and elsewhere. But the reports also point to the other side of the coin. Even though the discourses, dialogues, and debates between the economic sector and education may not always reach the desired degree of consistency and concreteness, this discourse not only uses the term *key competence*, but is in need of precise ideas as to what key competencies are. Without such precise ideas there is no way in which the worlds of education and the economy can really discuss the demands and expectations of both sectors.

4.3 Concluding and summarizing

In concluding this section, it should be noted that stakeholders from some important social fields and arenas are largely absent from reports on the public debate. (This of course is partly to do with the rather narrow scope and tight timetable of the CCP process.) Some examples of these absentees are parents' associations; representatives of political, religious, and cultural groups or organizations; and representatives of civil society such as NGOs. Representatives of these sectors were present in some workshops and there are also some relatively infrequent references in the Country Reports to position statements from these perspectives, but for the most part, one gets the impression that they are not actively involved. To some degree these absences may also offer evidence as to the sectors with the most influence when discussing key competencies: education and the economy.

The main issue being debated when all sectors are involved is the optimum balance between personal, societal, and job-related competencies. This debate is still controversial. Austria, for instance, sees a continuing tension – albeit diminishing – in the debate, related to the value placed on different sets of competencies: economic value and employability versus broader social, societal, political, and individual assets. The relative weight assigned to the demands (and the corresponding competencies) from different sectors of society remains a highly political matter which will never be finally decided.

To summarize, a public debate on key competencies takes place in all reporting countries. In some countries this debate has a national scale, but in most countries it develops in and between sectors without becoming a mainstream political issue. Sometimes this debate is explicitly public and political, but often it takes place through consultative procedures, in committees, and so on. Education is the sector most involved in debating key competencies. Developments in vocational and adult education are particularly likely to stimulate debate on competencies and key competencies. From within the economic sector not much actual debate on key competencies is reported. Key competencies tend to be integrated into qualification systems without much debate. Countries mostly report convergence rather than divergence between the economy and education in the discourse on key competencies. When all sectors are involved, the balance between personal, societal, and job-related competencies is still a controversial issue.

5 Key Competencies and Education

- *Is the definition and selection of key competencies an issue in your country when discussing, for example, goal setting and the curriculum of the educational system, training in the workplace, or lifelong learning strategies? What prospects are envisaged? What are the expectations?*
- *Which institutions and/or agencies are responsible for the training of key competencies, within and outside the formal education system? What role(s) do schools play in the teaching of key competencies?*
- *How could overall policy-making in different sectors, including but not limited to the education sector, promote the teaching and learning of key competencies?*

The preceding chapters present quite extensive information already available on issues related to the heading of this section. However, this information could be extended by addressing some additional topics highlighted in Country Reports.

5.1 Should key competencies be an explicit issue when conceptualizing and defining school curricula?

It has been mentioned already that in the last 30 years overarching educational goals were increasingly integrated in the development of curricula in practically all CCP-participating countries. The similarity of such overarching goals in curricula (and education at large) to key competencies became very clear. But at the same time, and particularly in the last decade, the discourse on key competencies intensified, raising the questions of how directly and explicitly this discourse has already been an element in curriculum development, as well as how it could and should be in the future. The reported experiences, practices, and positions of countries are diverse. The Netherlands, for instance, introduced in its new 1993 curriculum for lower secondary schools six "general attainment targets" that could easily qualify as candidates for a catalogue of explicit key competencies: Working on cross-disciplinary themes, Learning to do, Learning to learn, Learning to communicate, Learning to reflect upon the learning process, and Learning to reflect upon the future (pp. 13–14). As already demonstrated, many countries also discussed key competencies explicitly when developing new curricula for vocational and adult education. But some reservations also emerged. How could constructs like "communication," "critical thinking," or "political participation" be integrated concretely and explicitly into curriculum development? However, the overall answer by countries to the question posed at the top of this paragraph is "yes," rather than "no."

5.2 Would learning objectives oriented toward key competencies pose didactic problems in schools?

The Austrian report presents the views of one interviewee who characterizes possible barriers coming from traditional teaching (and teachers) very tellingly: "The teacher steps into the classroom, closes the door and teaches physics. He/she teaches physics and not the pupils" (p. 14). This may be seen as a conservative position, a professional failure, a barrier to be overcome, or a fundamental dilemma. The German report also points out possible risks when discussing key competencies in the context of school: "The terminology of key competencies can be used thoughtlessly, and there is, indeed, a danger of overemphasizing key competencies and neglecting their close connection to a core of knowledge" (p. 35). The Austrian and German reporters and contributors from other countries take the position, of course, that those who favor key competencies do not intend the destruction of well-structured content. At the same time, the challenge involved for teacher education is obvious, and is signaled by several countries. The German report, for example, clarifies that teaching in the knowledge society cannot be conceptualized without strong connections to the idea of producing knowledge and without authentic experiences in relevant fields of life. The implication is that teachers themselves should be involved at some stage in research and in professional experiences such as business, health, or others forms of work.

5.3 Systemic structural reform as an opportunity for discussing key competencies

The Country Reports document that systemic structural reform in education often provides an opportunity to engage in debates and development work related to key competencies. This may apply to changes in (1) the overall structure of the education system, such as the creation of *Fachhochschulen* (Technical or Professional Universities) in Switzerland; (2) specific sectors of the system, such as teacher education or adult education; (3) new organizational forms, such as networks of (relatively) autonomous schools developing their own educational profile; or (4) new concepts of partnership, linking education to communities and other sectors. The logic is that where the system is changing, its flexibility increases, allowing the emergence of new synergic concepts such as linking goal-setting to a reflection on key competencies. The Swedish report points out one crucial element in this structural change, which also has relevance for the discourse on key competencies: the disappearing dividing line between formal and informal education (p. 3).

5.4 The value of context- and development-oriented education and learning

It should be emphasized that key competencies do not exist once and for all. As emphasized in the Danish report, their dynamic nature should be one of the most relevant aspects to be considered in educational institutions: "The basic concept [of competencies] is that people develop every time they try something new" (p. 7). The implication for educational institutions is that they should optimize the opportunity for developing competencies that can grow and change. In this dynamic process, considering the context is imperative, not least because focusing on context may also uncover latent conflicts. As described in the Netherlands Country Report, home and school may

foster very different values: the home may encourage adaptation and obedience; the school, autonomy and critical thinking (p. 9). The reverse is also possible. Other possible discrepancies between different contexts – peers, families, schools, vocational schools, the workplace, the private sphere, and so on – should inform educational options when discussing key competencies.

5.5 The political impact of international comparative studies on research and development in education

Studies like IEA-TIMSS, mentioned in some reports (Germany, Switzerland), are one of the main factors triggering research work on transversal competencies – as well as the relation of those competencies to subject-bound knowledge and skills. What is especially important in this process is that *politicians* are highly interested in results on student outcomes such as those provided by TIMSS. As a consequence, an unusual interest exists for issues related to these studies, one that is leading to an intensive dialogue between research and the political sphere. Key competencies are becoming a central theme in this dialogue. But from inspecting the reports, it is apparent that this is not the case in all countries. The significance of international comparative studies in the discourse on key competencies in education differs significantly from country to country.

5.6 Summary

In the last decade, key competencies are increasingly discussed explicitly when developing school curricula, especially in vocational and adult education.

Assigning more weight in teaching and learning processes to transversal competencies poses problems in relation to teachers' attitudes and capacities. This is a challenge that should be addressed in teacher training.

Structural reforms in education increase the overall flexibility in education systems and subsystems, thus offering opportunities to reflect on the place of key competencies in curriculum development, learning and instructional practices, and the modulation of different levels of education.

Key competencies in education should be conceptualized as dynamic entities that take into account differing and changing contexts (home, peers, leisure activities, neighborhoods, jobs, etc.) outside the formal education system.

The considerable political impact of international comparative studies on educational outcomes may also catalyze the dialogue between politicians and researchers on key competencies.

6 Conclusion: An Open Agenda

These concluding remarks – though connected to issues present in the preceding text – aim to serve as an incentive to further reflection on the work and dialogue within DeSeCo. Without strictly following this order we will proceed from more process-related to more content-related topics.

6.1 Identifying and measuring key competencies

How can the dialogue and interaction between politics and research be improved? By introducing large international comparative studies on educational outcomes in the OECD countries, mainly in the last decade, the overall weight of research in educational assessments has increased significantly. DeSeCo exists within this tradition. But, as demonstrated in this report, politics play – and must play – their role. When considering DeSeCo, the question as to how key competencies should and could be defined, assessed, and measured is obviously both political *and* scientific.

The impression given by the Country Reports is that communication among different sectors on issues related to key competencies is not always very strong or clear. More difficult still is the question of how to build a constructive dialogue between politicians and researchers on the precise questions that DeSeCo (or its follow-up activities) will face when making decisions, based on the results of the DeSeCo Project, as to which key competencies are nationally and internationally the most relevant to be assessed? This is a strategic issue well worth discussing.

6.2 Linkages between theoretical and empirical work

At the moment we are still witnessing a marked parallelism between theoretical and methodical/empirical discourses. This will have to change if we aim to make serious progress in this terrain. To give examples, many of the issues and problems already formulated by Weinert (2001, pp. 62–63) and being discussed in some Country Reports – such as the relation between key competencies conceptualized as classes of tasks and as prerequisites (*internal structures*) – can only be clarified by theoretical/empirical interrelated research. The same applies when discussing, for example, the consistency of certain constructs being considered as key competencies. There is not much sense in continuing a theoretical discussion of those issues without converting them into new research questions to be looked at. Here the strategic questions would be: How might we do this, which experiences do we have already, and how could we better exploit knowledge already existing or suggest a research agenda?

6.3 DeSeCo's different objectives

DeSeCo aims to meet a broad array of ambitious objectives. One of the problems that surfaced in the CCP was that these different purposes frequently obey different logics and demand different lines of argument. At the beginning of the DeSeCo work, this broad scope was necessary and productive. But during the process – for instance, when discussing these issues in and between countries – it may be helpful to clarify at each moment what is in debate on key competencies. Are we involved in a general philosophical, scientific, or political discourse? Are we discussing foundations for social and educational policies? Are we looking at educational assessment (including self-assessment)? Are we discussing quality standards in or within sectors? Or, are we talking about scales and indicators for intra- or international comparison studies? Doing all of this at once becomes laborious and may be counterproductive. The strategic issue for further DeSeCo work – and any follow-up – is maintaining open and different tracks without forgetting that ultimately there will be a need to bring them together in the OECD/INES context, which aims to develop indicators for international assessment of education.

6.4 Unit of analysis for key competencies: individual, collective, institutional, or societal

In most of the reports this was a critical matter and in some a matter of criticism. The disapproval was not so much conceptual – saying that the unit of analysis was not clear enough – but criticizing DeSeCo for focusing too exclusively on individual competencies. For further debate and work in DeSeCo it would be helpful to make still clearer the fact that individuals, partnerships and families, groups, institutions (such as schools, community groups and other organizations), and entire societies may be both actors (individual and collective subjects possessing competencies) and the object or field where those competencies are activated. This means that individual competencies may apply to individuals, partnerships, and groups. Collective competencies may have effects on individuals, groups, the community itself, and societies. This should not be a matter of controversy, but of clarification. It is of course appropriate for DeSeCo to reflect mainly on individual competencies, as well as on competencies of families, groups and communities. But in any further work we should possibly differentiate more. It could be rewarding to think about how (and how differently) catalogues of key competencies would be conceptualized, defined, and selected when thinking not of individual actors only, but of partnerships/families, groups, or communities as possessors of competence.

6.5 The old story: universal versus culture- and context-specific

Reading through the reports we are regularly confronted with opinions for and opinions against a universal approach. But to a large degree this seems to be a mock battle. Nobody who supports the idea of universal key competencies is suggesting that these competencies could not or should not be related to concrete social and cultural contexts. And almost nobody who believes that competencies cannot be sensibly discussed without relating them to specific contexts and socio-political conditions will deny the existence of universal values. It seems that this issue cannot be decided in principle without specifying which are the competencies being debated and without invoking the reality of contexts and cultures.

Cultural differences are obvious. People live according to differing rules, communicate differently, develop differing formal and informal conventions, and so on. But even so, it could be postulated that key competencies may be defined – as is the case, for instance, in this paper and in many proposals in the Country Reports – in a generalized way, though the actualized form that these key competencies will take when applied to specific contexts will differ

from context to context. A practical proposal for making progress in this debate might be to discuss more precisely – having in mind a particular key competence – why the socio-cultural differences between OECD countries might not permit a particular competence to be validly assessed. Should or could this competence be redefined, changed for another, or dropped entirely?

6.6 Where is the "good life"?

The famous Delors Report (UNESCO, 1996) says that education is built on four pillars: to learn to know, to learn to do, to learn to live together and live with others, and to learn to be. These pillars are consistent with one of the questions posed by DeSeCo when defining the project's objectives, that is, whether "a set of competencies of prime importance for a successful life and effective participation in different fields of life – including economic, political, social, and family domains, public and private interpersonal relations, and individual personal development – could be identified" (Rychen, 2001, p. 2). The intention of DeSeCo was to avoid a merely functional approach when defining and identifying competencies; "successful life" was conceived as a rich, rewarding life. Reflecting this approach, "Competencies for the Good Life and the Good Society" is the title of a philosophical contribution that serves as of one of the major contributions to the DeSeCo Project (Canto-Sperber & Dupuy, 2001). However, when reviewing the whole DeSeCo debate – including what was described in this summary report – it is not hard to see that what might be called the "To be" competencies have some difficulty holding their own against the "To do" and the "To know" competencies. The imbalance is very apparent. This is not the place to analyze the reasons, which have more to do with the condition of our societies than with DeSeCo itself. "Joy of life" may seem like a rather indefinite quality. But at the end of a text on key competencies, the question "what is it all about?" is not irrelevant. To reflect further on this question would be challenging and exciting.

May I conclude this report by going back to the foreword: the logo representing France on the French report reminds us of one of the shortest, most beautiful, and most powerful texts ever created in the history of mankind as a claim for universal values: Liberté, Egalité, Fraternité.

7 References

Canto-Sperber, M., & Dupuy, J.P. (2001). Competencies for the good life and the good society. In Rychen, D.S., & Salganik, L.H. (Eds.), *Defining and selecting key competencies* (pp. 67–92). Göttingen, Germany: Hogrefe & Huber.

Deutscher Bildungsrat. (1970). Strukturplan für das Bildungswesen. Stuttgart: Klett.

Deutscher Bildungsrat. (1974). Zur Neuordnung der Sekundarstufe II. Stuttgart: Klett.

Dunon, R. (2001). *Summary report for Belgium (Flanders) on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Etelälahti, A., & Sahi, A. (2001). *Summary report for Finland on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge, Massachusetts: Harvard University Press.

Kelly, F. (2001). *Summary report for New Zealand on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Knain, E. (2001). *Summary report for Norway on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Lassnigg, L., Mayer, K., & Svecnik, E. (2001). *Summary report for Austria on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Ministère de l'Education Nationale. (2001). *Summary report for France on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

National Agency for Education. (2001). *Summary report for Sweden on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Oser, F., & Reichenbach, R. (2000). *Politische Bildung in der Schweiz (Civic Education in Switzerland)*. Berne: Swiss Conference of Ministers of Education.

Otterstrom, A. (2001). *Summary report for Denmark on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Peschar, J., & van der Wal, M. (2001). *Summary report for the Netherlands on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Resnick, L.B., & Wirt, J.G. (Eds.). (1996). *Linking school and work: Roles for standards and assessment*. San Francisco: Jossey Bass Publishers.

Robinsohn, S.B. (1969). *Bildungsreformals Revision des Curriculums. (Reform of Education as a Revision of the Curriculum*). Berlin: Luchterhand.

Roth, H. (1971). *Pädagogische Anthropologie: Band II: Entwicklung und Erziehung, Grundlagen einer Entwicklungspädagogik*. Berlin: Hermann Schroedel.

Rychen, D.S. (2001). Introduction. In Rychen, D.S. & Salganik, L.H. (Eds.), *Defining and selecting key competencies* (pp. 1–15). Göttingen, Germany: Hogrefe & Huber.

Rychen, D.S. (2003). Key competencies: Meeting important challenges in life. In D.S. Rychen & L.H. Salganik (Eds.), *Key competencies for a successful life and a well-functioning society* (pp. 63--108). Göttingen, Germany: Hogrefe & Huber.

Rychen, D.S., & Salganik, L.H. (Eds.). (2001). *Defining and selecting key competencies*. Göttingen, Germany: Hogrefe & Huber.

Salganik, L.H., (2001). Competencies for life: A conceptual challenge. In Rychen, D.S. & Salganik, L.H. (Eds.), *Defining and selecting key competencies* (pp. 17–32). Göttingen, Germany: Hogrefe & Huber.

Salganik, L.H., Rychen, D.S., Moser, U., & Konstant, J.W. (1999). *Projects on competencies in the OECD context*: *Analysis of theoretical and conceptual foundations*. Neuchâtel: Swiss Federal Statistical Office.

Stein, S. (2000). *Equipped for the future content standards: What adults need to know and be able to do in the 21st century*. Washington, DC: National Institute for Literacy.

Torney-Purta, J., Lehmann, R., Oswald, H., & Schulz, W. (2001). *Citizenship and education in twenty-eight countries: Civic knowledge and engagement at age fourteen*. Amsterdam: IEA.

Trier, U.P. (2001a). *Summary report for Switzerland on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

Trier, U.P. (2001b). *Summary report for the United States on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

UNESCO. (1996). *Learning: The treasure within—report to UNESCO for the international commission*. Paris: UNESCO.

Weinert, F.E. (1999). *Concepts of Competence*. DeSeCo Expert Report. Neuchâtel: Swiss Federal Statistical Office.

Weinert, F.E. (2001). Concept of competence: A conceptual clarification. In Rychen, D.S. & Salganik, L.H. (Eds.). *Defining and Selecting Key Competencies* (pp. 45–66). Göttingen, Germany: Hogrefe & Huber.

Witt, R., & Lehman, R. (2001). *Summary report for Germany on the DeSeCo Country Contribution Process*. Prepared as part of the Country Contribution Process (CCP) conducted by the DeSeCo Project.

8 Annex 1 – CCP Methods/Summary Report

Country CCP Coordinator	Responsible Goverment Department/Agency	Mandated institution/ person(s)	Method(s) to obtain report data	Form of reporting	Author(s) of report
AUSTRIA Erich Svenic	Ministry for Education, Science and Culture Center for School-development II (ZSE)	ZSE HSI ("Employment, Qualification, Innovation")	Creation of a national DeSeCo working group/Workshop/ interviews with selected experts Analysis of documents	Summary report (7 pages) Expert report (44 pages)	Erich Svenic Lorenz Lassnigg Kurt Mayer
BELGIUM/ FLANDERS Rita Dunon	Education Department	CCP Coordinator	Creation of a working group Written survey Workshop	Summary report	Rita Dunon
DENMARK Peter Vogelius	Danish National Competence Account (NCA)	NCA Secretariat	NCA's analysis of ongoing competence-related processes and initiatives Documentation	Memorandum (report) & 10 annexes	Group of authors (NCA)
FINLAND Ritva Jakku-Sihvonen	National Board of Education	National Board of Education (mandated persons)	National seminar (experts) on key competencies Analysis of documents and literature	Report	Aulikki Etelälahti & Annika Sahi
FRANCE Pierre Vrignaud	Ministry of Education Department of Planning and Development		Workshop	Workshop minutes	
GERMANY Hermann Müller-Solger	Federal Ministry of Education and Research	Technical University Dresden (Prof. Ralf Witt) & Humboldt University Berlin (Prof. Rainer Lehmann)	Analysis of ongoing projects, initiatives documents and literature (Expert-paper)	Report & extensive bibliography	Ralf Witt & Rainer Lehmann
NETHERLANDS Jules L. Peschar	Ministry of Education, Culture and Science	University of Gronigen Department of Sociology/ICS	Workshop & written statements	Summary report	Jules L. Peschar & Marieke van der Wal
NEW ZEALAND Marion Norris Frances Kelly	Ministry of Education	Ministry of Education (mandated persons)	Semi-structured interviews with key players Document analysis	Report	Frances Kelly
NORWAY Alf H. Westrheim	Ministry of Education Research and Church Affairs	University of Oslo Department of Teacher Education and School Development & Norwegian Institute for Studies in Research and Higher Education	Call for written statements from representatives of key institutions and organizations Analysis of curricula and other documents	Report	Erik Knain
SWEDEN Jenny Soukkan	National Agency for Education	Director, National Agency for Education	Workshop/Study based on documents and literature	Report	Group of authors
SWITZERLAND Uri Peter Trier	Swiss Federal Statistical Office (SFSO)	Personal Mandate: Uri Peter Trier in collaboration with the DeSeCo Program Manager: Dominique Rychen	Symposium organized by the SFSO Interviews with representatives and experts Analysis of documents and literature	Report	Uri Peter Trier
U.S. David Miller	U.S. National Center for Education Statistics	Education Statistics Services Institute: American Institutes for Research	Workshop Workshop minutes Written statements/Documentation on DeSeCo-related projects	Report	Uri Peter Trier

9 Annex 2 – The Sources for Identifying Key Competencies in Country Reports

There is a wide array of sources from which mentions and lists of competencies and key competencies are drawn in the Country Reports. Some appear more frequently and with more weight than others, but this may partly be an artifact of the methodology used. An overview of these sources follows, organized by domains. For each category of information, some salient examples from the Country Reports are provided. More information on these original sources may be found in the individual Country Reports, at
www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_country.htm

9.1 Education

- School curricula and analyses of curriculum documents, national or regional curriculum frameworks – These are some of the most important sources of information. Relevant competencies may appear implicitly in curricula as overarching educational goals or learning objectives, or explicitly as structural elements in designing curricula. A curriculum may in some cases cover the whole of the education system, but generally applies only to one sector: primary, secondary, or (very rarely) tertiary education. Examples: Core Curriculum for Primary, Secondary, and Adult Education in Norway (1997); The New Zealand Curriculum Framework (1993).
- Curricula and programs in vocational education, particularly curriculum developments and the development of special programs for initial and continuous professional education which in the last decade have addressed key competencies – These initiatives are often developed jointly by representatives from the educational and economic sectors. Examples: SWISSMEM (Swiss Employers of the Machines, Electro and Metal Industry): Global Competencies for Vocational Training.
- Initiatives and programs related to adult education – Most of these include explicit thinking related to transversal competencies.
- Educational programs and goal setting by national (or, in some cases, regional) committees, councils, panels and organizations – Such committees frequently address essential competencies and may be influential in national education policies. Examples: The National Education Goals Report: Building a Nation of Learners (United States, 1999); Forum Bildung: Preliminary Guidelines (Germany, 2001).

9.2 The Economy

- Programmatic position papers on essential qualifications, skills, and competencies from stakeholders in the economic sector, such as employer organizations and trade unions – Such programs may also be based on joint initiatives from representatives from the economy and educators, relating demands in the economy to desired educational outcomes. Examples: Organization of Industrial Employers: Qualification 2012: The demands for a changing professional world (Austria, 1997); The Swedish Trade Union Conference: The learning working place (Sweden); SCANS: Learning a living: A blueprint for high performance (United States, 1992); Business-Higher Education Forum: Spanning the chasm: Corporate and academic cooperation to improve work-force preparation and spanning the chasm: A blueprint for action (United States, 1997, 1999).
- Curricula and programs for business-based continuous education.
- Qualification schemes developed and used in businesses when selecting, qualifying, and promoting employees.
- Qualification lists related to standards of quality control – Such lists are quoted in some reports, but not exploited for further information on key competencies. Examples: ISO certification systems; Standards of the German Institute for Standardization (DIN).
- Qualification and skill lists developed by governmental and non-governmental agencies responsible for managing and monitoring human resources (employment) in the labor market, *inter alia*, providing vocational and professional orientation and guidance. Examples: U.S. Department of Labor: O*Net Online: Beyond information: Intelligence – a comprehensive package of skills; German Institute for Standardization (DIN) catalogue of criteria for assessing the achievement of key qualifications (1998).

- Analysis of desired qualifications in job advertisements. Example: Bundesinstitut für Berufsbildung (Federal Institute for Professional Training): Demands for cross-professional qualifications and competencies in job advertisements (Germany, 1999).
- Assessment and certification of professional (and educational) formal and informal assets (including portfolios, biographic, and autobiographic information, and so on) – Potentially, developments going in this direction could provide very enriching insights for DeSeCo. In the Country Reports, some initiatives are referred to, but they are mostly not exploited for specific information on key competencies. Example: Bilan de competences (France).
- Reports from national accountability bodies – The few examples in Country Reports which describe national efforts to construct a system of accountability utilizing a broad array of competence-related indicators suggest that DeSeCo could gain a wide range of relevant insights from this area. Example: House of Mandag Morgen, The National Competence Account (Denmark, 2000).

9.3 Research and development (R&D)

- National R&D projects aimed specifically at defining and selecting key competencies and developing indicator systems – Although not numerous, these projects are highly relevant sources because they directly address the main concerns of DeSeCo. Examples: Youth Adult Survey (Switzerland, 2001); Equipped for the Future content standards: What adults need to know and be able to do in the 21st century (United States).
- Findings related to secondary analysis, at the national level, of international comparative studies such as IEA-Literacy, IALS and SIALS, TIMSS and TIMSS-R, IEA-Civics, and the conceptual work underlying PISA and ALL – In some countries, extensive national studies related to international comparative studies have been carried out. These have triggered reflection on issues related to competence in and beyond the international studies themselves. Example: Baumert, J., Bos, W., and Lehmann, R.H. (Eds.), TIMSS/III – Dritte Internationale Mathematik- und Naturwissenschaftsstudie. – Mathematische und naturwissenschaftliche Bildung am Ende der Schullaufbahn (2 books) (Germany, 2000).
- Research findings and research panels aimed at developing reference frameworks for specific sets of competencies and key competencies. Example: Group led by Jarkko Hautamäki, University of Helsinki, "Learning to Learn – Adaptation to changes and unanticipated tasks in maintaining the cognitive and affective self-regulation in-and-of learning action" and "Measuring learning-to-learn: Competencies and beliefs – A framework for educational assessments" (Finland, 2001).
- Research-based youth development programs – Youth development programs monitored mostly by national or regional boards, NGOs, or foundations could of course also be listed under "Education." The reason for listing them here is that they are generally embedded in extensive research activities, many of them dealing expressly with the identification of core competencies and assets. Example: SEARCH-Institute: "Developmental Assets, 40 critical factors for young people's growth and development" (United States, 1997).
- Expert panels and reports, scholarly essays, and other literature – As may be expected by the process proposed in the CCP Background Note, these sources are not frequently used in the Country Reports – but there are exceptions, such as a bibliography with 237 entries annexed to the German report.

9.4 DeSeCo CCP workshops and activities

- Minutes and analysis of contributions at CCP workshops
- Invited statements by stakeholders of the different sectors to the CCP process
- Results and analysis of interviews with stakeholders
- Answers to surveys

According to the intentions of the CCP as suggested in the CCP Background Note, this information was at the core of the Country Reports, insofar as the above activities took place. But in all reports it was complemented and considerably enriched by the sources of information listed above.

Listing the many sources from which information was drawn when countries engaged in the CCP process has the merit of putting forward clear evidence that the focus of attention went far beyond specifically identifying and selecting key competencies for DeSeCo. The reflection on competencies is enriched by looking at mainstream national efforts to develop and improve education and training.

9.5 Summary

In the Country Reports we are confronted with an impressive variety of sources of information. The most important sources emerge from curriculum development, programs for initial and continuous professional training, programs for adult education, youth development programs, qualification schemes coming from the economic sphere, and research-based projects focused on competence assessment and indicator development. Competencies and key competencies were often only implicitly and not explicitly addressed in the original documentation reported (e.g., curricula).

Key Competencies and their Relevance for Human, Social, and Economic Development Beyond the OECD

What is the relevance of key competencies to the work of international organizations other than the OECD? What is seen as the contribution of key competencies to human, social, and economic development in countries outside of the OECD?

DeSeCo invited representatives from international organizations other than the OECD to participate in a panel discussion about key competencies and their relevance to human, social, and economic development. This section provides a summary of the introductory statement and concluding remarks presented by Albert Tuijnman of Stockholm University. Panelists included Marit Granheim of the World Bank; Tom Griffin of the United Nations Development Programme; Denise Lievesley of UNESCO Institute for Statistics; and John Morley of the European Commission. There are no written materials available from the discussion.

Key Competencies and their Relevance Beyond the OECD – An Overview of the Panel Discussion

Albert Tuijnman
Stockholm University, Sweden

Among the interim conclusions reached thus far in the DeSeCo initiative has been the identification of three categories of competencies (acting autonomously, using tools interactively, and joining and functioning in socially heterogeneous groups) necessary for individuals to cope with important demands and challenges in particular social arenas, such as the political and civic spheres, the labor market, and family life.

The case can be made that these three categories of key competencies have global validity. On the other hand, it can also be argued that perspectives with respect to these competencies will differ depending on cultural and social contexts and technological and economic levels of development. Clearly, any effort aimed at identifying a limited number of key competencies raises questions such as what are the competencies for, what interests and objectives do they support, and what criteria make them "key"?

Thus, there are ramifications to defining and selecting key competencies that extend beyond Western industrialized countries. Economic disparities and social and cultural diversity suggest a need for negotiation to broaden the consensus-building processes that are under way to define and select key competencies.

United Nations agencies with global mandates share concerns about empowering people to help themselves alleviate poverty and further democracy. Although the relative emphases between empowerment and competencies may differ, the goal of empowering people clearly has implications for competencies. Recognizing this, the DeSeCo Secretariat invited representatives from UNESCO, the United Nations Development Programme (UNDP), the World Bank, and the European Commission to discuss questions about key competencies and their relevance for human, social, and economic development in developing and transition countries from the perspective of their respective organizations. The panel members were Marit Granheim of the World Bank, Tom Griffin of the United Nations Development Programme, Denise Lievesley[1] of UNESCO Institute for Statistics, and John Morley of the European Commission, Competiveness and Employment Commission (CEC).

The following exemplify some of the questions addressed or raised during the panel discussion:

- What is the underlying normative framework for the organization's perspectives on development? Are there common ideas about what is important?
- Are the ideas pursued by the DeSeCo Project relevant for the organization? If so, in what ways?
- What competencies are relevant to sustainable development and social cohesion? In what ways does the organization work with such competencies? Are there any differences that need to be recognized, for example, in terms of a focus on education for all or basic needs?
- What is the role of education in developing key competencies? Do such competencies exist independently of educational structures? If globally valid key competencies exist, does this then imply a "world model" of education?
- How are competencies embedded in development and evaluation strategies? Does the organization have any direct experience in assessing key competencies and developing indicators of educational outcomes relevant to economy and society?

[1] This presentation is available in PowerPoint format, at
http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_symposium_lievesely_130202.ppt

- Which key competencies should ideally be considered in the evaluation of educational outcomes? What are the most crucial data gaps and needs with respect to key competencies? What might be the ramifications of economic differences and social and cultural diversity for assessing competencies?
- What can the organization contribute in terms of a long-term strategic vision to develop a broad basis for international assessments of education and learning outcomes? What possible forms could further international collaboration take?

There was consensus among the panel participants on a number of topics. First, the importance of the DeSeCo theme and approach was recognized. There was an agreement that human competencies are the most essential ingredient in social cohesion and economic development and that consideration of competencies should not be limited to the education sector or to curriculum-bound knowledge. Instead, competencies should be considered from a lifelong learning perspective. Further, there was consensus that the statistics and indicators concerning competencies that are currently available at the international level are inadequate. And, finally, there was a shared interest in jointly pursuing further work on the development and eventual implementation of international assessments of competencies.

Critical Competencies in Relevant Social Fields

What are the important demands that individuals face in modern, democratic societies? Which competencies are necessary for participation in different spheres of life, such as the economic sector, political life, family life?

This section begins with a paper by Barbara Fratczak-Rudnicka, Warsaw University, and Judith Torney-Purta, University of Maryland, which discusses the concept of citizenship in relation to key competencies. Also included are a contribution by Trevor Riordan and Gianni Rosas, representing a perspective of the International Labour Office (ILO); a commentary from the world of business and industry by Attilio Oliva of the Associazione Treelle, Italy; and a presentation on competencies critical for family life by Sondra Stein of the U.S. National Institute for Literacy.

Competencies for Civic and Political Life in a Democracy

Barbara Fratczak-Rudnicka, Warsaw University, Poland
Judith Torney-Purta, University of Maryland, United States

1 Overview

Exploring the ramifications of general concepts of competencies in specific areas of life and functioning highlights some issues that have been muted in more general discussions of competencies. This paper focuses on definitions of competencies in civic and political life, addressing both macro-structures and micro-processes, as well as incorporating insights from the IEA Civic Education Study in which case studies of existing practices and expectations were developed in 24 countries in a first phase (Torney-Purta, Schwille, & Amadeo, 1999) and knowledge, attitudes, and behaviors were measured among 90,000 adolescents in 28 countries in a second phase (Torney-Purta, Lehman, Oswald, & Schulz, 2001). The paper moves from the more conceptual to the more empirical in considering five questions: the first concerned with various understandings of civic competence and the structures to which it relates, the second concerned with issues of special concern during the last decade, the third concerned with enumerating the competencies that are important for civic and political life, the fourth concerned with the relation of these competencies to the perspective of the DeSeCo Project, and the fifth concerned with the models, methods, and findings of the IEA Civic Education Study in relation to these competencies.

2 Definitions of Concepts Relating to Civic Competencies

What are the structures within which civic competencies can be defined? What are the issues and problems connected with defining concepts such as citizenship, democracy, and democratic citizenship?

The term "civic competence" refers to competencies – knowledge, attitudes, and skills – needed for a participation in civic and political life, that is, necessary to be able to play the role of a citizen. However, the excellence of citizens, declares Aristotle in *The Politics*, is relative to the political order under which they live. Different political regimes embrace different definitions of citizenship, and define the requirements of good citizenship in different ways. Thus, "a good citizen" in, let's say, Soviet Russia in the 30's would be very different from "a good citizen" in contemporary Russia, not to mention the contemporary United States.

Here, we will narrow the scope of the discussion of civic competence to competencies needed in a democracy, to "democratic citizenship". Even with this limitation, it is difficult to find any simple and common definition of "civic competence", since this term is entangled in the definitions of two very ambiguous concepts: "citizenship" and "democracy". Thus, in order to define it, some fundamental, theoretical, and value-loaded questions must be posed and answered. What is the core meaning of citizenship? Of democracy? What is democratic citizenship? And, finally, what competencies are needed to be a "good" citizen in a democracy? What are the practices for which the citizens needs to be prepared and motivated? What will make the citizen a citizen not only in name?

There are also empirical and practical questions to be asked: How do citizens acquire democratic citizenship? Is there any need for democratic citizenship education in schools, or do parents and the general political culture provide what is needed? What kind of education is effective? How can this be assessed? These are issues that will be dealt with primarily in the later section of this chapter in light of empirical data from the IEA Civic Education Study.

It is not our intention – nor within our competence – to give a full answer to the above questions. The intention is rather to show the complexity of several possible answers, to refer to some recent empirical data, and to comment on some trends. As democratic citizenship theories are combinations or syntheses of citizenship theories and democracy theories, let us look more closely into the concepts of "citizenship" and "democracy" found in some of the approaches.

2.1 Issues in conceptualizing citizenship

Aristotle described the lack of consensus about this term. The conception of citizenship has been evolving – it is a dynamic historical concept and process. The history of the concept reveals that it has always been contested in that it has involved social struggle and political conflict. The present conception is to a large extent a result of past struggles of social groups who were denied some measure of legal, social, and/or political power. As Klaassen puts it:

> *There are no 'absolute' standards regarding the supposed rights and duties of citizenship. [...] Political education must not look at the actual responsibilities and rights of citizenship, but also at its underlying dynamic aspects. This means that the concept of democratic citizenship must also reflect a moral ideal which, as such, can/will never be achieved.* (Klaassen, 1996, p. 383–384)

Klaassen in his discussion of the meaning of citizenship, concludes: "It may be that key political concepts like citizenship need to be reconstructed for each time and generation" (Klaassen, 1996, p. 379).

Citizenship is not only an evolving concept, it is simultaneously both a legal and a psychological concept. As a legal concept, it includes the legal status of an individual, described in national and international constitutions, laws and decisions. "Citizenship is threefold: the political entity has to contribute protection for certain rights of individuals, while the individual has to fulfill certain duties towards the political entity, and the individual has to fulfill certain duties towards the other individuals" (Dekker, 1994, p. 11). In a democratic society, the rights include in the first place: freedom of thought, conscience, religion, expression, movement, the right to assembly, the right to organize, vote, fair trial and equality before the law. Duties include: the duty to vote (in participatory democracy theories also political participation beyond voting), to pay taxes, to defend the country, to obey the law, to accept majority decisions and to respect the rights of others (Dekker, 1994).

Democracy implies not only civic rights and duties, but also specific competencies that are entailed in their performance. For example, if the vote is not to be a matter of random choice, the voters need to manifest a certain level of "civic competence" including knowledge of the candidates and their positions on various issues (Dahl, 1992). The classical conception of civic competence includes interest in public and political matters (problems, candidates, parties), capacity to engage in deliberative discussions on public matters with other citizens, interest in communicating opinions to political representatives, willingness to participate in political associations, and tolerance of opinions with which one disagrees. Additionally, all of this is supposed to be motivated by the desire to contribute to the "common good". Indeed, this is an ideal that only a few citizens live up to (Grabowska, Sielawa-Kolbowska, Kosela, & Szawiel, 1998). Further, it possible that some of these characteristics may involve ambiguities, accepting obligations to comply with laws and yet being willing to non-violently challenge laws or policies that are perceived to be unjust. Another problematic issue concerns tolerance for certain political opinions in a climate of threats of terrorism or violent action.

As a psychological concept, citizenship is seen as a fundamental part of the identity of individuals – giving an answer to the question "who am I?" Identity is often thought to include the knowledge, opinions, attitudes, values, behavioral intentions and behavior of an individual with respect to political entities of which he/she is a member. Citizenship is, in theory, connected with political entities on the local level, national level, regional level, and international level of the world as a whole (Dekker, 1994). Taking another perspective, face-to-face communities in which the individual participates often define and legitimate certain knowledge, opinions or practices in the social or civic domain as especially important (Wenger, 1998). For example, groups which experience a lack of societal or civic power may encourage their members to emphasize certain marks of identity which more powerful social groups might prefer to discourage.

Citizenship in the political-psychological (contrary to the legal) sense of the word is not an absolute condition. In this sense a distinction between people with and without citizenship cannot easily be made. Some scholars suggest that we should think of it as a matter of having different "levels" of sophistication. The "good citizen" is something of an ideal type. "His/her characteristics (competence) vary with the values of those defining the construct. These characteristics are often disputed among political philosophers or politicians. The same is true for the 'democratic citizen'. It is an ideal type whose characteristics vary with the definition of democracy" (Dekker, 1996, p. 388). This topic will be considered in the next section.

2.2 Issues in conceptualizing democracy and democratic citizenship

The attempt to provide a definition of democracy satisfying to everybody is doomed to failure (except for a literal translation of its two components – *demos* and *kratos* – meaning power exercised by the people). Neither science, nor logic, can prove that any particular conception of democracy is the only correct one, though a number of compendia of such conceptions exist (Held, 1996).

Common to all theories of democracy is the shared idea of some kind of citizen participation in public decision-making and the necessity to consider a broad range of public choices. Democracy requires popular sovereignty and either direct or indirect representation in person or through democratic institutions.

Almond and Powell (1984) argue that the most important structural-functional distinction in classifying political systems is the level of democratization, making a distinction between democratic and authoritarian systems. Other important distinctions can be made at other levels (as between nations in pre-industrial and industrial environments, or between pre-modern, modern or post-modern societies).

> *In describing structures and functions we stress initially the degree of democratization. As to the level of nation-states, democracy consists of political structures that involve citizens in selecting among competing political leaders. The more citizens are involved and the more meaningful their choices, the more democratic the system.* (Almond & Powell, 1984, p. 46)

However, no simple criterion of democracy exists. The sheer number of citizens voting is no guide. Both citizens' fuller participation and the meaningfulness of their choices are essential. The data on citizen participation show that even nations with similar political systems vary substantially in the amount of citizen activity in politics (Almond & Powell, 1984). Also important is the fact that absenteeism from elections has been interpreted both as a sign of the stability of a political system, as well as a sign of the erosion of the system (Agh, 1991).

Not only the "degree" or "type" of democracy can be disputed, but also the necessary and sufficient conditions for democracy. There are two dominant trends in thinking about democracy: "representative democracy" theories and "participatory democracy" theories.

Representative democracy (represented among others by Schumpeter, Truman, Berelson, Sartori, Bentley, Dahl) is a narrower concept of democracy. Politics is connected to the public domain and political authorities. Free elections are the key; voting is the main activity; through elections citizens can exercise control over their political leaders. Political participation is largely restricted to the choice of decision-makers. In arguing for a limited political role for a majority of citizens, it is claimed that every effective organization needs to have a ruling elite (Dekker, 1994, 1996).

Participatory democracy theories (represented among others by Rousseau, Mill, Cole, Barber) stress that politics relates to all social life, and thus is not limited to formal government. Politics take place wherever conflicts happen, decisions are made, and power is involved. Authority structures must be democratized in all areas of life, and maximum popular participation is desired. Since political decisions are founded on values and morals, as well as on information and experience, citizens are seen as "experts", competent to make sound judgments and to choose the correct policy options (Dekker, 1994, 1996).

Different notions of *democratic citizenship* and *civic competencies* are based on a combination of theories of citizenship and democracy in the form of participatory versus representative democracy theories, direct versus

indirect, mass versus elite, or communitarian liberal versus republican. In different concepts of democracy, in different democratic states, different specific political rights, duties and roles for citizens are described and prescribed. Thus, citizens also need different competencies in order to fulfill the role of a citizen, to be "good" citizens of those states. For example, a well-known subject in theories of democracy is the desired extent to which citizens should be politically informed about the current political issues, the relevant facts, what alternatives are proposed, who (party, candidate) stands for what, what the likely consequences of given decisions are, and so on. "Political competence" in one of its more limited usages indicates the level of political knowledge, sometimes also referred to with terms such as "political thinking", "political sophistication", "political literacy", and "political expertise" (Vis, 1994).

Obviously, in both types of democracy theories, political participation of the citizen is required. Participatory democracy theories ask about additional political activity beyond voting, such as hanging out posters, distributing leaflets, signing petitions, taking part in a demonstration/protest, or getting involved in a political party, organization or group (trade union, social action group, human rights group, etc.) (Dekker, 1994).

It is clear that in the case of participatory democracy, the level and scope of civic competencies and expertise is broader than in the case of representative democracy. Participatory democracy requires more of its citizens. This has been one of the arguments for criticizing this orientation. Tinder, for example, asks ironically: "On what human quality does the solution of political problems primarily depend? If on expertise, direct democracy is a dubious ideal; if on common sense, it may be defensible. The question, clearly, is how specialized and rare the necessary quality is" (Tinder, 1986, p. 94).

Of course it can be argued, in turn, that citizens can gain competence through civic education and popular participatory practices. However, it should be borne in mind that the level of civic competencies is also determined by the general level of education of the general public, on the one hand, as well as the history of democratic tradition in a given state/region, on the other hand.

In a later section of this article we will discuss both a set of "basic" minimum democratic citizenship competencies, as well as a broader one including competencies necessary for a broader, more participatory, concept of citizenship. But first we will show the broader historical and political context, explaining the increasing interest in "democratic citizenship" and also the call for a "redefinition" of this notion.

3 Development of Democratic Citizenship

Why has understanding democratic citizenship become so important in the last decade? What are the reasons to deepen and broaden the definition and study it empirically?

In the last decade of the 20th century, "democratic citizenship" and "democratic citizenship education" scored high on the political and educational agenda in many countries in the East as well as in the West. Discussing citizenship seems to be a global concern. Citizenship is high on the political agenda not only of the new, but also of the old, democracies. This is the case because of recent problems regarding dismantling the welfare state, controlling immigration, protecting civil rights, and transforming formerly subject people into active citizens (Klaassen, 1994).

3.1 Why new challenges?

Several general reasons have been given as to why citizens of democratic states are today faced with new challenges:

- Citizenship has been closely related to the idea of the sovereign national state. A worldwide globalization has challenged this because of international interdependence and new forms of international cooperation. The scale (scope) of public life has changed: it often concerns not one single state, but a whole region, or an association of states (or even non-state actors ranging from environmental organizations to multinational corporations). In a globalized economy, decisions made in one region might have effects in a totally different region; more and more often the decisions are made on a supra-national level (as in the EU), while affecting the local level.

- Globalization coincides with processes of fragmentation, pluralization, and individualization. This is also threatening the basis of traditional citizenship: today it has to respond to the process of individualization and the related increased responsibility of the individual for the construction of his/her own identity and the organization of his/her personal life trajectory or biography.
- Public and political matters are characterized by growing complexity. Problems and policies concerned with, for example, social welfare and healthcare, education, and environmental protection are more and more difficult to understand, due to their complexity and their multiple sources and types of manifestations.
- Due to the informational revolution there is an enormous growth in the amount of information that is within the reach of the average citizen. The growing scale of social life, the rising level of communication, and the task of using the available information confronts him/her with new challenges. The role of the mass media has also been changing (Dahl, 1992; Klaassen, 1994, 1996).
- The tragic events taking place during the last four months of 2001 brought a whole new set of challenges to the sense of national security in many countries and a mobilization of positive national feeling unknown in the previous decade in many democratic countries.

Among the more or less global factors are social phenomena characteristic of postmodern societies, such as diminishing community feelings, or social solidarity, especially in societies where self-interest and competition predominate, and there is a relative absence of general understanding of any compelling national narrative. It seems that traditional social and ideological ties of family, state, class, neighborhood, church, and so on, are loosening. The diminishing bonds with traditional social groups and the loss of significance of homogenous value systems and ideological frames of reference provide individuals with more freedom of choice and decision, but also pose the question about how the adult generation should be attempting to orient the behavior of the next generation of individuals acting in the role of citizens (Klaassen, 1994). In Europe as well as in North America this decline in "social capital" has been a particular focus of concern (Putnam, 2001; van Deth, Maraffi, Newton, & Whiteley, 1999).

Besides these general concerns, it is useful to look separately at the problems and challenges faced by the "new" and the "old" democracies.

3.2 New democracies

Not so many years ago, after the Soviet-directed intervention in Czechoslovakia, and after the military coup in Chile, in most of the world it looked as if the non-democratic regimes would last for several decades at least. And then, in three great waves, democracy returned – or emerged – in Southern Europe, in Latin America, in East-Central Europe, as well as in some countries in Asia. We have witnessed a massive, in most cases peaceful, transformation of political regimes. It's worth remembering that the democratic transformations, at least of East-Central European regimes, came as a surprise for both Western analysts and political scientists living in this region. This fact has been interpreted as an indicator of the weakness of our knowledge both about the nature and dynamics of democracy, and of authoritarian regimes (Wiatr, 1993).

Since 1989, the countries in Eastern and Central Europe have implemented major political and economic changes. As a result of these changes, a new political and economic system is emerging. With the introduction of a democratic political system and a market economy have come new processes and new structures which did not exist under state socialism, authoritarian society, and a communist economy. Following these structural changes, democracy and the market economy brought new values and social norms, different from those existing previously. This new economic and political system requires new patterns of behavior among its individual members and different civic competencies of its citizens.

The democratic transitions in former communist countries also have evoked discussions about the extent to which a democratic culture is a precedent and a precondition – or rather an outcome, achieved only slowly – of regime change. In more general terms, the question concerns the relation between the "soft" cultural sphere and the "hard" institutional sphere (and which is the dependent and which is the independent variable). Classic works of, e.g., de Tocqueville, Wilson, or Almond and Verba were aimed at exploring this theme. It seems that an either/or approach is not very useful, as both spheres are complex and have multiple interactions (Agh, 1991). In any case, the weakness of democratic traditions and the existence of a subject political culture were seen as an obstacle and a potential danger for the stability of the new democracies.

It has been assumed that decades of living under authoritarian rule and the sociopolitical and economic system of real socialism have led not only to an evolution of a subject political culture, but also to the development of a kind of modal "socialist" personality, described sometimes by the term *Homo Sovieticus*. This well-known notion connotes an attitude of patience and deference to authority, a fear of individual initiative, a feeling of being caught up in a movement which one does not control, and a perception of the outside world as being hostile and threatening. Actually, *Homo Sovieticus* in its complete or "ideal" form never existed anywhere. However, many years of communist rule have contributed to a wide acceptance of many beliefs, values, and behavioral patterns which are dysfunctional to democratic citizenship and a free market economy (Fratczak-Rudnicka, 1996, 2001). Obstacles to democratic changes were seen not only in the heritage of formal and informal political socialization of the *ancien régime*, but also in the role of the national character in the newly forming democratic states (Keri, 1991), as well as the hardships of the economic transformation.

Eastern and Central European political and educational leaders see the need for democratic citizenship as one of the imperatives of the democratization processes in these countries. This would be a concept of citizenship that would include not only the basic democratic competencies, but also acceptance of ethnic, religious, and cultural differences and minority safeguards. It would stress the importance of increasing social responsibility and conformity to social values such as tolerance, cooperation, empathy, and self-realization.

In this context, and keeping in mind that under socialism social conflicts were suppressed and denied, the importance of including conflict resolution in the concept of democracy seems equally important. As Wiatr states, young democracies will have greater survival chances if social conflicts are recognized in their importance, if democracy is understood not only as a formal procedure, but also as a mechanism of conflict resolution (conflicts generated by cleavages of values, interests, and loyalties in the society at large) (Wiatr, 1993).

Plasser, Ulram, and Waldrauch (1998) present another perspective along with some empirical data. They focus on four tasks as part of the process of democratic consolidation. First is the problem of eliminating formal constraints on democracy such as limits on the rights to organize or unfair election laws; second is the marginalization of political leaders who might stall the democratic process; third is habituating the citizenry to political practices and attitudes; fourth is going beyond the creation of democratic institutions to stabilize and anchor them in all areas of society. To frame the third and fourth points slightly differently, it is not only a process of institutionalizing citizenship in the new social order, but also of internalizing it. As Klaassen puts it, "to instill it in the minds and hearts of the people so that these new democracies will not be at risk" (Klaassen, 1996, p. 378). This process includes the socialization of the young. Looking back over the decade from 1989 to 1999, as far as most post-communist countries are concerned, authoritarian tendencies notwithstanding, massive attitudinal changes have occurred and a democratic political culture seems to be taking root, if slowly, in some areas.

3.3 Older democracies

In the older, well established democracies there are also many political and social processes and phenomena which have stirred discussions about democratic citizenship and the need to redefine this concept, in order to take into account new trends and tendencies. The problems which are facing old democracies include diminishing levels of conventional political participation, especially low rates of voting, declining party attachment and political disinterest, especially among young people.

In Western Europe, an increasing support for racist political parties is a concern of many, and the problem of how European ethnic and regional diversification tendencies can be managed, providing guarantees for human rights, acknowledging the rights of individual citizens to shape their own futures in multicultural societies (Dekker, 1996; Klaassen, 1994, 1996). At the same time, European Community political leaders would like to see some kind of "European citizenship" emerging, or at least they would like to see more support for the European Single Market and the European Union, leading to higher turnout in the elections for the European Parliament (Dekker, 1994).

The undermining and dismantling of the welfare state is another challenging phenomenon. Especially in Western Europe, the modern concepts of citizenship were closely connected with the entitlements of a welfare state. In Western democracies, both the ideology and practice of it are under criticism (i.e., because of the growth of public spending, the accent on collectivism, the development of a "dependence" culture) (Klaassen, 1996).

Generally speaking, the problem of older democracies is often framed as an interest in refreshing or rejuvenating democracy and its appreciation, by young people, resulting in a greater willingness to participate.

3.4 Recent reconceptualizations and distinctions

Some of the issues of the 1990's, especially in the new democracies, have led scholars to distinguish between "electoral democracy", for which regular, competitive, multiparty elections with universal suffrage are the key, and "liberal democracy", which includes more aspects. Liberal democracy also has various definitions, but many would include constraints on the power of the executive (usually through parliamentary or judicial institutions); provisions protecting rights in order to support cultural, political, and civic pluralism; free access to information; substantial freedom of belief and opinion for citizens protected by law and the judicial system; and multiple channels for citizens to develop and express their interests including associations or organizations (Diamond, 1999). Diamond also places considerable emphasis on democratic legitimacy as it is supported in the political culture of adult citizens, discussing the importance of tolerance for opposing political beliefs, and at least a moderate sense of trust in others and in political institutions.

Norris (1999) also discusses the importance of democratic legitimacy by differentiating support for the country as a political community from support for the regime's principles or for its institutions and their performance. One might, for example, have a high level of positive feeling about one's country and be supportive of democratic principles, while at the same time being quite cynical about the current performance of governmental institutions and feeling that democracy as found in one's system of government is not performing well. Recognizing this multidimensional nature of support is at the core of the development of "critical citizens who are dissatisfied with established authorities and traditional hierarchical institutions, who feel that existing channels for participation fall short of democratic ideals, and who want to improve and reaffirm the institutional mechanisms of representative democracy" (Norris, 1999, p. 27).

Plasser, Ulram, and Waldrauch (1998) place considerable emphasis on trust as both a result and a contributor to political stability in new democracies. Trust in government among adults tends to be low in these nations (also Inglehart, 1997). In most countries the large majority of survey respondents in the mid-1990's said they would not want to see the former communist regime restored or parliament replaced by a strong leader. However, there was often a sense of regret about the loss of the economic and social welfare practices of the socialist period, exemplified in the survey results showing that while "private entrepreneurs" are perceived as better off in the current economic situations ("the winners"), "people like myself" and "working class people" are worse off ("the losers").

Theorists such as Janoski (1998) in arriving at a definition of liberal democracy and types of citizenship make another useful set of distinctions – between the state sector, the public sector, the market sector, and the private sector. The size of the public sector and its overlap with the other sectors differs considerably between different countries. Taken together with the approaches just outlined, it is possible to look more closely at the realm of "civil society", defined as "a sphere of dynamic and responsive public discourse between the state, the public sphere consisting of voluntary organizations, and the market sphere concerning private firms and unions" (Janoski, 1998, p. 12). Diamond emphasizes the extent to which citizens engaged in civil society are "acting collectively in a public sphere to express their interests…, exchange information, and make demands on the state" (Diamond, 1999, p. 230). He continues to delineate a wide range of formal and informal organizations in which this action takes place, ranging from cultural associations to those mobilized around particular issues such as the environment or rights for those who experience discrimination to those who attempt to improve civic life and the performance of governmental institutions. Discussion of civil society, under this and other definitions, has become of increasing importance in much of the North American (and some European) discussions of democracy and citizenship. This can also be seen as an attempt to correct for the fact that much of the earlier theorizing about democracy was concerned primarily with citizens' attitudes toward and participation in national governmental institutions. Very often these institutions are at some distance from the average person. Concerns for civil society bring the points of contact to a more local level where face-to-face interactions are possible.

3.5 Conceptualization of democracy in the 1990's: Context for the development of the IEA Civic Education Study

The International Association for the Evaluation of Educational Achievement (a comparative education association of nearly 60 member countries with headquarters in Amsterdam) in 1994 began the process of conceptualizing the

subject area of civic education for the purpose of developing a measuring instrument and conducting a test and survey of young people. The approach was a pragmatic one, aimed at finding a consensus about the fundamental principles of democracy and citizenship across the approximately 30 countries that expressed interest in participating in the study. These countries could all be classified as either "electoral" or "liberal democracies" by the criteria stated earlier in this section (Diamond, 1999). Lengthy case studies concerning the expectations for learning about civic-related subjects by 14-year-olds were formulated within each participating nation (Torney-Purta, Schwille, & Amadeo, 1999). These materials, elaborated during meetings among National Research Coordinators and a process of voting, resulted in a decision to concentrate on three core domains: Democracy, Democratic Institutions, and Citizenship; National Identity; and Social Cohesion and Diversity. With further analysis these domains were elaborated into a Content Framework which contained many of the topic areas discussed in this document: for example, in the first domain, incentives to participate in democracy; problems in transitions of government from non-democratic to democratic; characteristics and functions of elections and parties; citizens' rights, civic duties and obligations; the role of organizations or associations such as those in civil society; and the political implications of economic issues (Appendix of Torney-Purta, Lehmann, Oswald, & Schulz, 2001).

This framework of concepts formed the basis of the test of 38 items measuring civic knowledge and skills in interpreting political information. In addition, the National Research Coordinators decided that only about half the testing time should be devoted to questions with right and wrong answers. Thus, the IEA instrument included a measure of concepts of democracy (understanding of threats to democracy as well as positive or strengthening attributes), concepts of the good adult citizen, and concepts of the social and economic responsibilities of government (as well as a variety of attitudinal and behavioral items). The instrument's designers attempted to represent a variety of theories of democracy (e.g., participatory democracy, liberal democracy, representative democracy, social-welfare democracy) in these measures. They found, however, that some of the abstract distinctions made by political scientists were difficult to phrase in a way that 14-year-olds could comprehend. On the whole, however, the young people showed remarkable agreement with adults surveyed in other studies about the major strengths of democracy and threats to it.

4 Necessary Competencies and Measurement Methodology

What are the civic competencies necessary to meet the demands of democracy in the 21st century, and what methodologies are used to measure them?

Generally speaking, civic competencies refer to knowledge about processes, structures, and issues of political decision-making and to the knowledge relevant for understanding political life and culture. Key political skills include those involved in understanding politically related information (for example, in the mass media) and also those associated with participation (which enables both the practice and learning of democracy). *Attitudes* (dealing with topics ranging from trust in government to the willingness to extend citizen rights to immigrants or members of different ethnic groups) are also important. Some argue that different theories of democracy assume different sets of political rights, duties, and roles for citizens behaving as the ruled or rulers. *Behavioral intentions* usually focus on participation in civic or politically related activities. Below is a list of competencies composed of knowledge, attitudes, skills, and behavioral intention mentioned by different authors as part of the conceptualization of civic competencies.

4.1 Components of competencies

4.1.1 Knowledge

Education for citizenship and democracy involves learning factual knowledge and those fundamental concepts necessary to make complicated social and political matters intelligible (Klaassen, 1994). The North American literature on political knowledge and competence has recently been summarized by Galston (2001), relying heavily on a reanalysis of items measuring adults' knowledge in public opinion polls (Delli Carpini & Ketter, 1996). Galston does not limit the definition of political competence to the acquisition of factual information about parties, issues, and candidates, but he does argue convincingly for the importance of a wide and deep level of civic knowledge as it helps citizens understand their own interests in elections and other political activities and also assists them in understanding political events and in avoiding cynical mistrust, apathy, and intolerance.

Most authors would include under knowledge fundamental concepts of democracy and democratic institutions (e.g., the function of constitutions, parliaments, and judicial systems, as well as threats to democracy), concepts of citizenship (the rights and duties of citizens in a democracy, the role of mass media in informing citizens). These are the types of knowledge that can be useful in understanding civic competencies, though it is always important to check their applicability across countries.

In addition, there are many elements of knowledge that are important within an individual country: the political system of one's state (the fundamental values on which the government is based, its basic elements, opportunities for participation, how conflicts and controversies are dealt with); knowledge of policy-making and execution of policy by the different authorities; knowledge of political actors (both persons and groups such as political parties, pressure and interest groups); knowledge of the country's position internationally; knowledge of history and economics as they have an impact upon political matters.

The instruments used to measure knowledge range from essays (not dealt with here) to multiple choice or true-false questions. Multiple choice questions have been administered in written instruments to groups (often in classroom settings, as in the IEA Study, the NAEP Civic Assessment in the United States, or provincial tests in Canada) and have been administered by telephone or in person to adults (for example, the Eurobarometer, the National Election Study, or a Roper Survey, to give only a few examples). When such items are part of an adult study, they are usually small in number and deal primarily with political information (about one's own country, its leaders, and current issues). The average classroom survey tends to include more items and to form and analyze scale scores. Sometimes, experts in education or political studies are asked to designate adequate and inadequate levels of performance for students, as in NAEP (Lutkus, Weiss, Campbell, Mazzeo, & Lazer, 1999).

4.1.2 Skills

Skills in interpreting political information are often not distinguished from knowledge as defined above. Recently, however, there have been both theoretical and empirical approaches to understanding the extent to which young people and adults are able to gather political information, understand the meaning of communications such as those in newspapers or on television, make judgments between positions or candidates, communicate verbally and in writing about political issues, rationally formulate opinions, participate (and listen) in value-orienting discussion, know how to reach a compromise, take a selective and critical approach to information, and understand political debate (to be able to participate in it if desired). Sometimes these have been assessed in individual interviews or research laboratory settings in which standardized material is presented either in written or video form (Kuhn, 1991; Rahn, Aldrich, & Boride, 1994), and recently paper and pencil techniques to measure skills have been administered in groups as part of large-scale studies (Lutkus, Weiss, Campbell, Mazzeo & Lazer, 1999; Torney-Purta, Lehman, Oswald, & Schulz, 2001).

4.1.3 Having a concept or opinion about…

This is sometimes thought of as a kind of intermediary step between knowledge (clearly cognitive) and attitudes (clearly affective). The concepts often include democracy, citizenship, government of one's political system, or the existence of discrimination in society. The objects about which one might have an opinion include major political issues and controversies, leaders, or candidates. Rating scales (without right and wrong answers) are often used for the concept measures. Not having an opinion can be assessed by comparing the number of don't know responses to a set of attitude or concept items.

4.1.4 Attitudes

Measures of attitudes have been the mainstay of many studies relating to political and civic competence. They present some difficulties of both a conceptual and a practical nature when thought of as part of a "competence" but are important nevertheless (Torney-Purta, 1994). There is a very long potential list here, but included in many studies are positive support for the political community, including feelings of national solidarity or "reasoned" patriotism, attachment to and belief in the legitimacy of the democratic system, valuing democracy, trust and confidence in the democratic system, support of electoral institutions and processes, support of democratic rights and duties, support of political freedom, respect for diversity, openness for other opinions, tolerance of views different from one's own, the acceptance of political pluralism, acceptance of the principle of equality, respect for the personality and individuality of other people, a sense of political efficacy, the confidence in one's own abilities to influence others and in the ability to participate politically, believing it is a duty to get involved, and support for cultural, racial, religious, or gender diversity in politics.

4.1.5 Behavioral intentions

These include a willingness to participate (or actual participation), willingness to vote, willingness to obtain and be critical about information and policies, willingness to change opinion in case of contrary evidence, willingness to participate in conventional political activities in addition to voting, willingness to obey majority decisions, willingness to participate in non-violent protest activities, willingness to be a candidate for/member of a representative body, willingness to participate in issue-based or community serving organizations, and a coherent sense of oneself as a citizen within both a national and a local community.[1]

Common observation, as well as many scientific studies, demonstrates that few citizens have more than a few of these competencies. Thus, and following Dahl's suggestion, Dekker (1996, p. 396) seeks a "good-enough" citizenship competence level, that is, one that would include sufficient or minimum democratic competence requirements. These are:

- Basic knowledge and concepts: concepts of democracy and citizenship, knowledge about the political system of one's state, key political issues, and knowledge of political actors.
- Basic attitudes and behavioral intentions: attachment to and belief in the legitimacy of the democratic system, tolerance, being supportive of political freedom, having a party/leader/candidate preference, and being willing to vote.

Janoski (1998) matches needed citizen competencies (rights and obligations as well as a generally active, passive or inactive orientation) to liberal, traditional, and social democratic regimes, paying particular attention to the size of the public sphere and its relation to the other spheres.

In the context of recent discussions on the need to reconceptualize the notion of citizenship in post-modern societies, some authors would argue that there should be a better correspondence among democracy, values, and morality as integral components of citizenship today, and that education should provide situations where students can debate ethical issues, grapple with political and personal dilemmas, and develop those participatory and decision making skills – as individuals and group members (Klaassen, 1994, 1996).

> *Stimulating citizenship in this context means that students must learn to participate in a moral or value-oriented discussion. It means that students must learn to cope with different social and political viewpoints and must learn to apply principles of democracy onto their daily lives. Stimulating citizenship does not only consist in learning about democracy with its civil, political and social competence. It also deals with the possibility of stimulating an autonomous and self-reliant person, who knows how to interact with others who have different opinions and values. [...] Students should be confronted with the fact of diversity and fragmentation, theoretical as well as practically. By also learning the necessary interactive principles, they know how to interact with each other in a pluralistic society that lacks a unified moral basis.* (Klaassen, 1994, p. 17)

What this section has provided is an organized (if incomplete) list on which future discussions can be based, along with some issues for further debate.

5 Relationship to DeSeCo's Three Categories of Key Competencies

5.1 Capacity to act autonomously and reflectively

In the political arena, the most important competencies are skills and a specific kind of knowledge. In order to act "autonomously and reflectively" in the sphere of politics and social issues, the citizen has to be able to understand political communications. This means being able to understand common types of communication tools, such as articles in a popular newspaper, the content of TV news, a speech, leaflets, slogans, cartoons, etc. In turn, in order

[1] A wide range of authors could have been cited for the categories of attitudes and behavioral intentions. They include Conover and Searing, 2000; Dekker, 1996; Almond and Powell, 1984; Dahl, 1992; Ludwikowski, 1998; Robinson, Shaver, and Wrightsman, 1999; Torney-Purta, et al., 2001; Vis, 1994.

to do that, he/she has to know the meaning of the basic vocabulary used, understand the main symbols referred to in such communication, be able to recognize the persuasive intentions of messages (and their directions), identify arguments and counter-arguments used in political discussions, and be able to differentiate facts from opinions.

Following Galston (2001) and Delli Carpini and Keeter (1996), we could add the ability to understand one's own interests, especially in an election. In other words, which candidate or party is most likely to support policies from which one is likely to benefit or which correspond to one's values (e.g., policies supporting study grants if one is a university student, policies to build subsidized housing if one is living in a small apartment, policies to assist older persons if one has deep respect for the elderly, and so on). To this we should add at least a minimum level of interest in politics, influencing the motivation to practice the above-mentioned skills. All this reflects only the more passive aspect of the communication process – namely, understanding, which gives one the capacity to act ("autonomously and reflectively") if one wishes.

The necessary skills would also include the skills which correspond to the active aspect of the communication process: the ability to formulate comprehensible political messages and to express one's opinions and values to others.

However, with respect to this point, action and participation may not be necessary on the part of every citizen. Even the decision not to act and not to participate can be a legitimate result of an "autonomous and reflective" decision making process on the part of an individual.

5.2 Capacity to join and function in socially heterogeneous groups

In order to be able to join and function in socially heterogeneous groups, certain skills and attitudes seem to be "key". It seems crucial to learn to participate in value-oriented discussions (meaning here not only the "skill" of effective communication as described above, but the competencies necessary to adapt one's discussion style to different social and political viewpoints, to generate and evaluate alternative points of view, to reach a compromise and know when not to compromise because of strongly held values, and to establish rules democratically and participate in leadership).

"Key" attitudes here are knowing one's own basic values and those of groups important in one's political identity, being willing to listen to views different from one's own, accepting social and political pluralism, accepting the principal of equality, and having respect for democratic participation and decision making rules (the respect for majority decisions and minority rights). Torney-Purta (1994) discusses a process of moral and social decision-making as it applies to value-oriented discussions and situations.

Respect for democratically established authority, rules, and leaders should not imply an uncritical approach to them (to enable the potential exercising of the control function).

This competence also implies the capacity identified by Haste (2001) to find and sustain links with various communities (groups important to the young person in establishing a sense of identity in relation to political and social institutions).

5.3 Capacity to use tools effectively and interactively

Having this capacity assumes having the knowledge of where and how to get information and communicate one's opinions and ideas in order to "be heard", and the knowledge of how to act in order to exert influence, that is, realistic strategies.

The feeling of confidence in one's own abilities to influence both individuals and institutions is also important. This involves a constellation of competencies studied for more than 50 years by those specializing in political science using the concept of "political efficacy" (internal and external). This concept is also important in the theory of the psychologist Bandura, who has conceptualized the "sense of self-efficacy" and, more recently, "collective efficacy" (Bandura, 2001). The common core of internal efficacy and self-efficacy is a belief in one's ability to accomplish goals that one has chosen (which in the case of political efficacy includes the goal of improving the community or influencing governmental or political action). The concept of collective efficacy adds the idea that joining

with a group to take action is often more effective than taking action by oneself. External political efficacy is a belief in the responsiveness of political institutions to attempts by citizens to influence them, and can be thought of as a dimension of trust in government-related institutions.

6 Methodologies and the IEA Civic Education Study

Methodologies for measuring competencies that fall into these categories were previously discussed in conjunction with the competencies. Instruments designed for adolescents, to be administered in classroom environments, and to be translated into several languages have some particular challenges (in contrast to those administered to adults or in person by telephone interview uni-lingually or even in two languages).

Previous sections have described the overall design of the IEA Civic Education Study (in two phases, the first a qualitative, and the second a quantitative, survey of 90,000 adolescents in 28 countries) and the theories of democracy, which were referred to in the section on the design of the instrument. The IEA Civic Education Study used a 5-year process of development involving research coordinators from more than 20 countries and two pilot tests to arrive at an instrument that would be suitable for group administration, that was at an appropriate reading level, and whose items were formulated clearly enough to be translated into 20 languages.

Of particular interest in this study and of value for future studies is the knowledge test, 38 items measuring content knowledge (in the categories described earlier). This test was developed with IRT scaling and is a psychometrically strong instrument with remarkably few item by country interactions. Twenty-five of these test items were designed to measure content knowledge, while 13 measured skills in interpreting civic information (e.g., a political leaflet, political cartoons, a mock newspaper article). Although these two subscores were highly correlated at the student level, there were nevertheless differences in patterns of performance between countries. Students in several countries scored in a similar way on both; for example, students in Poland, Finland, Cyprus, Greece, Hong Kong (SAR), Italy, the Slovak Republic, and Norway performed well on both content and skills subscales. In contrast, students in the United States, Australia, England, and Sweden performed well on skills but only at an average level (or below average) on content knowledge. This pattern was reversed in the Czech Republic, Hungary, and Slovenia; that is, the students performed well on content knowledge and at only an average level on skills in interpreting political information. Generally speaking, the well-established democracies were more likely than the new democracies to have high scores on skills.[2]

Other methodological advances in the IEA study included a 25-item measure of the concept of democracy. As previously indicated, it was possible to build in several overlapping conceptualizations derived from theories of democracy, as well as asking about threats to democracy in addition to important supportive factors. There was consensus across countries about many of the aspects of democracy identified by political theorists, for example, that freedom to express one's opinion and to vote are very important and positive for democracy. In contrast, students in all countries saw as threats to democracy characteristics such as politicians influencing courts or appointing members of their families. This measure also has potential for future use.

Measures of students' concepts of the good citizen in conventional political terms (voting, participating in political parties or discussions) and of the good citizen in terms of participation in social movement activities (belonging to environmental or human rights groups) were developed. Looking at individual items, it is clear that young people in the late 1990's believed that citizens should vote and obey the law, but apart from that they were much more supportive of social movement activities than of conventional political activities such as political party membership or participation in political discussion.

Again, to highlight a few country differences: all the participating countries in Southern Europe (Cyprus, Greece, Italy, and Portugal) as well as in Latin America (Chile and Colombia) and North America (the United States), along with three post-Communist countries (Lithuania, Romania, and the Slovak Republic) had scores above the international mean in conceptualizing the good citizen as someone who should be involved in both conventional and

[2] For more detail about all the IEA findings cited, see Torney-Purta, Lehmann, Oswald, and Schulz (2001), Torney-Purta (2001), and Torney-Purta (2002).

social movement activities. Several of the other post-Communist countries (the Czech Republic, Estonia, Slovenia) as well as many of the Northern European countries (Belgium, Denmark, England, Finland, Sweden, and Switzerland) had scores below the international mean on these scales, associating citizenship with neither conventional political behavior nor social movement activity.

Measures (as yet unanalyzed) were included of the sense of external political efficacy (in relation to the government) and confidence in one's ability to participate in politics. A scale was constructed assessing the students' sense of efficacy in the school environment – Confidence in Participation at School. The scores were especially high in Cyprus, Greece, and Portugal – countries where other forms of political activity were also high. Denmark, Norway, and Sweden were also above the mean. Countries where confidence in participation at school was low included many of the post-Communist countries, as well as Germany and Switzerland.

7 Models Used in the IEA Civic Education Study

How do the models and findings of the IEA Civic Education Study relate to the dimensions of the competencies identified?

This section will first describe the models of civic education processes that were employed in the IEA study (e.g., the educational and psychological theories that framed it) and will then highlight some additional findings with relevance for contextualizing and defining civic competencies.

The Octagon model developed in the IEA Civic Education Study was inspired in part by contemporary psychological theories on the ecological approach to studying development (of Bronfenbrenner) and the situated cognition theories (of Lave and Wenger). The model captures the dynamic relation between the individual and societal levels. In the center is the individual student, surrounded by public discourse or discussion of the goals, values, and practices related to civic education. This discussion influences the individual student through face-to-face everyday contact with the family (parents, siblings, extended family), the school (teachers, administrators, the intended curriculum and participation opportunities), the peer group (as it functions both in and out of school), and neighbors (including youth and community organizations). In addition to these face-to-face relationships, there is also the impact of television and other media. Our emphasis was on the school and the peer group (especially as it functions in classrooms and school organizations). The outer octagon, which circumscribes these processes, includes institutions, processes and values in domains such as politics, education, and economics. It also includes the position of the nation within its region and the world. Laws and formal legal institutions are only one facet of this structure.

The perspective was similar to that of psychologists such as Tudge (Tudge et al., 1998), who conducted observational studies in the United States, Korea, Estonia, and Russia to examine heterogeneity within these cultures in the everyday activities in which children engage and how they are shaped by the values and experiences of parents in the educational and economic spheres. His approach is also quite similar to the model of "tool user" developed by Haste (2001) in the DeSeCo Project. Although these sources were not available to the IEA project at the time we were developing the conceptual framework, we did seek out work by Lave and Wenger (1991) and, when it became available, by Wenger (1998) to develop an enriched understanding of processes of learning in relation to the political community (broadly conceived as a "community of practice"). These authors lay out the ways in which individuals become increasingly closely connected to communities at the personal and local levels (with implications for the national and international levels). Let us examine some of Wenger's concepts that relate especially closely to the subject matter of civic and political competencies.

Learning is related to practice and to face-to-face communities to which young people belong, according to Wenger (1998). This means mutual engagement in action and the opportunity to try out one's knowledge in interpersonal situations, always seeking to make the experience more meaningful by discussing it with others. Students need to move beyond diagrams about how a proposal becomes enacted into law in the national parliament to see how their ideas and ideals about society work out when put into practice. This practice can be more effective if educators ensure that discussion and practice are anchored to explicit consideration of civic and political experience. In some cases it is unrealistic to expect that students will make the necessary links on their own or understand the subtle messages that are included in lessons.

Let us examine some relevant findings from the IEA study related to the ideas of communities of practice. Like Tudge, we were as interested in understanding heterogeneity within a country as we were differences between countries. Of particular importance was the understanding of what is related to students' likelihood of voting, as a basic index of civic engagement. Like Tudge, we found that the educational background of the parents (as reflected in the number of books in the home) and the students' own expected level of education had a very similar and quite strong effect in some countries. For example, both educational factors were significant predictors of the likelihood of voting in Denmark, England, Switzerland, and the United States. Expected education by itself was an especially strong predictor in Finland.

Wenger's prediction would be that the experience that the young person has within the classroom of an open, trusting, and respectful climate for discussion with classmates would also be important. In fact, in the IEA study, the extent to which respondents reported that such a climate existed in their classrooms was a predictor in the majority of countries of the likelihood of voting (and also of several other measures, such as civic knowledge and the students' confidence in their ability to be effective participants in decisions influencing their school). A sense that one is a member of a classroom community in which one can engage in the practice of discussion as a mode of learning is very important.

Another highlight of the IEA results regarding predictors of civic engagement is that both the amount of civic knowledge and the extent to which students reported that elections and voting were emphasized in their schools' classes and curriculum were significant predictors of the likelihood of voting. This is in line with the review by Galston (2001). We also asked a sample of teachers whether they believed that they emphasized voting and elections in their classroom; in the large majority of countries, more teachers than students thought this was an emphasis in the classroom. Some of the implicit messages that teachers take for granted may not be coming across to students.

Another important dimension raised by Wenger is the extent to which learning creates identities, that is, personal histories or trajectories that link experiences in families with experiences with friends in school and in communities. This includes the kind of generalized support for the political community that Norris mentions as very important.

In countries that have recently experienced political transitions, there may be a somewhat fragile sense of national identity. National narratives, which gave meaning to individuals' understandings of themselves and their place in the world, have radically changed (Markowitz, 2000). In some countries national identity has been shaped by a threat to national sovereignty, especially likely in Cyprus. In some cases, the regime transformation took place in a very visible way that shaped identity and created a new set of narratives (probably especially true in Poland and the Czech Republic/Slovak Republic). All of these countries had scores on the measure of positive national identity that were above the international mean (as did Chile, Finland, Portugal, and Colombia).

Many observers also emphasize the importance of trust in government. In the IEA study, trust was at least at a moderate level in most countries, though it was substantially lower in the new democracies (especially Slovenia, the Russian Federation, and Bulgaria). Trust was especially high in Denmark, Norway, and Switzerland. These findings largely correspond with those in studies of adults, such as the World Value Survey (Inglehart, 1997).

Other groups also shape identity in relation to political action. The best examples in the IEA study are gender and immigrant status.[3] There was a measure of support for women's political and economic rights as well as a measure of positive attitudes toward immigrants (primarily dealing with their rights and opportunities). These both deal with rights and pluralism as a value. Here again, heterogeneity within countries provides very interesting data. Overall, students were positive about women's holding of political and economic rights.

There were substantial gender differences in both support for immigrants' rights and support for women's rights, however, with the most substantial differences for women's rights. The gender differences in supporting women's rights were especially large in Australia, England, Greece, Norway, and the United States.

[3] Racial, ethnic, or linguistic group identities are also important. However, it proved difficult to measure these in a way across countries that allowed for full international analysis.

Being an immigrant also appears to be a salient identity for these students. In those countries with large enough numbers of immigrants to compute a stable attitude estimate, those born outside the country have more positive attitudes to immigrants and their rights than those born in the country.[4]

In summary, the IEA study, both in its model and some of its findings, enriches the process of conceptualizing competencies and outcomes in the civic and political domains.

8 Relating IEA Competencies to the Work of DeSeCo

What is the relation of the civic competencies described by the previous literature in political studies and by the IEA study to the OECD/DeSeCo competencies?[5]

In one of the concluding chapters of the DeSeCo book, Trier notes the following:

> *Perhaps the most important lesson we can learn from the experiences of the 20th century is that political responsibility through democratic processes has priority above all other dimensions of social life. That is to say, it would be more than a goal for education: it should be a principle of social, and even economic organization. Democracy exists only where it is lived.* (Trier, 2001, p. 242)

This quotation is a frame in which the purposes of this paper can be contextualized, especially in Trier's emphasis on the everyday experiences in the living of democracy. Civic and political competencies cannot be defined solely in terms of distant political institutions and complex processes or duties which young people cannot undertake fully until they are adults. Frameworks need to take this into account. Democratic competencies for youth should include but not be limited to knowledge and preparation for future participation in adult-organized institutions.

Another way of looking at this area in relation to the competence-defining process is to focus on an issue that several of the previous contributions to the DeSeCo Project have dealt with rather briefly. At what level should competencies be defined – the individual level, the level of the individual seen within a sociocultural context or "situation," or the level of distributed competencies within the group? Let us look at each of these in turn.

In the first of these three approaches, competence development is seen as taking place within *individuals* as a function of experience (including education). Autonomy, motivation to achieve, and cooperativeness are traits that individuals develop. As they gain greater mental complexity, they become better able as individuals to understand narratives, use a variety of tools, and solve puzzles as adults define them. The existence of competence in the individual, coupled with motivation, results in performance. Although several authors in the DeSeCo volume discuss group participation as a competence, the decision to take part is usually thought to result from an individual's personal inclination to cooperativeness without much consideration of the context in which participation is embedded. The large majority of empirical survey studies of competencies (including the IEA and the OECD studies) take the individual as the unit of measurement (which is understandable for pragmatic reasons) but also as the unit for framing most analysis (which may be limiting).

Some of the DeSeCo papers and parts of the conceptual framework of the IEA study, however, look at the *individual within a situation or context* (those papers that deal with the sociocultural approach), or they look at competencies as distributed within an inter-relating group of individuals and not as existing only within individuals.

The area of political and civic competencies is a particularly interesting and challenging one in which to focus on the situation or contexts for competence and on competencies as distributed rather than existing within the individual.

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[4] Covered more fully in Torney-Purta (2002).

[5] See previous section on links to DeSeCo key competencies.

We will first turn to an example of the ways in which a focus on the domain of democracy may challenge the individual competence paradigm by bringing in a sociocultural perspective on situations and contexts for learning. Classrooms in which young people experience encouragement to discuss political issues in a climate of respect for others' opinions have strong positive impacts on civic knowledge and engagement (Torney-Purta et al., 2001). This is one example of how an everyday context or situation for discourse that is co-constructed by both students and the teacher is only partially understood if it is interpreted only in terms of individuals who each possess a specific amount of motivation to participate. In fact, many of the studies of effective learning communities take this point of view, that students' peers can be as important in providing a situation or context for learning as the curriculum and the individual's past educational experience (Torney-Purta, 1996; Falk & Dierking, 2000). Motivation is a characteristic of the situation constructed by the group and cannot be neatly separated from behavior or practice.

Now for two examples of how the idea of *distributed competencies* might also challenge the individually based view and suggest some ways of framing the tension of innovation and continuity raised by Haste (2001). First, the notion of distributed competencies suggests that trust in government-related institutions does not necessarily need to exist at a high level in every citizen for democracy to thrive, as long as it is not extremely low in a significant proportion of the citizenry. In other words, there might be sufficient "diffuse support" distributed among the majority of the members of the population in the form of trust in government, at the same time as there is a small group of citizens who are not as trusting and are poised to call the government to account for instances of injustice or corruption. As long as the methods they choose are non-violent, this might be thought of as a strength, not a weakness, for a democracy. This may be easier to visualize in well-established democracies, where there tends to be a relatively high and stable sense of trust than in democracies in the process of consolidation. At times of national or international crisis, this formulation also might be less appropriate.

To take a second example, sophisticated knowledge of the political system must exist among political elites. And there must be basic political knowledge (of fundamental democratic principles) and skills (in interpreting and acting in the political world) that are widely distributed in the population. But, going along with the "good enough citizen" notion of Dahl (cited by Dekker, 1996), not every citizen may need a highly sophisticated understanding of political details or nuances (Kuklinski and Jerit, 2001, writing about what it is realistic to expect of citizens).

One of the reasons that the contextualized and distributive perspectives have not been taken very seriously in many empirical studies is the longstanding emphasis on analysis of the central tendency of samples of individuals rather than attending to distributions and extreme groups (at one end or the other of the distribution). Multilevel models are also a way to address some of these issues. It may be that advances in both methodological and conceptual directions are needed in the investigation of competencies. The domain of political and civic competence is particularly well suited to compare these three views: first, individual competencies; second, the individual as a co-constructor of a context in which competencies and practice are defined; and third, distributed competencies.

9 References

Agh, A. (1991). Political culture as a dimension of regime change. In I. Stumpf & Z. Bekes (Eds.), *How to be a democrat in a post-communist society?* (pp. 7–28). Budapest: Hungarian Center for Political Education.

Almond, G.A., & Powell, G.B., Jr. (1984). System, process and policy. In G.A. Almond & G.B. Powell, Jr. (Eds.), *Comparative politics today: A world view* (pp. 29–134). Boston, Toronto: Little, Brown and Company.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. In S. Fiske, D. Schacter, & C. Zahn-Waxler (Eds.), *Annual Review of Psychology*. Volume 52. Palo Alto, CA: Annual Reviews Press.

Conover, P.J., & Searing, D.D. (2000). A political socialization perspective. In L.M. McDonnell, P.M. Timpane, & R. Benjamin (Eds.), *Rediscovering the democratic purposes of education*. Lawrence, KA: University Press of Kansas.

Dahl, R.A. (1992). The problem of civic competence. *Journal of Democracy* 3(4), 45–60.

Dekker, H. (1996). Democratic citizen competence: Political-psychological and political socialization research perspectives. In R.F. Farnen, H. Dekker, R. Meyenberg, & D.B. German (Eds.), *Democracy, socialization and conflicting loyalties in East and West* (pp. 386–410). Houndslills, Basingstoke, Hampshire and London: Macmillan Press LTD.

Dekker, H. (1994). Socialization and education of young people for democratic citizenship: Theory and research. In R. Holly (Ed.), *Political consciousness and civic education during the transformation of the system* (pp. 11–43). Warsaw: Instytut Studiów Politycznych PAN.

Delli Carpini, M., & Keeter, S. (1996). *What Americans know about politics and why it matters*. New Haven: Yale University Press.

Diamond, L. (1999). *Developing democracy: Toward consolidation*. Baltimore: Johns Hopkins University Press.

Falk, J.H., & Dierking, L.D. (2000). *Learning from museums: Visitor experiences and the making of meaning*. Lanham, MD: AltaMira Press.

Fratczak-Rudnicka, B. (1996). Recent changes in Polish youth's social and political consciousness. In R.F. Farnen, H. Dekker, R. Meyenberg, & D.B. German (Eds.), *Democracy, socialization and conflicting loyalties in East and West* (pp. 331–337). Houndslills, Basingstoke, Hampshire and London: Macmillan Press LTD.

Fratczak-Rudnicka, B. (2001). *Polish youth – The lesson of democracy learned*. Paper presented at the conference *Learning Democracy*, Stockholm, May 9th–11th, 2001, organized by Skolverket.

Galston, W. (2001). Political knowledge, political engagement, and civic education. *Annual Review of Political Science*, 4, 217–34.

Grabowska, M., Sielawa-Kolbowska, K.E., Kosela, K., & Szawiel, T. (1998). *Demokracja i szkoa [School and democracy]*, Warsaw: Instytut Bada Nad Podstawami Demokracji.

Haste, H. (2001). Ambiguity, autonomy, and agency: Psychological challenges to new competence. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 93–120). Göttingen, Germany: Hogrefe & Huber.

Held, D. (1996). *Models of democracy*. Stanford, CA: Stanford University Press.

Hepburn, M.A. (1994). Public news media and political education in democratic society. In G. Csepeli, D. German, L. Keri, & I. Stumpf (Eds.), *From subject to citizen* (pp. 79–99). Budapest: Hungarian Center for Political Education.

Inglehart, R. (1997). *Modernization and post-modernization*. Princeton: Princeton University Press.

Janoski, T. (1998). *Citizenship and civil society: A framework of rights and obligations in liberal, traditional, and social democratic regimes*. Cambridge: Cambridge University Press.

Keri, L. (1991). Facing new challenges (Possible dilemmas of political socialization in Hungary). In I. Stumpf & Z. Bekes (Eds.), *How to be a democrat in a post-communist society?* (pp. 29–42). Budapest: Hungarian Center for Political Education.

Klaassen, C.A. (1994). Socialization for moral democracy. In G. Csepeli, D. German, L. Keri, & I. Stumpf (Eds.), *From subject to citizen* (pp. 15–32). Budapest: Hungarian Center for Political Education.

Klaassen, C.A. (1996). Socialization for moral democracy. In R.F. Farnen, H. Dekker, R. Meyenberg, & D.B. German (Eds.), *Democracy, socialization and conflicting loyalties in East and West* (pp. 376–385). Houndslills, Basingstoke, Hampshire and London: Macmillan Press LTD.

Kuhn, D. (1991). *The skills of argument*. Cambridge: Cambridge University Press.

Kuklinski, J., & Jerit, J. (2001). The meaning of 'attitude' in representative democracies. In J. Kuklinski (Ed.), *Citizens and politics: Perspectives from political psychology* (pp. 341–351). Cambridge: Cambridge University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Ludwikowski, R.R. (1998). *Demokracja [Democracy]*. In Encyklopedia socjologii (vol. 1) (pp. 119–125). Warsaw: Oficyna Naukowa.

Lutkus, A.D., Weiss, A.R., Campbell, J.R., Mazzeo, J., & Lazer, S. (1999). *The NAEP civics report card for the nation*. Washington, D.C.: National Center for Education Statistics.

Markowitz, F. (2000). *Coming of age in post-Soviet Russia*. Urbana, IL: University of Illinois Press.

Norris, P. (1999). *Critical Citizens: Global Support for democratic governance*. Oxford: Oxford University Press, Inc.

Plasser, F., Ulram P., & Waldrauch, H. (1998). *Democratic consolidation in East-Central Europe*. New York: St. Martin's Press (a translation of *Politischer Kulturwandel in Ost-Mitteleuropa*, 1997).

Putnam, R. (2001). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.

Rahn, W.M., Aldrich, J.H., & Borgida, E. (1994). Individual and contextual variations in political candidate appraisal. *American Political Science Review*, 88, pp. 193–199.

Robinson, J., Shaver, P., & Wrightsman, L. (1999). *Measures of political attitudes*. San Diego: Academic Press.

Tinder, G. (1986). *Political thinking: The perennial question*. Glenview, London: Scott, Foresman, and Company.

Torney-Purta, J. (1994). Assessing effective outcomes. In A. Tuijnman and T.N. Postlethwaite (Eds.), *Monitoring the standards of education* (pp. 151–169). Oxford: Pergamon.

Torney-Purta, J. (1996). Conceptual changes among adolescents using computer networks in group-mediated international role playing. In S. Vosniadou, E. DeCorte, R. Glaser, and H. Mandl (Eds.), *International perspectives on the design of technology supported environments*. Hillsdale, NJ: Erlbaum.

Torney-Purta, J. (2001). Civic knowledge, beliefs about democratic institutions, and civic engagement among 14-year-olds. *Prospects*, 31(3), 279–292.

Torney-Purta, J. (2002). Patterns of similarities and differences among European countries in adolescents' civic knowledge, engagement and attitudes. *European Journal of Education*, 37 (2), pp. 129–141.

Torney-Purta, J., Lehmann, R., Oswald, H., & Schulz, W. (2001). *Citizenship and education in 28 countries: Civic knowledge and engagement at age 14*. Amsterdam: IEA (Available in North America from 1-800-285-2221, product code 235-0042).

Torney-Purta, J., Schwille, J., & Amadeo, J. (1999) *Civic education across countries: 24 national case studies from the IEA Civic Education Project*. Amsterdam: IEA.

Trier U.P. (2001). Defining educational goals: A window to the future. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 241–246). Göttingen, Germany: Hogrefe & Huber.

Tudge, J., Hogan, D., Lee, S., Tammeveski, P., Meltsas, M., Kulakova, N., Snezhkova, I., & Putnam, S. (1998). Cultural heterogeneity: Parental values and beliefs and their preschoolers' activities in the United States, South Korea, Russia, and Estonia. In A. Goncu (Ed.), *Children's engagement in the social world: Sociocultural perspectives*. Cambridge: Cambridge University Press, 1999.

Van Deth, J., Maraffi, J., Newton, K., & Whiteley, P.F. (1999). *Social capital and European democracy*. London: Routledge.

Vis, J.C.P.M. (1994). Citizenship and political knowledge. In G. Csepeli, D. German, L. Keri, & I. Stumpf (Eds.), *From subject to citizen* (pp. 33–54). Budapest: Hungarian Center for Political Education.

Wenger, E. (1998). *Communities of practice*. Cambridge: Cambridge University Press.

Wiatr, J.J. (1993). Social conflict and democratic stability. In J.J. Wiatr (Ed.), *The politics of democratic transformation: Poland after 1989* (pp. 7–31). Warsaw: Scholar.

Key Competencies: An ILO Perspective

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1 ILO's Focus on Key Competencies for Lifelong Employability

The interaction of globalization, technological development and changes in the organization of work have resulted in the demand for higher and different skills.[1] Skills have become increasingly important in determining an individual's ability to secure a job, retain employment and move flexibly in the labour market. Maintaining workforce employability is one of the major challenges for individuals, enterprises, governments and society at large. Although vocational skills remain important, another category of skills has become crucial for the individual's employability. This category has been variously labelled under key and core skills, key competencies, generic skills, etc. These skills differ both in number and type according to the socio-economic context and time reference. But, there is consensus over the requirement of higher and non-vocational skills that enable the individual to perform effectively at work and in society. In other terms, an individual's employability is characterized by a set of vocational and key competencies that can be adapted and transferred across occupational sectors. They build upon and strengthen the foundation skills developed in basic education.[2] For the purpose of this paper we will refer to key competencies for the world of work as "key work competencies".

2 Key Competencies in the World of Work

The ILO's work on key competencies focuses on knowledge, skills and attitudes that prepare individuals to compete effectively in the labour market and integrate fully into economic and social life. Education and training are the main competency-building instruments enabling humans to face the rapidly changing and increasingly demanding world of work. Competence is a combination of knowledge, skills and attitudes that are acquired at different stages in life, starting from basic education, moving on to initial training and continuing throughout adult working life. It is much more than a linear, sequential acquisition of a narrow set of job-related skills and the ability to carry out specific tasks in a single workplace. The skills needed to succeed in the workplace have changed significantly over the past three decades. In the 1960s, jobs were classified in the United States at 20 per cent professional, 20 per cent skilled and 60 per cent unskilled. By the mid-1990s, however, the percentage for skilled and unskilled workers had reversed, with 60 per cent skilled and 20 per cent unskilled. Similar changes in workforce composition seem to be occurring in many industrialized and developing countries. When employers are asked what competencies job applicants are missing, they mention the following skills the most frequently: learning how to learn; competence in reading, writing and computing; effective listening and oral communication skills; adaptability through creative thinking and problem solving; personal management with strong self-esteem and initiative; interpersonal skills; the ability to work in teams or groups; basic technology skills; and leadership effectiveness.[3]

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[1] ILO: World employment report 1998-99: Employability in the global economy (Geneva, 1998).

[2] ILO: Learning and training for work in the knowledge society (Geneva, 2002).

[3] 21st century skills for 21st century jobs. U.S. Departments of Commerce, Education and Labor, National Institute for Literacy, and the Small Business Administration (Washington, DC, 1999).

The knowledge society and today's world of work call for individuals who are able to flexibly acquire, adapt, apply and transfer their knowledge in different contexts and under varying technological conditions, as well as to respond independently and creatively.[4]

3 Demand for Multi-Skilled Workers

New forms of work organizations that are more flexible and process-based are replacing traditional mass and Taylorist production systems, as well as organizations based on hierarchical command and control. These changes have been brought about by increased competition of the global markets and the diffusion of new technology. New systems are required to meet greater competitiveness, flexibility, enhanced quality, reduced life-time of products and services, and ability to quickly respond to customers' needs. Within this new system, work is undertaken more and more by teams of workers who are also involved in aspects other than direct work activities. Multi-skilled employees rotate around self-directed teams, with managers playing more of a facilitation and coaching role, and participate in cross-section groups to address problems that are common to several units of the same organization (e.g., health and safety measures, production techniques, quality issues, etc.). These types of work organizations are spreading rapidly across the globe.[5] In many companies, increased worker responsibility, multi-tasking and decision-making have empowered employees and flattened hierarchical structures. Higher levels of training and performance-based compensation have been introduced and human resources policies readjusted to reflect these organizational changes.

4 The Skills Gap

To ensure the creation of an employable labour force, education and training systems need to flexibly adjust and quickly react to globalization, technological change and new forms of work organization. In reality, skills mismatches between labour supply and demand are still persisting in several countries. For instance, in many developing countries workers often lack the basic literacy skills required for learning, as well as for employability and access to decent forms of work. Higher vulnerability, and limited responses and means to cope with market risks seem to characterize many developing countries where the magnitude and impact of global markets is different than in the industrialized world.

Recent economic crises affecting several countries and regions of the world have highlighted the volatility and dynamism of global markets, and the social pressures they produce, not the least in the form of massive lay-offs of workers. Governments and social partners are hard-pressed to find ways of relocating retrenched workers. Training and retraining, and micro-entrepreneurship and credit schemes have been widely used to offer hope for new jobs or sources of income, in addition to temporary job creation in public works, thus releasing social tensions. These measures have not always produced the expected results in terms of helping the labour force shift within and across sectors or relocate workers within the same companies. In the particular case of export-oriented industries, workers laid off due to closure and relocation of production face even greater difficulties because they only possess job-related and very specific types of skills that are not marketable because they are non-transferrable. The demand for new and different skills places many older workers at a disadvantage, as the skills acquired earlier in life are likely to be obsolete. In addition, research conducted in 11 countries has produced evidence that participation in training declines in general with age.[6]

With increasing trade liberalization and integration of labour markets into the global economy, the above-described situation is expected to occur in more and more countries and at a faster pace. What skills development measures are being introduced in such contexts to maximize employability and reduce the negative impacts of globalization?

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[4] ILO: Training for employment: Social inclusion, productivity and youth employment (Geneva, 2000).

[5] David N. Ashton and Johnny Sung: Supporting workplace learning for high performance working. ILO (Geneva, 2002).

[6] ILO: An inclusive society for an ageing population: The employment and social protection challenge. Paper contributed by the ILO to the Second World Assembly on Ageing (Geneva, 2002).

Little success has been traced to, among others, standardized training choices limited to a range of crystallized vocational skills that are insufficient to increase or maintain employability of individuals throughout their working lives.

Increasing rates of youth unemployment are a shared concern between industrialized and developing countries. One of the reasons why many young people face difficulties in securing jobs, as the majority are first-time labour market entrants, is related to the level and quality of education and training and its relevance to labour market requirements. A major task for public policy is to provide adequate youth education and training policies, as well as support programmes that address the skills gap and reduce the hardship and length of transition from school to work.

Rapid changes in the world economy have increased the risk of labour market exclusion, with a consequent growing incidence of poverty, inequality, economic vulnerability and social exclusion. The most affected groups include women, the long-term unemployed, persons with disabilities, indigenous populations and rural and urban informal sector workers.

Education and skills alone do not create jobs. They need to be part of an integrated policy approach for promoting growth and shared prosperity. Although non-vocational types of skills are not the panacea for resolving the unemployment problem, the development of key work competencies constitutes an important part of a reform package to prepare individual men and women for the knowledge society and therefore to promote equity in employment outcomes through the enhancement of employability of many disadvantaged groups in the labour market.

5 Key Competencies for All

Developing key competencies and lifelong learning for all is an enormous challenge for any country, and it requires pursuing and advancing the education and training reforms that many countries have already started. The current momentum should be maintained by building on a number of recent developments. These include

- the Cologne Charter adopted by the Group of Eight major industrialized nations (G8) in 1999 that highlights universal access to learning and training, encourages lifelong learning and promotes support to developing countries in the establishment of efficient education systems;
- the changing perception among ILO's constituents, expressed in June 2000 by governments, and employers' and workers' organizations at the International Labour Conference, of the need for increased investment in human resources development and training;
- the paradigm shift towards empowering the individual to be the builder of his or her own learning and self-development;
- the potential for new technologies for learning, education and training; and
- the increasing recognition of social dialogue as a potential catalyst to involve all parties concerned in policies and programmes for human resources development and training.

The Conclusions concerning human resources training and development of the International Labour Conference[7] call for training policies and programmes that take into account "training and education needs in the modern world of work in both developing and developed countries, and promote social equity in the global economy". They refer to the role of training in helping individuals to develop their employability "by providing general core work skills, and the underpinning knowledge, and industry-based and professional competencies which are portable and facilitate the transition into the world of work". While defining the employability concept, it states that "individuals are most employable when they have broad-based education and training, basic and portable high-level skills, including teamwork, problem solving, information and communications technology (ICT) and communication and language skills, learning-to-learn skills, and competencies to protect themselves against occupational hazards and diseases. This combination of skills enables them to adapt to changes in the world of work". It also reaffirms

[7] ILO: Conclusions concerning human resources training and development. International Labour Conference, 88th Session (Geneva, 2000). http://www.ilo.org/public/english/employment/skills/recomm/report/annex2.htm

"universal access of all…to basic education, initial training and continuous training. Discrimination which limits access to training should be combated both by anti-discrimination regulations as well as by common action of social partners".

To reflect the new approach to training, the International Labour Convention on Human Resources Training and Development[8] should be accompanied by a revised and more dynamic recommendation that helps "member States and the social partners in formulating and implementing human resources development policies, integrated with other economic and social policies, particularly employment polices".[9]

6 ILO's Work on Key Competencies

Since the beginning of the 1990s, the ILO has promoted and pilot-tested the introduction of key competencies as part of other technical assistance programmes to developing and transition countries. Key work competencies have been integrated at different levels of skills development programmes, including train-the-trainer activities, curricula development and training delivery.

For instance, key competencies were developed in the technical assistance programme to the Polish Ministry of Labour. The programme "Development of Adult Training", which was implemented during the period 1993–98, aimed to improve productivity, promote inward investment and enhance labour force mobility through retraining of unemployed and low-skilled workers. To respond to the new labour market requirements emerging from the transition period to a market economy, key competencies were developed in the areas related to new forms of work (e.g., learning a new job, teamwork, problem solving and decision-making) and increased competitiveness (e.g., quality awareness, customer satisfaction, etc.).

The regional programme "Formujer" that addressed gender and poverty through skills development programmes was implemented in Argentina, Bolivia and Costa Rica. This programme focused on the reorientation of vocational training systems to changes in the world of work by ensuring that gender and poverty issues were mainstreamed in curricula design and evaluation of vocational training programmes. Key competencies developed in these programmes emphasized the empowerment of the individual in society (citizenship skills) and the world of work (employability skills), as well as the role of learning and training for the definition of both a professional and life project.

In Zambia, the youth performance programme targeted young unemployed in possession of vocational skills but lacking key competencies. Stand-alone training programmes were developed to bridge the gap and focused on self-confidence building skills (self-esteem, assertiveness, initiative, building inner strength, etc.) and labour market navigation skills (e.g., job-hunting, presentation, choosing a career, etc.). More than 1,000 people participated in the training programmes conducted in 1999, before the programme moved towards developing the competencies of trainers and curricula developers on these non-vocational skills.

A number of lessons have been learned through the pilot implementation of programmes focusing on key work competencies. Firstly, there is tremendous scope for the development of key competencies that enhance workforce employability in developing countries. Most of these countries continue to focus on traditional sets of vocational skills only, and some that have started introducing key competencies rely on existing models. Secondly, both cultural diversity and different levels of economic and social development make it impossible to identify a common set of key competencies that can be applied in all contexts. Thirdly, there is a need to promote international cooperation and exchange of information on national key work competencies practices between industrialized and developing countries. At the same time, applied research should be undertaken and focus on non-industrialized countries that have developed and introduced their own key competencies. Very little is known about practices, consensus-building processes and enabling mechanisms that mainstream key competencies into adult training policies and strategies. Finally, given the growing number of regional integration agreements, it would be worth explor-

[8] The main ILO instruments in the area of human resources development and training are the *Human resources development convention*, 1975 (No. 142) and *Recommendation 1975* (No. 150). They cover all aspects of vocational training and guidance at various levels.

[9] ILO: Conclusions concerning human resources training and development, paragraph 21.

ing possibilities for the development of common frameworks for introducing policy reforms and programmes on key work competencies in countries with a certain degree of geographical and occupational mobility. As part of the ILO's work on the development of common vocational skills frameworks, the Asian and Pacific Skill Development Programme has produced model industry competency standards for several industry sectors, as well as a manual and guidelines on how to develop and establish competency-based standards in the eight participating countries. To increase both geographical and occupational mobility within the European Union, the European Commission is currently finalizing an Action Plan for skills and mobility,[10] including Information and Communication Technology (ICT), language and other cross-cultural skills.

The International Labour Office's Programme on Skills, Knowledge and Employability seeks to promote greater investment in skills and training so that men and women have enhanced and equal access to productive and decent work. Through the vehicles of advocacy, knowledge development and services to ILO constituents, it promotes the improvement of training policies and programmes worldwide, with special emphasis on training strategies that support the integration of groups that may be disadvantaged in the labour market. This Programme is currently undertaking research on key work competencies with the objective of raising awareness and understanding in non-industrialized countries on the integration of these competencies with vocational skills, to promote employability and lifelong learning. This research concentrates on the development of competencies for the world of work in these countries. The aim is to identify good practices, methodologies and enabling mechanisms that can be shared among countries in the introduction of policies and programmes on key work competencies. Alliances and knowledge sharing between industrialized and developing countries, as well as among international development agencies, need to be further explored and exploited to promote individuals' employability through sustained economic growth and within more equitable societies.

[10] Commission of the European Communities: Commission's action plan for skills and mobility. COM(2002)72, (Brussels, 2002).

Key Competencies in and Across Social Fields: The Employers' Perspective

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1 Overview

The goal of this short presentation is to point out the competencies that employers consider "key," in the sense that they are critical and important, and that are not often adequately focused on nor seen as didactic goals by the formal educational institutions of many of our countries. I will keep to the functional approach of the definition of competence given in the DeSeCo Discussion Paper as the "ability to meet a complex demand successfully or carry out a complex activity or task".

2 Key Competencies

In this sense, many competencies are responses and observable behaviors. Such responses include cognitive as well as emotional and motivational components. In the terms of the quoted definition, what is "key" and what is not "key" is difficult to distinguish because it is evidently related to culture, values and specific context. But, in spite of cultural and national differences, there are certain areas in which there is a growing agreement on what are considered "key competencies," specifically in the world of work and business. In fact, within the OECD countries, with the processes of globalization currently in progress, the working individual, employer, or employee cannot operate without shared languages, attitudes, motivations, and behaviors, which are necessary for success in the market. The more the pattern of the market with its rules extends, the more common and evident are the key competencies required to perform in it successfully.

The landscape of the near future suggests that

- The pace of change will be fast.
- The technological change and the globalization of trade are likely to become more, not less, intense.
- Labor markets will become more open, flexible and challenging.

Social uncertainty and anxiety could be the consequences. In this scenario, the inability to find a job impoverishes personal dignity, deprives the youth of their hope in the future, and paves the way for frustration, boredom and marginalization. The up-to-date skills and abilities of individuals in formal and non-formal education institutions, specifically, some "key competencies," if well identified, will be the major factors in fostering individuals' employability and nations' competitiveness and prosperity, as well as spreading feelings of good citizenship.

In this scenario, employers strongly appreciate the international and interdisciplinary endeavor of the DeSeCo Project, which began under the auspices of the OECD and other renowned research institutes. We particularly appreciate that the project is carried on with the close cooperation of the academic community, business community and political world, and different stakeholders of different nations, so as to take advantage of various specific interests, experiences and visions.

3 Key Competencies and Employers

What is the point of view of employers on the key competencies for the 21st century? In 1999, I chaired an international work group of employers' federations from seven European countries aimed at prompting national

governments to improve the quality of primary and secondary education and equip students with the skills and attitudes that will help them play a full part in the community. The final paper,[1] signed by all the presidents of the involved federations and publicly discussed with the Ministers of each single country, recommended that schools provide students with

- *basic skills*: literacy and numeracy, up-to-date and relevant knowledge
- *practical skills*: problem-solving aptitude, ability to use ICT
- *personal skills*: sense of autonomy and responsibility, emotional intelligence and control, desire and capacity to learn, knowing how to apply learning, ability to assess one's own strengths and weaknesses, ability to take advantage of change
- *social skills*: capacity of communicating with others, foreign languages, working with others in a wide range of environments and cultures, internalization of the core values of citizenship

Quoting from our paper, "modern education methods must be used to help pupils develop the skills set up above in an integrated way, developing several skills at once, just as they will in working and social life, as well as in formal academic achievement. *The personal and social skills which students need to learn should be measured* although we recognize that further research is needed on this issue". This quotation seems to be very much coherent, and consistent with the results of the DeSeCo Symposium Discussion Paper summarizing the analysis of various experts, which led to the identification of three broad categories of key competencies, related to the complex demands of modern life:

- *acting autonomously* to avoid being dominated and exploited, to build up a relevant individual autonomy and a personal identity with the relative key competencies, such as evaluating one's needs and limits and defending one's resources and rights; analyzing situations, relationships and force fields; developing strategies and projects
- *using tools interactively*, tools as prosthesis for the human body and mind; key competencies being literacy, numeracy, and the full use of ICT
- *joining and functioning in socially heterogeneous groups* with key competencies, such as relating well to others, negotiating and resolving conflicts, cooperating and working in groups, etc.

The Discussion Paper also properly mentions "*critical thinking and reflective practices*" for a successful life, referring to key competencies that require "individuals to distance themselves or step back from their immediate surroundings in order to take the larger picture into account before they act…so as to incorporate higher levels of complexity into their thinking and actions".[2] In the Employers' Paper, we stressed the importance of so-called "emotional intelligence" and control, the main key competencies of which are impulse control before acting, the ability to delay responses in favor of a later higher gratification, and the ability to listen to others while assuming their role and perspective. In our employers' experience of managing small and large organizations, whenever people come together to collaborate, the most important element is not talent or average I.Q. in the academic sense, but rather the level of emotional intelligence and control. It is these key competencies, in fact, that help people harmonize and communicate properly and, all other variables being equal, that will make one work group or organization especially talented, productive, and successful. As history testifies, emotional illiteracy has an enormous cost for individuals, organizations and society. Going back to the key competencies of the DeSeCo Project, what employers ask for from scholars and researchers is guidance on the feasibility of developing reliable methods and ways for measuring such key competencies with the purpose of valid assessments.

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[1] In Search of Quality in Schools: The Employers' Perspective. Presentation to the Ministers of Education on the occasion of the OECD Youth Employment Conference 2000, London, 8 February 2000.

[2] R. Kegan. (2001). Competencies as Working Epistemologies: Ways We Want Adults to Know, in D.S. Rychen & L.H. Salganik, *Defining and Selecting Key Competencies*, pp. 192–204. Gottingen, Germany: Hogrefe & Huber.

I also think that both the cited DeSeCo Discussion Paper and the Employers' Paper are substantially coherent, and consistent with the well-known recommendations of the UNESCO Report on Education,[3] which asks educational systems to ensure the teaching of four principal elements:

- learning to know
- learning to be
- learning to do
- learning to live with others

More precisely, UNESCO recommends "equal attention" to these four elements. If this is right, as we employers think, those education systems which are presently more unbalanced in favor of one or more of these elements should consequently reshape and readjust. Education should aim at producing well-rounded individuals who are ready and equipped to participate fully in the wider world with a professional identity and a good understanding of the core obligations of citizenship.

4 Conclusion

We are convinced that sufficiently sound and agreed-upon selection and methods of measurement of key competencies and periodic assessment of the competencies would be extremely useful for the OECD countries in order to reconsider the contents, didactic methods, and pupil evaluation systems provided by the formal education institutions and would draw them closer to the needs of today's youth. School, in our view, must consequently renew its mission and its organization. In particular, what employers ask is that educational institutions

- *encourage the curiosity of students by emphasizing the practical and functional applications of knowledge and understanding*, that is, to ensure a balanced focus on theory and practice, on both *savoir* and *savoir-faire*, fostering the aptitude to make acquired knowledge operational;
- become stimulating centers of active learning, individually tailored, making *full use of the potential of multimedia information and communication technology*;
- *shift their focus from knowledges to competencies*, overcoming the encyclopaedic model of knowledge and the excessive fragmentation of disciplines in favor of an interdisciplinary approach; and
- *compare with each other through international benchmarking* in order to make educational performance more transparent, *enhancing cooperation and emulation*. Benchmarking is successfully used by industries to raise quality and productivity, as it is a process of continuous monitoring and assessment of one's positioning as compared to that of competitors, to aid in redefining and adjusting one's strategic choices. Schools should not be afraid of some elements of competition: "cum+petere" means to strive together with difference and a creative force.

But learning no longer ends at the school gates. *The essence of 21st century employment is the ability to learn and adapt throughout one's working life*. What we strongly expect from educational systems and from society as a whole (media, business, civil and religious associations) is that they make evident to young generations the value of lifelong learning, and give them the tools, the desire, and the responsibility to pursue it.

[3] Rapport à l'Unesco de la Commission Internationale sur l'éducation présidée par J. Delors, L'éducation: Un trésor est caché dedans, Editions Odile Jacob, Paris 1996.

What Family Life Demands: A Purposeful View of Competent Performance

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The purpose of this presentation is to look at the work of Equipped for the Future (EFF) from the vantage point of the parent/family member role, and in relation to the framework spelled out in the Discussion Paper.[1]

Using the EFF framework will help us place what we have learned from our work in the US in a context that is useful to our collective task here of building consensus internationally.

Consensus—on a common international framework for defining and selecting competencies that are important to a successful life in a well-functioning democratic society—is necessary so that all of our countries can work to assure that our public and private institutions are structured to afford opportunities for the development and use of these competencies in as broad an array of our citizens as possible.

The EFF Initiative is primarily concerned with global productivity but also the demands of citizenship. It is policy-driven, born out of a mandate from our government to measure progress across the nation toward the national adult literacy and learning goal. This goal looks forward to a time when every adult American is literate and has the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship. It was started in 1993 to fulfill our government's desire to know how well we were doing in making progress toward this goal both within and across the states. In the beginning, the goal was not a broad view of either a successful life or a well-functioning democratic society, but rather a mandate to ensure the US would be able to compete in a global economy. And, as panels of experts met to define this goal, there were many forces pushing toward a narrow skills-driven vision. One of these forces was the fact that at that time the US was engaged in analyzing the data from the first National Adult Literacy Survey (NALS). There were many "experts" who wanted to simply use this survey—which told us where American adults were on scales of prose, document, and quantitative literacy—as the normative framework that described what adults needed to know to compete in the global economy and exercise the rights and responsibilities of citizenship.

There was also a precedent for a wider view set by the group of experts that had been focusing on another of the National Education Goals, assuring that every child comes to school "Ready to Learn." This goal was as broad as the adult goal, and the expert panel charged with defining how this goal would be measured decided to begin by developing a clear content framework: "What is meant by 'Ready to Learn'?"

We decided to take a similar approach and ask, "What do we mean when we say adults need to 'compete in a global economy, to exercise rights and responsibilities'?" and "What do they need to do?" before we asked the question "What do we need to know and be able to do to carry out these roles effectively?" And before that we asked the question that NALS provided one answer to: "How many Americans have the knowledge and skills necessary to carry out these roles effectively?"

EFF began by inviting adults in literacy and basic skills programs to describe their experiences of competition in the global economy and of exercising rights and responsibilities of citizenship, and to explain what skills and knowledge they thought was necessary to carry out these roles.

[1] http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_discpaper_jan15.pdf

Two things were learned from the responses of 1500 adult learners across the country. First, these responses identified a set of fundamental purposes for seeking knowledge and skills related to effective performance in these roles.

We defined these purposes as

- access to information;
- voice;
- independent action; and
- bridge to the future.

Second, these responses made clear that the existing normative view of what was important in these roles did not match the adult experience. If we were to determine what knowledge and skills adults really needed to have a successful life in a well-functioning democracy, then we had to look more carefully at the adult roles identified in the national goal. We had to develop an accurate picture of what adults were expected to do in these roles and add a third role that the policymakers had not even thought of but that was central to an adult conception of a successful life—the parent/family member role. For adults who responded to our survey, and for the vast majority of other adults in the US, the family is the locus for "measuring success both as a citizen and a worker". For most adults, the way they judge whether they are successful in the workforce is whether they are able to provide for their family's needs. Similarly, success in the citizen role was often discussed in terms of teaching kids right from wrong, setting a good example, etc. Since the adults' perspective on this role is so critical, I am pleased that I was asked to focus this presentation on our work on the parent/family role.

So how did we develop our consensus picture of what family life looks like? From the data we had collected from adult learners in that first survey and from additional data (from a broad effort to validate the initial EFF framework of roles and purposes), we constructed a draft Role Map on a model that many of you are familiar with from work analysis. We identified a "central purpose" for the role—what we called "broad areas of responsibility"—(equivalent to critical work functions in the American skill standards movement) and "key activities" within each of those broad areas of responsibility. Although this was unusual to apply to family life, we did it, and with good effect.

Our next step was to initiate a national dialogue on this model by inviting a broad spectrum of communities to look at the draft Role Map and tell us whether they thought it matched their experiences of family life. In addition to this broader invitation, we also conducted a nationwide structured feedback process that included a total of 236 family members meeting in 17 small groups, through which we refined the Role Map and built consensus on a broadly stated vision of the family role. The groups defined a key purpose for the role: "Effective family members contribute to building and maintaining a strong family system that promotes growth and development".

They also identified the following three broad areas of responsibilities:

- promoting family members' growth and development;
- meeting family needs and responsibilities; and
- strengthening the family system.

Within these areas are a range of important activities that support these responsibilities.

Only after we had built consensus on what this role looked like across a very diverse spectrum of American family members from a wide variety of cultural backgrounds (including Native Americans, Hispanic and Asian immigrants, and European Americans) and a broad spectrum of religious backgrounds, educational levels, and economic status, did we move on. Only after we knew what American adults agreed they wanted—needed—to be able to do, did we start defining the necessary skills and knowledge necessary to support this picture of role performance.

When I compare this family Role Map with the DeSeCo definition of a successful life, I find there is a good match. There is a range of activities that focus on having a close relationship with others, few activities that focus on understanding the self and understanding the world, and many more that focus on interacting autonomously with the physical and social world (Table I).

DeSeCo definition of good life	EFF definition of family
	Effective family members contribute to building and maintaining a strong family system that promotes growth and development
Close relationships with others	Form and maintain supportive family relationships Encourage open communication among the generations Give and receive support outside the immediate family Guide and mentor other family members
Understanding of self	Make and pursue plans for self-improvement
Understanding of world	Create a vision for the family and work to achieve it Promote values, ethics, and cultural heritage within the family Foster informal education of children Direct and discipline children
Autonomous interaction with physical and social environment	Meet family needs and responsibilities Provide for safety and physical needs Manage family resources Balance priorities to meet multiple needs and responsibilities Support children's formal education
Sense of accomplishment and enjoyment	Provide opportunities for each member of the family to experience success

Table I: Comparison of DeSeCo Definition of Successful Life and EFF Definition of Family

So there is a good fit with this broad definition, although not surprisingly the emphasis is on building close relationships with others, since this is the essence of family life. Many—if not all—of these activities require what others at this symposium have discussed as the self-authoring way of making sense of the world. They require adults to be able to step back from their own daily experience to reflect on that experience in relation to others' experience, and to develop a way of organizing and making sense of that experience that provides guidance for the whole family – that allows them to make and pursue plans for self-improvement, create a vision for the family, promote values, and direct and discipline children.

The importance of this capacity only increases as we step back from the family role to look at the 13 key activities that are common across all three EFF roles—activities that have transferability—and the 16 EFF standards that we have identified as necessary to support successful performance of these 13 activities (Table II).

DeSeCo categories	EFF family role map	EFF common activities	EFF standards
Acting autonomously	Create a vision of the family and work to achieve It Promote values, ethics and cultural heritage within the family Provide opportunities for each family member to experience success	Develop and express a sense of self Provide leadership Exercise rights and responsibilities Work within the big picture Create and pursue a vision and goals	Take responsibility Learn through research Solve problems and make decisions Plan Reflect and evaluate
Using tools interactively	Provide for safety and physical needs Manage family resources Foster informal education Support children's formal education	Gather, analyze, and use information Manage resources Use technology and other tools to accomplish goals	Read with understanding Convey ideas in writing Use math to solve problems and communicate Solve problems and make decisions Plan Use information and communications technology
Joining and functioning in socially diverse groups	Encourage open communication Guide and mentor Direct and discipline Give and receive support	Work together Guide and support others Seek guidance and support from others Respect others and value diversity	Speak so others can understand Listen actively Observe critically Cooperate with others Advocate and influence Resolve conflict and negotiate Guide others
Making sense of the world		Work within the big picture Keep pace with change	Reflect and evaluate Take responsibility for learning

Table II: Some Commonalities Across EFF Activities

When I look at this big picture, and compare it with the three categories of competencies proposed for DeSeCo, I am uncomfortable with the idea of "acting autonomously" carrying all the weight for "understanding" or making sense of the world in that broader sense that Kegan[2] speaks of. It may be the American tendency to see autonomous as individual rather than self-authoring. But even when I try to envision this category of competencies embracing the rich definition provided in the discussion draft—"Complex setting up of projects in personal life, in the family, in the workplace, in political and civic life"—I still find myself wanting us to explicitly name a category that reflects what in EFF we talk about as *the big picture—making sense of the world*. I think it is this complex way of making sense of ourselves and the world that permits autonomous action. While we can say this is how competence is defined, I am afraid that if we do not name it, if we subsume it in all categories, then it will get lost when we come to thinking about explicitly affording opportunities to develop these competencies and explicitly measuring how we are doing at helping people develop them. In short, we may find ourselves building skills rather than the broad competence that supports effective engagement with the world.

[2] Kegan, R. (2001). Competencies as working epistemologies: Ways we want adults to know. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 192–204). Göttingen, Germany: Hogrefe & Huber.

Toward a Framework for Defining and Selecting Key Competencies

Can a small number of competencies of prime importance for a successful life and effective participation across different fields of life – including economic, political, social, and family domains, public and private interpersonal relations, and individual personal development – be identified? If so what is the nature of these competencies and what distinguishes them as key at a general level?

Which competencies or areas of competence are most important in an international context?

Dominique Simone Rychen, DeSeCo Program Manager, presented a proposal for an overarching conceptual framework for the definition and selection of key competencies based on the status of conceptual work as of early 2002. Following the presentation, symposium participants engaged in discussions during five concurrent workshops designed to provide an opportunity for feedback on DeSeCo's conceptual work and its usefulness in an international context.

A Frame of Reference for Defining and Selecting Key Competencies in an International Context

Dominique Simone Rychen
DeSeCo Secretariat

1 Introduction

One of the most difficult aspects of the DeSeCo Project is that asking an apparently straightforward question such as, "What are key competencies?" never yields a simple answer. Yet in this complex field, everyone is looking for certainty. In addition, although debates over definitions, theoretical reflections, and abstract discourses are important features of academic activity and in primary research, such preoccupations are rarely a top priority for politicians and policy-makers. Nevertheless, they do recognize that good governance and effective policy-making relies on information, data, and statistics that are based on sound and solid foundations. As a result, linking research to policy and practice becomes an essential undertaking.

This symposium hopes to offer a space in which the different constituencies can discuss some of the key issues with the aim of working towards a common understanding of key competencies that will be relevant for OECD member countries and possibly others, and that draws on the rich and extensive inputs to the DeSeCo Project.

2 Some General Assumptions

Before addressing what seem to be – from an international and interdisciplinary perspective – the most critical issues when debating what new competencies should be considered in the future, it is important to recognize two general assumptions that should be borne in mind throughout discussions of key competencies.

2.1 The importance of basic skills

First, we know that subject-related competencies and basic skills do not capture the full range of relevant outcomes needed for a successful life for the individual and for well-functioning social institutions and societies. But as some experts – Delors and Draxler (2001), for instance – have pointed out, sound foundations are indispensable, and all countries should put adequate energy and resources into compulsory schooling that will ensure that everyone acquires the capacity to read, write, communicate, and compute. Some authors – Ridgeway (2001), for example – would also include basic computer skills.

2.2 The significance of environmental factors

Secondly, the factors that enable individuals to become skilled or competent have at least as much to do with the characteristics of the world in which they live as with their personal qualities (Canto-Sperber & Dupuy, 2001). Many of the contributors to the DeSeCo Project have emphasized that the acquisition and maintenance of competencies is not only a matter of personal effort, but is also contingent upon the existence of a favorable material, institutional, and social environment. Indeed, individual competencies only make sense if the societal component is taken into account. Thus, while the internal structure of competencies (knowledge, skills, attitudes, values, and their interrelation) is an important parameter of the definition, so too is the structure of the socio-economic and political environment.

3 Three Important Issues

Having established these two assumptions, we can now focus on some of the ideas developed in the DeSeCo Discussion Paper (Rychen & Salganik, 2002), namely, three important issues or questions:

- Underlying vision and common ground
- Key competencies for what?
- Which key competencies?

3.1 Underlying vision and common ground

DeSeCo has opened up the discussion and discourse of key competencies with the question, "What competencies are needed for an overall successful life and for a well-functioning society?" So the project at once gives rise to profound questions such as, "What type of society do we imagine and desire?" "What constitutes a successful life?" and "Which social and economic developments are we referring to?" As we have pointed out on several occasions, conceptualizing key competencies is influenced by what societies value and what individuals, groups, and institutions within those societies consider important.

In fact, as Goody (2001) argues, what a successful life means and the key competencies it requires depend largely on the respective society, individual lifestyles, and the specific relation to life and work. Eventually, competencies need to fit the many different roles that individuals are called upon to fill in their society and throughout their lifespan. The conception of a successful life or a democratic society, indeed, is subject to value judgments and cannot easily be divorced from its specific context.

At the same time, it also has been recognized that increasing social diversity is only one feature of today's world; another is increasing uniformity through economic and cultural globalization. The convergence of technology and of production, for instance, tends to impose common standards and require adaptation.

There are also some key values that account for "the good life" in general and that are consistent with any major moral theory (Canto-Sperber & Dupuy, 2001, p. 74), such as

- close relationships with other people
- an understanding of oneself and one's world
- autonomous interaction with one's physical and social environment
- a sense of accomplishment and enjoyment

The forms these values can take do of course vary. As Canto-Sperber and Dupuy (2001) state, "According to the cultural context, these values can take the shape of desirable professions … the notion of an acceptable balance between political involvement and private life, work and leisure, competition and solidarity…" (p. 75). A particular set of individual or social values may attribute worth to independence or creativity or material success, or even a rejection of materialism. This broad and rich conception of a successful life complements those approaches that consider key competencies predominantly from the perspective of economic productivity and competitiveness.

In addition – and seemingly most relevant today – a number of international texts and conventions related to human rights and human and social development constitute or could constitute a solid basis for describing life and society as they should be. Thus, basic principles of human rights and postulated objectives of sustainable human, social, and economic development could serve as anchoring points for the discourse on key competencies and provide common reference points for their definition and consequent evaluation.

3.2 Key competencies for what?

In DeSeCo, we use the word "key" as a synonym for "critical or important," which raises the question, "important for what?" This approach seems to correspond to a policy need and interest in focusing on competencies that

- contribute to economic success and social development
- enable people to live a "successful life" in the context of an increasingly interdependent, rapidly changing, and at times conflict-prone world

3.2.1 Key competencies should be linked conceptually to outcomes

Key competencies are not ends in themselves but – following the logic of the human capital approach – are resources that contribute to important outcomes. The crucial question, then, is whether and to what extent the various competencies we identify or select do contribute to a successful life and a well-functioning society in terms, for instance, of improving the quality of life and society (measured at the individual level and societal level).

3.2.2 Demand – Coping with complexity

Key competencies are supposed to be instrumental for coping with demands and challenges encountered in the context of work and everyday life. As illustrated by Kegan (2001) and presented in several academic essays, many of the demands facing adults and society as a whole in today's world call for the development of a critical stance and an active and reflective approach to life on the part of the individual.

The demands and challenges facing us are very diverse, and include such widely differing ones as successful economic activity, tolerance and respect for our cultural heritage, dealing with ambiguity and diversity, management of innovation and continuity, environmental awareness, and social responsibility, among many others.

Indeed, a review of the various skill and competence lists proposed by the scholars working for the DeSeCo Project but also in the country contributions (see Trier, this volume) suggests that abilities such as the recall of accumulated knowledge or reasoning abilities are certainly necessary, but, for many of the demands of modern life, not sufficient.

Many of the important demands facing individuals require some sort of practical or creative ability and a normative assessment, that is, the capacity to ask questions such as "What should I do?", "What should he have done?" or "Where are the limits?" At the individual level this implies having a normative (or critical) perspective concerning one's own life, including the ability to practice a degree of distancing from one's immediate activities and to step back from one's current needs and desires and evaluate what is right or wrong with respect to critical human values, such as tolerance (Canto-Sperber & Dupuy, 2001, p. 71 and p. 86).

Taking the normative dimension into account in this way is consistent with our understanding of competencies as multifaceted amalgams of cognitive and non-cognitive components, to the extent that it integrates the notion of demand with cognitive skills, values, and context, seeing them all as essential components of a competence. Using a demand-oriented or external definition, the internal structures of competencies (or mental condition) can therefore be derived from the demands encountered in the context of work and in everyday life.

3.3 Which competencies – Commonalities across sets of key competencies

As Trier's summary of the CCP responses (see Trier, this volume) demonstrates, there are many commonalities and interrelationships between different lists of desirable competencies. In many of the contributions from participating countries, similar elements with almost identical content are emphasized. The aggregation of frequently mentioned competencies or components proposed in the summary report and presented by Trier offers a valuable list of areas of particular interest and relevance in a number of OECD countries. Indeed, there is a consensus that social competencies, communication, literacies, lifelong learning, personal competencies, and competencies necessary for participation in the political or civil life are important. And value orientation has been another aspect of particular concern in several countries.

However, the lists of competencies put forward in the various reports are – mostly – the result of a pragmatic approach; they reflect consensus-building in specific contexts and do not necessarily follow strict formal, definitional constraints for the concept of key competence. And as has been emphasized also in the CCP Summary Report (see Trier, this volume), many of the sets include items that belong to different conceptual levels, are situated at different degrees of generality, or follow different criteria of categorization. For instance, demand-oriented competencies (using a computer, working in groups) are included in competence lists along with values and more general skills such as problem solving and critical thinking.

Thus, from a theoretical viewpoint, there is no obvious, logical system that can be inferred from a synthesis of the various lists. Furthermore, a definitive and coherent set of key competencies cannot be directly inferred from only comparing the various sets and lists offered in the Country Contribution Process.

4 A Conceptual Tool for Organizing and Mapping Key Competencies

We have learned from the DeSeCo activities that there is no one definition of the concept of competence and no one answer as to which competencies are determined to be key. In the social science literature, too, there is no broadly accepted and theoretically grounded definition. So what can DeSeCo offer in terms of clarifying these ideas?

It is possible to frame the question in terms of theory, to offer some explicit criteria, and to lay out some meaningful concepts. To begin with, we suggest making a clearer distinction between competencies defined in terms of an external task or demand and their internal structure. In other words, what is the demand or task we are focusing on and what are the desirable or necessary prerequisites in terms of cognitive skills, knowledge, value orientation, attitudes, or motivation?

Basing our findings on a body of literature and on interdisciplinary insight, we have identified three categories of key competencies that are related to broad demands of modern life (see Rychen, 2003):

- acting autonomously
- using tools interactively
- joining and functioning in socially heterogeneous groups[1]

These three constructs – acting autonomously, using tools interactively, and joining and functioning in socially heterogeneous groups – represent meaningful reference points for the organization and further conceptualization of, for instance, the key competence areas proposed in the summary report or competencies that have been identified in specific contexts and for specific purposes.

The remainder of this paper lays out some of the relevant features of these three categories and identifies some of the competencies seen by many stakeholders and experts as necessary and relevant for individuals to lead a successful life and to cope with the manifold demands of modern life.[2]

4.1 Acting autonomously

Acting autonomously focuses on relative autonomy and identity. As such, it is congruent with a value system that promotes autonomy as an aspiration and as a basis for individual identity.

Acting autonomously means that individuals can act and operate effectively in and on the world, that is, they are able to define themselves and fulfill their projects in a meaningful way. It concerns competencies that enable individuals to participate actively in different important spheres of life – in the family, in the workplace, and in civil and political life. Many of the components and elements subsumed under the headings "self-competence/self-management" and "political competence/civic competence" are relevant for building a relative autonomy and personal identity.

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[1] This category "joining and functioning in socially heterogeneous groups" was subsequently renamed "interacting in socially heterogeneous groups" to better reflect its meaning.

[2] Readers are referred to the final report for DeSeCo's overarching conceptual frame of reference for key competencies, including the threefold categorization and the key competencies identified within these categories, in its final form.

Within this category, several possible key competencies appear particularly important. One is identifying, evaluating, and defending one's rights, limits, and needs. This competence might also be labeled "advocacy competence" or "self-determination/-management." It implies the ability to assert one's own rights and interests, and put oneself forward as a subject of whom account has to be taken (Perrenoud, 2001).

Another possible key competence is forming and conducting personal projects. This covers an area often described as "project management." In this case, the projects are our personal dreams and other things we want to accomplish, such as finding a new job, buying a house, retraining, or learning to use a new tool. These competencies relate to the setting up of projects in personal life, in the family, at the workplace, and in political and civic life. The competence to form and conduct projects implies, for instance

- defining a project and prioritizing goals
- envisaging different possible courses and different alternatives for action
- defining an approach and choosing appropriate means
- developing strategies (including learning strategies)
- monitoring the project's progress and adjusting where necessary
- evaluating its effectiveness in achieving the desired outcome

A third key competence in this category is the ability to analyze situations, systems, and relationships,[3] including power relationships. Generally speaking, this is a system orientation that allows people to

- construct a coherent line of action
- have an idea of the "game" and the role they are playing
- recognize patterns and understand the larger picture
- evaluate actions with respect to shared norms or with regard to a social order

4.2 Using tools interactively

The focus in this category is on interaction through physical and socio-cultural tools. This broad use of the word "tool," which stems from the work of Haste (2001), encompasses instruments that are relevant to meeting many important everyday and professional demands of modern society, including language, information, and knowledge, as well as tools that are physical entities (e.g., computers, machines, and so on). A tool is not just a passive mediator but is instrumental as part of an active dialogue between the individual and his or her environment.

Using tools, therefore, implies not only having tools and the technical skills required to use, for example, a computer and its software or language, but being aware of the new forms of interaction that can be established through the tool, and being able to adapt one's behavior accordingly. It assumes not only a familiarity with the tool itself but also an understanding of how the tool changes the way one can interact with the world. Using tools interactively promotes new cognitions and new social practices.

One obvious candidate for key competencies in this category is using technology in a coping manner to accomplish goals (technological competence).

Another likely key competence in this category is information literacy, that is, gathering, analyzing, and using knowledge and information. It requires individuals to

[3] This key competence is now labeled "acting within the big picture."

- recognize a need for information
- identify and locate appropriate information sources
- know how to gain access to the information contained in those sources
- evaluate the quality of information obtained
- organize the information
- use the information effectively

A third key competence in this category is using language effectively to accomplish goals. This competence can also be understood as "communication," comprised of cognitive, instrumental, technical, and emotional aspects. It includes, among other things, skills related to reading and mathematics, but is broader than just the basic skills in those areas. It more closely resembles the concepts of literacy (OECD, 1999) and numeracy (Gal, Tout, van Groenestijn, Schmitt, & Manley, 1999) put forth recently in various international assessments.

4.3 Joining and functioning in socially heterogeneous groups

For material and psychological survival and for a sense of self, identity, and social meaning, human beings are dependent on ties to others throughout their lives (Ridgeway, 2001). Contact with other people is part of human life; most of the time we depend on it. We live in a network of close relationships in which we cooperate, compete, and share (Canto-Sperber & Dupuy, 2001).

Joining and functioning in socially heterogeneous groups includes all the competencies that are relevant when it comes to interacting effectively with other people. These are interpersonal or social competencies, which are particularly relevant for creating social capital, meaning networks of mutually reinforcing obligations and expectations and information channels.

Participating in modern life assumes the capacity to join and function effectively in socially heterogeneous groups. This is particularly crucial in light of today's problems in multicultural societies. Most of the academic authors who have been involved in DeSeCo and participating countries observe that it is important for people to have the skills to form and act effectively in groups and social orders whose members are from diverse cultural backgrounds.

Thus, an important key competence within this category is the ability to relate well to others. Empathy (i.e., taking the role of a socially different other) is an important prerequisite for this kind of key competence.

A second area of joining and functioning in socially heterogeneous groups is associated with the ability to cooperate and participate in a group or collective (in a democratic context). It involves the question of balancing commitment to the group and its norms with the capacity for autonomous action and of balancing responsibility for active participation in the collective with the willingness to share leadership and to support others. Cognitive skills such as the ability to switch frames and to approach topics from different viewpoints are also important prerequisites.

A third key competence we put forth here is the ability to negotiate conflicting interests and find acceptable solutions. This involves, for instance, analysis of interests, negotiation, and the design of solutions. It also involves the acquisition of a normative value for seeking mutually acceptable resolutions for conflict.

5 Conclusion

DeSeCo's mission was to provide conceptual inputs for an overarching frame of reference that could structure a consensus about a comprehensive set of socially valued competencies. The key competencies presented here share a number of features put forth in DeSeCo as critical elements of key competence:

- They imply the activation of a range of specific skills, knowledge, behavior, processes, beliefs, and attitudes.
- They are consistent with the idea that each competence is a combination of interrelated attitudes, values, knowledge (including tacit knowledge), and fundamental skills, such as analytical, decision-making, problem solving, critical thinking, and communication skills that together make effective action possible;

- They imply the development of critical thinking and a reflective approach to life;
- To some extent they can be learned and taught; and
- They apply to many areas of life and benefit both the individual and the society as a whole.

In view of the complexity of the issues outlined here and in the Discussion Paper (Rychen & Salganik, 2002), the challenge now is to determine what is realistically possible in this given frame of time and space to consider, to take into account, and to further develop in view of broadening the range of competencies important in an international context. Which key competencies should be promoted and eventually assessed? What are the options for a long-term conception for new indicators based on DeSeCo's inputs?

The consequences – so it seems – are at least three-fold.

First, there is a political issue: What is from a policy and economic viewpoint the relevance of the three categories (i.e., acting autonomously, using tools interactively, and joining and functioning in socially heterogeneous groups) and the key competencies proposed here? Which key competencies should and can be promoted through policy? Which competencies or components of competencies would warrant testing and assessing in the near future?

There is also a scientific dimension: Where is further research effort needed for the consolidation and implementation of a sound set of key competencies relevant in an international context?

And finally there is the question related to the assessment of these new competencies: Which competencies or components can be assessed in the short- and long-term? Which methodologies would be appropriate?

We are optimistic that DeSeCo's conceptual work to date provides much food for thought and discussion and will enrich the debate in the forthcoming workshops in this symposium. These discussions will be an essential step, we believe, toward building a common understanding of key competencies and consolidating DeSeCo's overarching conceptual frame of reference for key competencies. And we are sure that at the end we will have also some clearer ideas of where we are going and what the focus of future efforts should be.

6 References

Canto-Sperber, M., & Dupuy, J.-P. (2001). Competencies for the Good Life and the Good Society. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 67–92). Göttingen, Germany: Hogrefe & Huber.

Delors, J., & Draxler, A. (2001). From Unity of Purpose to Diversity of Expression and Needs: A Perspective from UNESCO. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 214–221). Göttingen, Germany: Hogrefe & Huber.

Gal, I., Tout, D., van Groenestijn, M., Schmitt, M.J., & Manley, M. (1999). *Numeracy*. Princeton, NJ: Educational Testing Service. Retrieved June 9, 2003, from http://www.ets.org/all/numeracy.pdf

Goody, J. (2001). Competencies and Education: Contextual Diversity. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 175–190). Göttingen, Germany: Hogrefe & Huber.

Haste, H. (2001). Ambiguity, Autonomy, and Agency: Psychological Challenges to New Competence. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 93–120). Göttingen, Germany: Hogrefe & Huber.

Kegan, R. (2001). Competencies as Working Epistemologies: Ways We Want Adults to Know. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 192–204). Göttingen, Germany: Hogrefe & Huber.

Levy F., & Murnane, R. J. (2001). Key Competencies Critical to Economic Success. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 151–174). Göttingen, Germany: Hogrefe & Huber.

Perrenoud, P. (2001). The Key to Social Fields: Competencies of an Autonomous Actor. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 121-149). Göttingen, Germany: Hogrefe & Huber.

Organisation for Economic Co-operation and Development. (1999). *Measuring Student Knowledge and Skills: A New Framework for Assessment*. Paris: Author.

Ridgeway, C. (2001). Joining and Functioning in Groups, Self-Concept and Emotion Management. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 205–211). Göttingen, Germany: Hogrefe & Huber.

Rychen, D. S. (2003). Key Competencies: Meeting Important Challenges in Life. In D.S. Rychen & L.H. Salganik (Eds.) *Key Competencies for a Successful Life and a Well-Functioning Society* (pp. 63-107). Göttingen, Germany: Hogrefe & Huber.

Rychen, D.S., & Salganik, L.H. (2002). *DeSeCo Symposium: Discussion Paper*. Retrieved June 11, 2003, from http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_discpaper_jan15.pdf

Rychen, D. S., & Salganik, L. H. (Eds.). (2003). *Key Competencies for a Successful Life and a Well-Functioning Society*. Göttingen, Germany: Hogrefe & Huber.

Lifelong Learning – Development of Key Competencies

What are the implications of the concepts of competence and key competence for teaching and learning throughout the life span?

What role do different social institutions such as school, family, workplace, the mass media, and religious and cultural organizations play in promoting and fostering key competencies in the population?

What is the role of formal education, with its specific institutions and processes?

Contributions include papers by Andrew Gonczi of the University of Technology, Sydney, on developing generic competencies in vocational education and training programs and by Adama Ouane of the UNESCO Institute for Education on the topic of lifelong learning. The section concludes with a paper prepared for DeSeCo by Daniel Keating of the University of Toronto.

Teaching and Learning of the Key Competencies

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1 Introduction

As I understand it, the ultimate aim of the DeSeCo Project is the assessment of a comprehensive set of key competencies (otherwise called core competencies, generic competencies, or skills) across the OECD countries.

I want to state from the outset that I am, on balance in favour of such international assessment of outcomes, unlike many of my colleagues. I believe they provide benchmarks which are important to all, and particularly to countries like mine which are relatively isolated. These benchmarks are often a stimulus to research and result in public policy change. However, there are dangers in universal standardised measures, as a number of authors in the excellent book arising out of the earlier DeSeCo work point out (Rychen & Salganik, Eds., 2001). Carson's (2001) chapter makes this point very clearly with regard to IQ. There is also a vast literature which demonstrates that what is being assessed determines what is learnt and even what is taught, whatever the wider objective of a curriculum might be. The public policy outcomes (how much responsibility and how much money is given to which groups) which arise from international comparisons can be profound, so if we are not really sure that we know the nature of the constructs we are assessing, I think it is better to err on the side of caution and to develop conceptual and assessment frameworks which can be modified locally.

I have not been asked to concentrate in this paper on conceptual or assessment issues. Rather, my task is to discuss the learning (and possibly teaching) of the key competencies. But it is not possible to do this without clarifying my own conceptual framework, and I will find it hard to resist drawing conclusions of my arguments for assessment.

In attempting to answer the question of which agencies or institutions within and outside the formal education system can best develop the key competencies, I want to focus on workplace learning, but also on vocational and professional education in formal institutions (universities/technical colleges). I also want to open up the implications of my arguments for lifelong learning.

My overall argument is that the way most people think about learning is wrong. For over 2000 years, it has been assumed that learning is concerned with the process of individual minds' being increasingly furnished with ideas and that these ideas are the basis of individual competence. Such a conception rests on dichotomies about the mind and body which are false. The old learning paradigm needs to be replaced by a new one which links learners to the environment in which learning is taking place. Such a conception of learning takes account of the affective, moral, and physical, as well as the cognitive aspects of individuals and insists that real learning only takes place in and through action. Hence, the learning of key competencies can only occur through acting on the world in ways that increase the capacity to make judgements – presumably over the life span (Hager, 2002).

Before I elaborate that argument I want to outline how I conceptualise competence and to provide a historical perspective on this debate. When I first undertook work on developing a framework for competency-based education in Australia some 13 years ago (Gonczi, Hager, & Oliver, 1990) I was drawn into a policy debate where the Australian government had decided that all vocational education should become competency-based, without any real idea of what that might mean, except that education needed to be based on outcomes rather than inputs. What evolved was a highly reductionist and behaviourist concept of competency on the British model. In education for technicians and tradesmen, there were attempts to design 'curricula' based entirely on an analysis of the various things that they had to do. The essence of each task, it was believed, would be revealed as it was broken down into its sub-

components. This led, in Alison Wolf's evocative phrase, to a 'never-ending spiral of specification'. Competency standards consisting of literally many hundreds of fragmented tasks were designed for a host of occupations. Curriculum in vocational education was abandoned, and teachers were expected to set up practical situations which would enable students to be observed doing all the things specified in the occupational standards and ticked off as having achieved the competency. In effect, the tasks became the competency.

In case you are tempted to think this thinking was confined to vocational education, it is instructive to remember that there is a history of reductionist competency-based education in the professional development of teachers in the United States which is over 30 years old, where teachers in some States to be registered had to be observed undertaking thousands of tasks outlined in sets of 'standards'. This thinking has already done much damage to vocational education – at least in Australia and Britain – but given the adoption of competency-based models in many of the emerging countries of Asia, it has the capacity to do much more damage yet.

My colleagues and I conceptualised competence differently. We adopted a relational approach to competence: one which has linked the attributes of individuals (i.e., knowledge, skills, dispositions, values) to the demands of tasks and activities which individuals were undertaking in some aspect of their lives. We argued that competency was inferred from performance and was not directly observable. While the performance of activities and tasks can be observed, the attributes that underline the performance are necessarily inferred. The implications of this for assessment were and are profound, and I shall come back to these briefly later.

This concept of competence is best described as the 'integrated approach', and is also relational in that it brings together the general and the vocational, and the generic and the specific. What this approach posits is that the performance of individual tasks and activities rests on more general capacities, such as reasoning and making judgements, as well as specific knowledge and individual dispositions. In this approach to competence, there is no dichotomy between specific competencies and key competencies: the capacity to perform specific activities will always entail some combination of knowledge, skills, dispositions, and values which, when analysed, almost always look like some combination of key competencies. Another way of describing the approach is holistic. I mean by this that the capacity to be successful in the world, to undertake activities competently, requires a person to bring together a range of attributes in the particular context in which they find themselves.[1]

While these ideas have some influence in some higher education courses in Australia, the reductionist view of competence remains the norm.

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[1] The key competencies should be seen as being relational. They bring together attributes possessed by individuals and the contexts in which, through performance, these attributes are demonstrated. They are at a higher level of complexity than other more simple competencies, i.e., they bring together more attributes, but they do not exist without a context. So 'Problem Solving' or 'Collecting, Anaysing and Organising Information', for example, should not be thought of as discrete competencies additional to other competencies or as somehow underpinning other competencies. There is no such thing as the generic competency of problem solving – only individuals bringing together the appropriate attributes in a particular context to solve the specific problem that confronts them. Thus, the key competencies are really no more than 'complex' competencies as defined in the integrated model of competency. They will almost always be employed in combination with other simple competencies where single attributes (such as recalling some aspect of knowledge) are necessary but not sufficient to complete a task. In effect, the key competencies will never stand alone.

There are likely to be some similarities between the combinations of attributes required to solve a problem in similar contexts. So that in solving problems in social work with troubled juveniles, for example, different social workers will use many of the same combinations of attributes. Even in this restricted arena, however, every problem will be unique and different combinations of attributes will often be needed to solve what seem, ostensibly, to be similar problems. But, in social work with the aged, substantially different combinations of attributes will be needed to solve problems, though it is possible that some will still be common to social work with juveniles. The attributes needed, however, will have to be rethought and recontextualised rather than simply transferred.

It is also dangerous to think of the key competencies as discrete stand-alone competencies. In real-world situations many tasks are complex. The more complex the work (i.e., the tasks that have to be performed), the more combinations of the key competencies are required to perform the work successfully. The assumption that these key competencies are discrete and that they can be divided into levels is another instance of the tendency for atomistic or reductionist thinking discussed earlier in this essay.

So it was with great delight that I read the conceptual papers in Rychen and Salganik's edited volume (2001), and particularly their Discussion Paper (2002). It is good to discover that there are people who agree with your views. But there is a second reason for my pleasure, and that is that the Australian experience with competency-based education, some of which I outline in this paper, has the potential to make a contribution to the future of this important international project.

The fusing of the international and multi-disciplinary perspectives represented by this project has the potential to have a very positive impact on educational policy in many countries. The breaking down of the dichotomy between general and vocational education both at school and at higher education levels has been proceeding in many countries – but without a clear conceptual framework. The consolidation of the thinking in the discussion paper and the future activities of the DeSeCo Project have the potential to provide such a coherent framework, and the influence of the OECD could help to integrate this framework into public policy – though the usual mechanisms of standardised international assessment will not in my view be possible.

2 Challenges for Vocational and Professional Education

Recent research and scholarly work in a range of seemingly unrelated areas – neuroscience, artificial intelligence, knowledge management and learning theory, as well as less recent work in philosophy – is now pointing in the same direction and undermining much of what many educationalists (such as teachers, academics, and workplace learning personnel) believe: i.e., that competence, in jobs, professions, and life more generally, depends on the prior understanding of foundational knowledge and the principles, propositions, and ideas codified in the various disciplines. Essentially, I believe that we should be coming to the recognition that the best way to prepare people for occupations and professional practice and the more general capacity for successful life is through some form of apprenticeship – an educational process in which the exercise of judgement and the ability to act in the world emerge out of the complex of interactions which is found in a community of practice. Such interactions combine cognitive, emotional, and bodily processes in the social and cultural setting of the workplace or other setting. That is, real understanding and competence are essentially a result of social, rather than individual, activities. While I think this argument has implications for general education in schools (via, for example, a 'cognitive' apprenticeship), I will confine myself from now on to vocational and professional education.

If my argument can be substantiated, then the implications for universities and technical colleges, for the professions and industrial associations, and for the workplace are profound. It will mean a need to embed much professional and vocational education in the sites of practice and to focus on process at the expense of content. For that part of the educational experience that remains in formal institutions, it will mean the growth of cross-disciplinary teaching, problem-based approaches, project work, the use of portfolios to gather evidence, and so on. Extensive clinical and practical experiences will be at the very core of any program. Such an approach will also mean far more elaborate induction programs for new recruits to professions and occupations, with greater obligations on the professions, the industrial associations, and personnel in the workplace to participate in professional education through coaching and mentoring programs – in association with formal institutions.

Most educational thinking in the West has a direct line from the ancient Greeks through the enlightenment to the present day. Aristotle distinguished between different types of knowledge: that which is universal and theoretical (which has since been called propositional knowledge or knowing *that*), and that which is instrumental, practical, and context bound (which has been characterised as knowing *how*). This type is mostly tacit and not amenable to being expressed in language. Aristotle's third category is knowledge, which is related to practical wisdom. Each of these was seen as having an independent existence and a different value – the highest value being accorded to the theoretical.

This thinking – and that of Plato – has had a powerful influence on western thought ever since. It is the basis of many of the dichotomies which underpin contemporary educational thought: mental versus manual, theoretical versus practical, mind versus body. The high point of the mind-body dichotomy is, of course, the work of René Déscartes, who envisaged the mind and body as completely separate. 'I think therefore I am', Descartes' famous phrase, suggests a thinking disembodied mind contemplating the world but not involved in it. Descartes' disembodied mind, too, has had a powerful influence on western views about the nature of the mind. It has led to what

Bereiter and Scardamalia (1996) have termed a 'folk theory of mind' – a general belief in society in general, and amongst educational practitioners in particular, that the mind is akin to a container. In this account, knowledge is thought of as discrete facts, beliefs, and ideas, that is, specifiable objects stored in the brain and used as appropriate. The aim of education in this conceptualisation of the mind is to fill it with appropriate facts, beliefs, ideas and provide effective means of accessing them. In vocational and professional education, the assumption is that students will be able to use these facts and ideas derived from the codified knowledge of the disciplines to solve professional problems when they face them. In other words, this is the idea that universal, general and timeless theories will provide the basis for practice and competence. There will obviously be differences between educators as to what ideas need to be inculcated into students, how much time needs to be spent on them, how much on beliefs, and so on; but there has been little questioning, until recently, of the underlying assumptions about the nature of the mind and hence the need to fill it. Where better to do this than the lecture hall and classroom, where those educators who have distilled the universal can pass it on to students uninterrupted by distractions of the world. Most educators felt it was enough to let them practice and apply these objects-in-the-mind 4 or more years later.

Let me present developments in knowledge and the convergence of five distinct intellectual areas which suggest that this conception needs to change. These are:

- New concepts of knowledge and knowledge management
- Advances in neuroscience
- Developments in the cognitive sciences
- Developments in learning theory – knowledge and learning embedded in practice
- Revival of some philosophical arguments

3 New Concepts of Knowledge and Knowledge Management

Over recent years, things have begun to change. Clinical experiences and practicums have expanded, joint appointments within universities and with external organisations have been made, and co-operative programs have expanded. Vocational teachers teach in workplaces, not just institutional classrooms. One of the main reasons for this at the higher education level has been the increasing recognition that the creation and production of knowledge is spread across society – far beyond the university research centre or university faculty.

The Gibbons thesis is now well known, but, in brief, Gibbons and his colleagues argue that there are now two distinct modes of knowledge production in developed societies which they have termed mode 1 knowledge and mode 2 knowledge. Mode 1 is knowledge of the discipline-based type typically produced in universities. Mode 2 is referred to as 'socially distributed' knowledge. It is the knowledge of application and is produced in workplaces and organisations outside the university sector. It is output-driven, specific and transient, it uses methods which might not be seen as legitimate against the traditional university criteria for knowledge production, and it is valuable in economic terms. Much of this knowledge is also tacit and, by its nature, crosses the boundaries between disciplines.

Not surprisingly, given the view of knowledge inherited from the ancient Greeks, the university sector as a whole has viewed the development of mode 2 knowledge with suspicion (though it must be said that a number of staff in some of the universities have welcomed it – the nature of the academic world has an influence on this). Equally suspicious, however, are governments and industry who feel that mode 1 knowledge does not serve the wider society in its need for the higher levels of knowledge demanded by the competitive global economy.

The net result has been that universities, have on the whole, been prepared to accommodate these new developments and to accept that they need to take them into account in planning their courses. All universities in Australia, for example, now have a set of key competencies (often called Graduate Attributes) which their courses are supposed to address. The Australian Council of Educational Research has even designed (I think misguidedly) a written test to see how successful universities are in this endeavour. But I believe universities have done these things without altering their assumptions about the primacy of universal and timeless knowledge (foundational-disciplinary knowledge) or their beliefs that the minds of students are formed in essence by the inculcation of this kind of knowledge. There is often a lack of coherence in professional courses, where on the one hand there is an increase

in the amount of practical experience students undertake, but on the other hand there is a stubborn insistence on the importance of the teaching of disciplinary knowledge – most often by transmission methods and assessed by formal examinations.

The increase in the volume of both mode 1 and mode 2 knowledge and the reduction in the half-life of knowledge has presented universities with another problem, however: how to educate students to learn and relearn and also to manage the knowledge of the organisations they will work in. If it is true that mode 2 knowledge is increasing and that more and more of the work of the professional is concentrated on knowledge products and services, as is widely claimed (by various OECD publications), then knowledge management becomes an increasingly important part of professional preparation. How do universities teach students to become effective knowledge managers and lifelong learners in the new world of mode 2 knowledge? One reaction has been for some university academics to reassert the value of mode 1 knowledge – arguing that in a rapidly changing world only timeless universal knowledge is important. But given the dissatisfaction with old forms of professional preparation, this return to discipline theory-based knowledge is likely to further diminish the university in the eyes of the professions and wider society.

Before we attempt to tease out the implications of mode 2 knowledge and its management for university professional education, we need to turn to the second of the topics mentioned earlier, developments in neuroscience.

4 Advances in Neuroscience

I make no claim to expertise in this area. However a number of recent books (Damasio, 1996, 2000; Greenfield, 1996; Edelman & Tononi, 2001; Goldberg, 2001) written by medical researchers and neuropsychologists have been able to bring the recent breakthroughs in research on the brain to the non-expert. I believe they will have significant implications for our understanding of learning – though much research needs to be done before we can articulate them with any confidence.

One of the major findings from research is that reasoning and emotion are vitally connected. Investigations of patients with particular types of brain damage which takes away their capacity to experience emotion but leaves their cognitive processes intact demonstrates that while they can discuss things and seem to be functioning cognitively they are unable to plan for their personal futures. In other words, they lose their capacity for successful action in the world. It is true that emotion can have a negative impact on a person's capacity to reason, but in its absence, humans cannot reason at all well. Emotion (feelings) is governed by bodily changes (what Damasio refers to as the 'somatic-marker thesis') which are linked by various brain processes. Feelings are the sensors for the match, or the lack of it, between the organism's genetic inheritance and the circumstances in which it finds itself – its environment. Thus, feelings are best understood as a biological, evolutionary process. It seems clear that reason depends on many brain systems, including the lower levels which regulate bodily functions. Thus, there is a chain of functions in which the body is intimately involved, and which culminates in reasoning, decision making, and creativity.

The mind exists in and for the integrated holistic organism and not outside it. Hence, as Damasio puts it neatly, rather than the Descartian 'I think therefore I am', in fact we are (and have become through evolution) and then therefore we think. The implications for education of these developments in neurobiology are not clear, though it seems reasonable to suggest that we should not ignore the affective domain in our educational programs. But work in cognitive psychology and cognitive science provides a bridge between this research and education, as I try to show below.

5 Developments in the Cognitive Sciences

Recent developments in artificial intelligence (AI) parallel current theorising and experimentation in brain research. A major work by Rumelhart, McClelland, & PDP Research Group (1986) established a new paradigm for this research, which they called Connectionism. This moved AI away from the focus on data storage and logical manipulation of symbols (or at least relegated it to secondary importance) and replaced it with a focus on how the brain was used for survival as part of a biological system. Another way of describing this is that the old focus was inspired by the 'mind as container' metaphor, while the new sees the mind as a holistic pattern detector.

The battle between these two strands of AI research need not concern us here. (They are detailed in Clark's 1997 book, *Being There*.) The essential difference, however, is instructive. The old research concentrates on the coding of items of knowledge and the development of rules to manipulate them. It takes artificial situations such as chess playing and builds in rules based on pre-coded information. The new research, by contrast, attempts to model the real world. It is endeavouring to model a brain prepared for action. It takes a horizontal slice of the world as opposed to the vertical slice of the earlier research. So, for example, robots have been designed to react to their environment without all the pre-coding of information of the old AI. These new robots have sets of circuits working in parallel, and each system receives information from other systems and passes it on. The result is that the robots are able to tolerate imperfect data, are able to complete patterns and are fast at doing it. They use their environment to solve problems.

To summarise, the old cognitive science conceptualises memory as retrieval from the 'container'. It assumes that cognition is centralised, that the body is outside the process and that the environment is a problem to be overcome. Recent research sees memory as the re-creation of patterns in a decentralised way across the brain. The environment is an active resource which helps us to solve problems, and the body is part of the computational loop (Clark, 1997). To clarify, it is not that the patterns are stored in the mind, rather they are in the environment and our brain interacts with the environment to produce the appropriate pattern, i.e., to act intelligently and competently. I think this line of reasoning is close to the concept of 'tool user' outlined in Haste's chapter (2001).

The implication of this new research for professional and vocational education is profound. It challenges the traditional view of knowledge which is held by most educators – that there is a distinction between knowing that and knowing how. Both forms of knowledge are better understood as part of a holistic process of pattern recognition. What this suggests is a quite different kind of mind from the one conjured up by the 'container' metaphor. It is a mind which does not contain knowledge but is knowledgeable (Bereiter & Scardamalia, 1996; Bereiter, 2000). It also provides us with a framework for thinking about the perennial problem of professional education, the gap between theory and practice. What it suggests, too, is that the old dichotomies between thinking and doing, mind and body are fundamentally mistaken, and that as a consequence we need to rethink our assumptions as to how to produce capable practitioners. The most important of these assumptions is the primacy of propositional knowledge in our courses and the assumption that such knowledge is the basis of the ability to transfer knowledge and skills over many contexts. This is not to suggest that we abandon codified knowledge, but rather that we must rethink its connection to the world of practice and the tacit knowledge which develops through acting in and on the world.

6 Developments in Learning Theory – Knowledge and Learning Embedded in Practice

Over recent years there has been a great deal of interest in what has been called situated learning. Lave and Wenger (1991) and Lave and Chaiklin (1993), in a number of studies of learning through apprenticeship-type situations, postulate that knowledge gained by an individual is in effect built through participating in a group whose members already have certain competencies and who are willing to allow the learner to become, progressively, part of the core of their community. This progressive participation involves the learner's developing an identity as a member of the group. Their studies of apprentices (both formal and informal) in a number of countries show that apprentices actually generate new knowledge rather than just following others. That is, they generate their own tacit knowledge. Thus, learning is fused with work and with a changing identity. Learners are engaged in the process of constructing their world. Learning to do is part of learning to become and to belong (OECD, 2000). This is a social theory of learning which is in stark contrast to traditional accounts which emphasise the individual learning of propositional knowledge and assume that this forms the basis of professional competence (e.g., Stokes & Baer 1977). This has been the orthodox account of transfer, though it should be said that some authors distinguish been 'near' and 'far' transfer (Salomon & Perkins, 1989; Cornford, 2002), and many now confine their arguments to examples of near transfer and the need for particular activities to encourage this (e.g., Cornford & Athanasou, 1995).

Situated learning theory argues, by contrast, that transfer is the knowledge developed by acting or doing in a range of contexts or communities of practice, where the learner in effect creates new knowledge every time. This approach does not imply that the learner can only learn by observation and emulation. The work of Vygotsky and Engeström suggests it is possible to provide ways of enhancing the motivated learner in these social settings by way of

scaffolding, modelling, mentoring, and coaching (Vygotsky, 1978; Engeström, 1994, 2001). Engeström suggests the need to introduce contradiction – for the teacher, mentor, or coach to design experiences in the social setting which will lead to genuine transformation, i.e., which moves learning beyond the immediate context. For the individual, it is a process of knowledge building, of constructing and testing theories in real settings: a process which leads to genuine understanding.

This situated perspective on learning is now widely accepted by those writing in the area of knowledge management in workplaces. Zack (1999), for example, discusses the capacity of various organisations to explicate the tacit knowledge built up by individuals and groups working for the organisation (the community of practice) and considers this to be the fundamental driver of business success in certain industries.

7 Philosophical Arguments

In a recent paper, my colleague Paul Hager (2001) outlines a philosophical argument for a new paradigm of learning by drawing on the ideas of Dewey, Wittgenstein, Passmore, and Ryle, amongst others. He argues that they all support the notion that learning is based on the development of capacities which go far beyond the cognitive. A major conclusion of his recent work is that knowledge as integrated in judgements is the capacity to act in and on the world, and that the acquisition of knowledge (and this includes know-how of various kinds, in addition to propositional knowledge) alters both the world and the learner who is part of the world.

He concludes that the learning of propositions (the old learning paradigm) is not irrelevant, but that it is part of a wider process of learning which becomes integrated and holistic through the exercise of judgements in the world. This is another way of saying that the development of competency is a holistic activity involving individuals and groups acting in and on the world in a manner which includes cognitive, affective, and somatic dimensions.

8 A New Conception of Competence

It seems to me that the literature in a number of fields is converging. While they come from very different traditions and disciplinary fields, both connectionism (and the neuroscience on which it is based) and situated constructivism shift the focus in learning theory from the individual to the social setting. Moreover, they appear to complement each other. As St Julian (2000) points out, connectionism, with its emphasis on pattern completion, parallels the real-world capacity of humans to work in the 'swamp' of everyday reality (Schon, 1987) with its incomplete and even wrong data. But it has problems of its own – specifically, an inadequate explanation for the stability of knowledge, that is, the capacity to use knowledge beyond the immediate context. This gap is, however, filled by situated learning theory and activity theory, with their emphasis on scaffolding and modelling in the community of practice which can act to transform understanding and enable the individual to apply knowledge beyond the immediate context. The importance of the combination of the new neuroscience and cognitive sciences on the one hand, and situated learning on the other, is that it provides us with a way of addressing the so-called 'generic' or 'key' competencies. People need to be given the opportunity to be immersed in the world in various contexts – with some mental scaffolding to help them develop their capacity to make judgements. None of this is to deny the role of institutions in developing and teaching propositional knowledge. But it is to say that the development of the capacities contained within constructs such as key competencies requires more than that.

We need to accept that much of what makes people competent, resourceful, adroit (that is what makes them knowledgeable) is largely tacit, instinctive, intuitive, difficult to pin down and certainly can't be located in 'objects' stored in the mind. Educational organisations or their programs deal with few capacities such as number sense, taste, artistic appreciation, sensitivity, communication competency, and creativity. But they need to be brought into the mainstream (Bereiter, 2000).

We need, too, a wider conception of learning which acknowledges that it is developed through doing, through acting in the world. It is a process which involves the emotions and the formation of identity through adapting to the world in which the person is situated – in the communities of practice in which we live and act.

The challenge is to shift the focus of professional and vocational education from training the individual mind to the social settings in which the individual becomes part of the community of practice; from facts and rules stored

in the brain until the need to use them to enacting knowledge through activity; from a conception of humanity centred exclusively on the brain to a wider conceptualisation where humans are seen as embodied creatures embedded in the world.

9 Empirical Evidence on Teaching and Learning of Key Competencies

Before focusing briefly on what the implications of my argument are, in concrete terms, for the learning of key competencies, I think it might be useful to briefly provide some empirical evidence of how teachers in the vocational sector in one country have attempted to organise student learning to develop these competencies.

Over a 4-year period between 1993 and 1997, the Australian Government provided a sizeable sum of money to teachers in both the general and vocational education sectors to pilot methods for teaching and learning the Australian version of the key competencies. (These were: collecting, analysing, and organising information; communicating ideas and information; planning and organising activities; working with others in teams; using mathematical ideas and techniques; solving problems; and using technology.) There were some 80 projects in general and vocational education, and at the end of the trial period two meta-analyses which summarised findings in each sector were commissioned (Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), 1996; Hager, Moy, & Gonczi, 1997).

Their conclusions may be summarised as:

- The best examples of teaching and learning were those where teachers encouraged active independent learning in students, especially in ways that simulated contexts they might experience in later life. These projects included such things as work experience programs, group projects, using discovery methods in class, and the development of portfolios.
- The better projects were those that integrated the key competencies into the teaching of other material, rather than attempting to teach them as stand-alone entities.
- However, there seemed to be more success in student outcomes when the key competencies were made explicit – even though they were integrated in other activities.
- Another conclusion of the two reports was that, in many instances, it was not possible to separate out the key competencies in the process of teaching and learning.
- Very few of the projects in vocational education specifically assessed the acquisition of key competencies directly. The most comprehensive attempt to assess them was via a portfolio of evidence which students collected for themselves. The key competencies formed the categories within which students gathered and recorded specific evidence of workplace achievements.
- While few of these 80 projects would conform to the scientific standards of research which would satisfy university researchers, they do provide some thought-provoking evidence and certainly a whole range of areas to be further investigated.

10 Enabling Vocational and Professional Students to Learn Key Competencies

The new model of professional and vocational education should be one in which teaching, learning, and research in universities and vocational colleges have close ties with the world of practice. This means that the university takes a broader view both of 'knowledge' and of the nature of professional practice. Although there are some similarities between all forms of knowledge, there are also significant historical differences between the knowledge traditionally valued in universities and the knowledge produced by the largely informal learning that occurs during the course of professional practice. A new professional education would need to overcome these differences. In vocational education this is less of a problem, but conceptions as to what is the most important type of knowledge still need to be challenged. I will concentrate here on professional education in universities, since this is where the problems are most stark.

As I mentioned earlier, there have already been attempts to link universities to the professional world. As Hager (2000) points out in a very valuable chapter in a new book by UTS academics, *Working Knowledge*, this involvement includes professional placements, cooperative education arrangements, and clinical, practicum, and field placements. In addition, the workplace is significantly present in various courses, both as a learning resource and a site of learning. This is reflected in the wide use of pedagogical tools such as negotiated learning contracts and work-related projects.

But the new professional education needs to go further. It will be concerned with the workplace not merely as a site of valid knowledge production and transmission, but as one which is equally valid to institutional knowledge production.

What would be the learning principles for a new professional education, and what would be their implications for course design and pedagogy? Let me present four, which are an adaptation of Hager's principles:

- Professional practice requires a broader range of knowledge and performance capacity than is covered by the traditional disciplines. This needs to be reflected in the desired outcomes of courses offered.
- In the new professional education, student learning would progress from dealing with clear-cut problems having a single correct solution to dealing with situations in which the problem is unclear and in which there is no single correct solution. This suggests a problem-based approach for the institutional component of all professional courses. There is no place for a transmission approach to learning. This does not mean that traditional disciplinary knowledge cannot be introduced, but that it should be taught in such a way that it can be applied. As Popper suggests, theories cannot be understood until they can be reinvented or reconstructed and tried out.
- A new professional education would view experience of professional practice as essential for the acquisition of some of the knowledge and performance capacity required for professional practice – hence, there is a need for, at the least, a very substantial compulsory work placement, practical element, or sandwich course.
- A new professional education would emphasise the acquisition by learners of diverse generic capabilities and dispositions (including the capacity for ongoing learning as the nature of their professional practice evolves and expands) that would enable future professional practitioners to deal with a range of complex situations – and to do so within a set of moral principles. This can be done best through the knowledge building undertaken during work in the community of practice. There will be a need for professional coaches to work with students in workplace settings – professionals who, with the help of the university staff, can design the scaffolding and contradictions that will lead to knowledge building.

So what should be the balance between the university and the workplace in the provision of professional education?

At the radical end of the continuum would be apprenticeship models for undergraduate education and postgraduate work-based learning degrees. An example of the former is the change to teacher education in the UK, where two-thirds of the degree is undertaken in a school under the supervision of professional colleagues. In work-based learning, a learner designs a learning program around his or her work responsibilities. Such degrees already exist in a number of UK universities, and will be further developed through the fledgling University for Industry. At my own university, we have a number of such degrees in their early stages with a couple of organisations – the AMP society (a large insurance company) and the NSW Department. of Education and Training (DET).

There are many features of such programs. As Solomon (2000) points out, the learning arrangement is a three-way partnership between the organisation, the learner, and the university, where the learning program is linked to the strategic goals of the organisation while assessment and accreditation are the responsibility of the university.

The learning opportunities found in such degrees are not contrived, but are real activities that are being undertaken in the workplace. For example, a school principal designs a quality assurance process for teaching and learning in his or her school, or an employee in the IT section of an organisation in the financial industry designs a data warehouse architecture for a distribution program.

The learner will undertake such a project under supervision, and in addition will study such subjects (or part subjects) which are jointly deemed suitable by the university and the learner. Advanced standing can be given for experience or for undertaking in-house courses.

Assessments are typically based on performance, so the emergent paradigm of authentic assessment is most suitable for these awards. Clearly these awards are based on mode 2 knowledge (though they can incorporate mode 1, too). The curriculum is specific and pragmatic, though there is an attempt to build the development of generic competencies into the design as well. The method of doing this is to provide the opportunity to learn in many contexts, in association with others and with specific scaffolding built into the particular contexts.

It would be desirable for universities to experiment with variations of these suggestions across the continuum from totally institutionally based (though these would have to be largely simulated or problem based in order to be in step with the new theory of mind outlined earlier) through to completely workplace-based learning. My preference would be for a combination, but one where the majority of the professional course is undertaken in the workplace. However, the workplace would be one in which learning experiences were designed by both practitioners and academics to challenge students and to provide them with support through coaching, mentoring, and the provision of scaffolding. Clearly, such a model of professional education would require a new set of relationships among universities and professional associations, employing authorities (such as State Government Departments) and individual firms. Some examples of reasonably good relationships already exist: the professional year in accounting, cooperative programs, and so on. But what I am suggesting is that there needs to be something more – a seamless relationship between the various parties which leads to cooperation, which in turn leads to the work-based component becoming a rich educative experience and – for there to be coherence – fusion of this experience with the university component of professional education courses.

Traditionally, workplace components have been built into vocational education courses. However, there has been little thought as to how to link them. Like higher education, it has often been assumed that the workplace is a site for application of theory. Here, there is a need to experiment with workplace delivery of vocational courses, where teachers provide the whole course in real situations and act as mentors or 'scaffolders' whose job is to choose activities and contexts where they can help learners to develop capacity for independent judgements, working with others, formulating and solving problems, and so on. Similar experiments need to be undertaken with simulated work situations and problem-based methods.

Needless to say, it would not be easy to make the changes suggested above. It would necessitate a change in the relationships among formal educational institutions and professional associations and workplaces, changes to funding, changes to organisation within educational institutions, and most difficult of all, changes to the assumptions of most educationalists concerning the nature of knowledge and their conceptions of how the mind works. But if my arguments are right, the time to start to address these barriers is now.

11 A Final Note on Assessment

The assessment of key competencies is a controversial and complex topic. All I want to say is that the logic of my arguments about the contextual nature of the key competencies is that the only way in which they can be assessed is through authentic direct performance assessments in particular contexts where evidence is gathered and judgments made (as, say, in a court of law) on the basis of this evidence.

I suggest in vocational and professional education an integrated holistic model of assessment, which would focus assessment on constructs rather than on tasks, and that this can be best done through the use of multiple assessments where tasks serve as the vehicles for assessing the construct. In other words, there is a need to choose appropriate tasks at a sufficient level of generality from which the possession of appropriate attributes (and, hence, competency including the key competencies) can be inferred. This means using a range of assessment events to ensure that adequate domain coverage occurs. Using the integrated model of competence as it applies to competence in occupational roles, the relationships between the tasks and the attributes which underpin them are already established in a good set of competency standards, and the issue of adequate coverage is not especially problematic. Thus, the need to assess constructs is already established in the arguments about the very nature of competency and the rejection of both the behaviourist task-based approaches and the generic approaches.

In this regard, the construct of competency is arguably easier to identify for occupational competency than it is for more general cognitive and affective capacities which are the particular focus of general education. This is a point also made by Bailey (1993). It is simply easier to elucidate what a carpenter or a family lawyer should and can do, than what a competent student critic of poetry should be able to do.

12 Conclusion

It will be obvious from the arguments presented in this paper that I believe the teaching and the learning of the key competencies will take place largely outside formal educational institutions, though these can play a role in their own right, and through coordinating and facilitating the work of others in workplaces (and other community settings). What is needed, if we are to take the development of key competencies in vocational and professional education seriously, is something of a revolution. Educators need to change their assumptions about learning, and employers and the professional and industrial associations need to recognise how vital is their contribution to learning. Educational policy needs to encourage partnerships, experimentation, and research on these new pedagogies.

There are many implications of what I have had to say for lifelong learning. We need to embrace the idea of a learning society in which all social institutions – workplaces, families, trade unions, clubs, professional associations, and so on – are acknowledged to have a learning dimension and a responsibility for the growth and development of their members. Formal educational institutions should work with these other institutions to develop mentors and coaches who will work with their members.

In vocational and professional education, the distinction between universities and technical colleges on the one hand, and workplaces and professional associations on the other, should become far less marked. Professionals and industry personnel should work in educational institutions, and academics and teachers should undertake much of their work in workplaces. Seamless cooperation should characterize the relationship.

I know these things are not likely to happen quickly, but I believe the evidence suggests these directions are both desirable and possible, and if we are to achieve some of these things, the time to start is now.

13 References

Bailey, T. (1993). *Discretionary effort and the organization of work: Employee participation and work reform since Hawthorne*. Technical paper, National Center on Education and Employment.

Bereiter, C. & Scardamalia, M. (1996). Rethinking learning. In D. R. Olson & N. Torrance (Eds.), *The handbook of education and human development: New models of learning, teaching, and schooling*. Cambridge, MA: Blackwell Publishers.

Bereiter, C. (2000). Keeping the brain in mind. *Australian Journal of Education*, 44(3): 226–238.

Carson, J. (2001). Defining and selecting competencies: Historical reflection on the case of IQ. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 33–44). Göttingen, Germany: Hogrefe & Huber.

Clark, A., (1997). *Being there: Putting brain, body, and world together again*. Cambridge, MA: MIT Press.

Cornford, I. (2002). Generic competencies: A review of some recent literature and analysis from a historical perspective. Research Centre for Vocational Education and Training UTS. (Working Paper 01-04). Retrieved June 3, 2003 from, http://www.uts.edu.au/fac/edu/rcvet/working%20papers/0104Cornford.pdf.

Cornford, I., & Athanasou, J. (1995). Developing expertise through training. *Industrial and Commercial Training*, 27(2): 10–18.

Damasio, A. (1996). *Descartes' error: Emotion, reason, and the human brain*. London: MacMillan.

Damasio, A. (2000). *The feeling of what happens: Body and emotion in the making of consciousness*. London: Vintage.

Edelman, G.M., & Tononi, G. (2001). *Universe of consciousness: How matter becomes imagination*. New York: Basic Books.

Engeström, Y. (1994). *Training for Change: New approach to instruction and learning in working life*. Geneva: International Labour Office.

Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education & Work*, 14 (1): 133–156.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. London: Sage.

Goldberg, E. (2001). *The executive brain*. Oxford: Oxford University Press.

Gonczi, A., Hager, P., & Oliver, E. (1990). *Establishing competency based standards in the professions*. Canberra: Australian Government Publishing Service.

Greenfield, S. (Ed.). (1996). *The human mind explained: The control centre of the living machine*. London: Cassell.

Hager, P. (2000). Knowledge that works: Judgement and the university curriculum. In C. Symes & J. McIntyre (Eds.), *Working knowledge: The new vocationalism and higher education*. Buckingham, UK: Open University Press/Society for Research into Higher Education (SRHE).

Hager, P. (2001). *Towards a productive conception of learning*. Research in Adult and Vocational Learning seminar series. (Working Paper 01-13). Retrieved June 3, 2003, from, http://www.uts.edu.au/fac/edu/rcvet/working%20papers/0113PHager.pdf.

Hager, P., Moy, J., & Gonczi, A. (1997). *Piloting the Key Competencies in the Australian Vocational Education and Training Sector and Workplaces: A synthesis report*. Sydney: Department of Training and Education Co-ordination.

Haste, H. (2001). Ambiguity, autonomy, and agency: Psychological challenges to the new competence. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 93–120). Göttingen, Germany: Hogrefe & Huber.

Lave, J., & Wenger, E. (Eds.). (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, England: Cambridge University Press.

Lave, J., & Chaiklin, S. (Eds.). (1993). *Understanding practice: Perspectives on activity and context*. Cambridge, England: Cambridge University Press.

Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA). (1996). *National Report on Schooling in Australia: 1996*. Retrieved June 3, 2003, from http://www.curriculum.edu.au/mceetya/public/pub322.htm.

Organisation for Economic Co-operation and Development (OECD). (2000). *Management of knowledge in the new learning society*. Paris: Author.

Rumelhart, D. E., McClelland, J. L., & PDP Research Group (Eds.). (1986). *Parallel distributed processing*. Cambridge, MA: MIT Press.

Rychen, D. S. & Salganik, L. H. (Eds.). (2001). *Defining and selecting key competencies*. Göttingen, Germany: Hogrefe & Huber.

Rychen, D. S. & Salganik, L. H. (2002). *2nd International DeSeCo Symposium: Discussion paper*. Retrieved June 3, 2003, from, http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_discpaper_jan15.pdf.

St Julien, J. (2000). *Changing conceptions of intelligence and reasoning: Implications for the classroom*. Australian Journal of Education, 44(3): 254–271.

Schon, D. (1987). *Educating reflective practitioners*. San Francisco: Jossey-Bass.

Salomon, G., & Perkins, D.N. (1989). Rocky roads to transfer: Mechanisms of a neglected phenomenon. *Educational Researcher*, 24(2): 113–142.

Solomon, N. (2000). DeSchooling Vocational Knowledge. In C. Symes & J. McIntyre (Eds.), *Working knowledge: The new vocationalism and higher education*. Buckingham, UK: Open University Press/Society for Research into Higher Education (SRHE).

Stokes, T.F. & Baer, D.M. (1977). *An implicit technology of generalization*. Journal of Applied Behavior Analysis, 10, pp. 349–367.

Vygotsky, L.S. (1978). *Mind in Society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Zack, M. (1999). Managing codified knowledge. *Sloan Management Review*, 40(4): 45–58.

Defining and Selecting Key Competencies in Lifelong Learning

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1 Introduction

The UNESCO Institute for Education (UIE) has been involved in research, training and capacity building in lifelong learning (LLL) for thirty years now, and considerable knowledge and expertise have been gathered on different dimensions of the concept and its use as a guiding and organising principle of educational reforms. The earlier studies in the 70s were concerned with not only the characteristics related to the concept including "educability" (Dave, 1976; Dave & Skager, 1977; Copley & Dave, 1978), but also with curriculum characteristics, in particular, self-direction, content and evaluation. Recent work of the Institute deals with lifelong learning policies, learning strategies, legislative environments, innovations and indicators of system transformation towards LLL. In view of all this, UIE is well placed and equipped to offer a few reflections on the range of issues linked to these subjects and engage on further exploration on this topic jointly with partners concerned.

The presentation will look into LLL as a concept and a practice and highlight its implications for the key competencies needed for living, earning and learning further. The various ways of conceptualising, defining and deriving competencies will be looked at with emphasis on competencies demonstrated by performance.

Key competencies will be analysed from the dual angle of personal fulfilment and realisation of social responsibility. A particular emphasis will be given to the necessity to fulfil both the personal and individual dimension, as well as the requirement for citizenship and participation in community life.

The role of various learning institutions will be examined in relation to their contribution to forming, transmitting and renewing key competencies for lifelong learning. Here again in reaction to the usual emphasis placed on school and formal education, this presentation will underline the contribution of adult and non-formal learning modalities.

2 Lifelong Learning for Coping with the Challenges of Today's World

LLL is a continuous process beginning at birth and providing learning opportunities over a life span to communities, individuals and organisations, who are then able to handle and make use of them and who are able to contribute to their own development and transformation. The idea of LLL rests upon integrating learning and living both horizontally across family, community, study, work, and leisure "life spaces" and vertically from birth to death. According to Yeaxlee, it is reflected in the knowledge, experience, wisdom, harmony and self-realisation rooted in the practical affairs of ordinary men and women (Yeaxlee, 1929, p. 165). Learning itself has been defined as a basic need. The World Conference on Education for All (WCEFA) defined basic education as the foundation of LLL and of an education aimed at meeting basic learning needs of all. In the Declaration of this conference it was stated basic learning needs "comprise both essential learning tools (such as literacy, oral expression, numeracy and problem solving) and the basic learning content (such as knowledge, skills, values and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions, and to continue learning" (UNESCO, 1990).

As Suchodolsky puts it: The concept of LLL is based "on the idea that the continuous development of man (and woman) forms an integral part of his (her) existence" (Suchodolsky as cited in Dave, 1976, p. 65). J. Dewey expressed earlier the same expectation for the education of children and adult learning: "To prepare him (the child) for future life means to give him command of himself…so that he will have the full and ready use of all his capacities" (Dewey, 1966, p. 27).

The concept of LLL embraces the basic notion of relating school (and also out of school) and adult learning to the whole sphere of life, and furthermore, makes the significant leap of recognising all of life's situations, institutions, and professions.

From the Faure Report (*Learning to Be*) in 1972 to the Delors 1996 Report (*Learning: The Treasures Within*), it has been recognised that LLL is integral to a meaningful human life in that it equips people to tackle whatever challenges they will face throughout their lives. An individual must be able to act upon his or her life and have the capacity to perform with ease and self-control the roles and functions expected from and demanded by different situations. He or she must be able to live as a family member, as a worker, as a member of society, a citizen of a nation and ideally as a world citizen. Conversely, a society or its collective constituencies (communities, groups, families) should be inclined to learning and should master competencies, skills, know-how, wisdom, attitudes and values of conviviality, respect and "learnability". Longworth and Davies of the European Lifelong Learning Initiative offer a definition of LLL based on the needs of individuals or groups and the processes that make LLL important to them in all situations: "Lifelong learning is the development of human potential through a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skill and understanding they will require throughout their lifetimes and to apply them with confidence, creativity and enjoyment in all roles, circumstances and environments" (Longworth & Davies (1996) as cited in Longworth, 2001, p. 592).

Adopting LLL as the new paradigm for education and learning in the 21st century is not adopting a slogan or opting for an abstract "edutopia". It implies defining in each particular context, sometimes for each individual learner or group of learners, the understanding, the concrete response to the question of the goals, the content and the learning modalities.

According to the report of the Fifth International Conference on Adult Education (CONFINTEA), "the objectives of youth and adult education, viewed as lifelong learning process, are to develop the autonomy and the sense of responsibility of people in the economy, in culture and in society as a whole, and to promote coexistence, tolerance and the informed and creative participation of citizens in their communities, in short to enable people and communities to take control of their destiny and society in order to face the challenges ahead" (UNESCO, 1997).

It is essential that approaches to adult learning be based on people's own heritage, culture, values and prior experiences and that the diverse ways in which these approaches are implemented enable and encourage every citizen to be actively involved and to have a voice.

3 Competencies

3.1 Definitions of competencies: Conceptual and methodological issues

Competence is defined in Webster's dictionary as "fitness or ability". Words given as synonyms or related terms are "capability", "capacity", "efficiency", "proficiency" and "skill".

There are basically three conceptions of the nature of competence:

- The first one, probably the most widely held concept, is task based or behaviourist. Competence is thus conceived in terms of discrete behaviour associated with the completion of atomised tasks (Edwards, Hanson, & Raggatt, 1996).
- The second approach is a generic attempt to identify, analyse and to map general attributes that are needed to perform optimally a concrete job.
- The third concept seeks to establish a synthesis between these two approaches.

Generally, competence is interpreted as the possession of and actual capacity to use some skills in order to learn something, to do something or to reach an aim. This can be applied to individual dispositions or to the distribution of such dispositions within a social group or an institution.

The way competencies are defined matters as much as their selection, and will condition and determine validation and assessment criteria and benchmarks. What seems yet more important is the ultimate use of competence, its manifestation in the form of performance or other attributes. In this regard, the question of the DeSeCo Project, namely what competencies are needed for the individual to lead an overall successful and responsible life and for contemporary society to face present and future challenges, raises some fundamental issues. Are competencies needed first and foremost for a successful life as an individual with coping skills for social and community life? Or in contrast, are happy social and community life and responsibility the goals from which to derive competence required by every individual? Most probably, social reasons for fostering LLL are as powerful as personal reasons and both aspects should be treated with adequate care. In DeSeCo, both dimensions – the individual and the societal – are well taken note of and analysed. However, most of current research and assessments in this domain provide more insights, illustrations and reflections on the individual dimension. It is therefore, suggested to put an emphasis on how to widen the social dimension as well. This is very important, as it conditions life itself and compels individuals and their collectives to purposefully acquire competencies, skills and attitudes in order to face and master real as well as virtual life situations.

Further, the normative, generic and derivational definition of competence may conflict with an inductive search for the same competence in a real situation. Thus, the question to ask will not only be how competence is defined in general, but also how it is defined in particular situations, i.e., how the normative agreements are constructed. Ultimately, only performance, the real manifestation of the competence, establishes its existence. An equally difficult issue is the need to define and select the competencies in relation not only to current jobs, lifestyles and social relations, but also in relation to future and even unknown jobs and changing social and personal relations. This means to keep in view future, complex social and work relations and the job redesign implications of technology and process changes. This exercise is particularly perilous, as predictions about human beings contain an element of unpredictability.

3.2 Development of key competencies for lifelong learning

Based on the generic definition of competence, an emphasis is put on key competencies. Which are the key competencies needed from or for an individual or a group to lead a successful or happy life and flourish in today's society? Here, it must be added that no term is so conflictual and difficult to define as happiness. In spite of such a difficulty it is impossible to shy away from it, as the ultimate goal, the raison d'être of people is individual and collective happiness. A successful life could be defined not only in relation to a happy working life, but also as a happy, enlightened, accomplished life outside the world of work and wealth creation, including interactions with other citizens, peers, family members and workers, an understanding of oneself and one's surrounding and actions.

Key competencies can be looked at from an individual's point of view for his or her empowerment and self-fulfilment, and his or her capacity to interact in heterogeneous groups and act for common goals. They can also be considered from a societal perspective in the sense of their contribution, for instance, to cohesion, happiness, good functioning, and well-being of the group. These strands are sometimes considered opposed, but now more and more taken into account as different sides of the same coin.

The concept of key competence assumes that individuals and societies share some basic characteristics, which are beyond the variety of approaches to life, and cultures. For instance, the importance of social influences and the capacity for autonomous action are elements of the human condition, not dependent on any society or culture. Yet, social and individual diversity is an undeniable fact.

Most activities over the life course take place in a variety of contexts (political process, social networks, and interpersonal relations), in various sectors of human existence. The different competencies must be adapted to these different situations of life. The individual must be able to be a worker, a family member, a citizen in the community, a member in the religious community, and so on.

The perspective of key competencies assumes that there exist general competencies and supposes that the human being is a social being rather than an isolated individual. The competence to live decently as a human and social being, as a citizen, employee, worker, or entrepreneur, implies critical thinking and acting in order to transform inequality, poor conditions, dependency and one-sided excessive behaviour. As it appears, key competencies are multifunctional and the base on which others can be built upon. They do not operate independently, but they should rather be viewed as a constellation of competencies.

Key competencies call for lifelong learning. For instance, critical thinking or respect for others must be learned at a very early age, but should be developed throughout life. Lifelong learning and the development of key competencies can help to create and sustain a harmonious society where equality and democracy flourish and no extremism dominates. For an individual, the package of competencies is related to his or her successful, personal and professional life and his or her capacity to contribute to and profit from group and social life. Thus, a successful life could be defined not only in relation to what I have and what I am doing, but also how I am, how I feel, how I relate to others and how others relate to me.

For groups the key competencies cannot be assessed and established by the sheer addition of the quality of life of its individual members; rather it requires integrative indicators of living together, respect and tolerance of differences and diversity, active participation in community, group and in work and social life.

4 A List of Key Competencies

The following key competencies are considered as pertaining to both individual mastery and group and social performance.

4.1 Communicating

Communicating is the capacity to express, to listen, to hear, to document, to convey, to argue and to analyse using various communication tools. Literacy is the base and the meta-tool. It is both a process and a product; as such it could be singled out as a key competence itself. Literacy should be a gateway to fuller participation in social, cultural, political and economic life. Through literacy, individuals can function effectively in their societies. Literacy is an evolving concept that embeds communication skills, which are not always related to reading and writing, but other interactive skills, including orality and new digital modes. This includes also computational, numerical, schematic and other skills like logical and critical thinking related to problem posing and problem solving. This package could be classified under a broad denomination of basic foundations for learning skills. Mastering language (mother tongue, other national languages or foreign languages) and the capacity to make relevant and critical use of ICT are critical elements of communication competence.

Communication is the means by which both individuals and groups understand who they are, what they do and what they believe, in relation to surroundings such as family, community, and workplace. Communicating as a process implies establishing human contacts to exchange information, thoughts and experience. As a product, communicating refers to building a common identity by which individuals feel that they are members of a group or community and by which accepted norms guide their behaviour.

Labelling this competence “communicating” does not lead to the inference that a narrow “connection” to communication technology or even to broader communication sciences is meant. It is the individual and social ability to transact message contents with others. This entails also a critical capacity to select, sort out, produce and use any kind of information. In this respect it is inseparable from critical thinking. Communication skills also include negotiation and co-operation.

The individual dimension of this competence is referred to and documented abundantly. It has to be stressed that groups, communities, whole societies and nations also need to master and use this capacity to express their collective identities, wishes, priorities, or concerns in relation to other collective actors and to their individual members. These entities are permanently working to secure and stabilise their internal cohesion while confronting and solving issues and tensions to transform themselves.

Communicating is a fundamental competence from which other complex competencies develop, such as being able to live together, being able to relate to others and communicate effectively in a positive sense in current and future activities.

4.2 Being able to live together

This is the capacity to develop an understanding of other people and otherness in general, an appreciation of interdependence in a spirit of respect for the values of pluralism, mutual understanding and peace.

Experience shows that it is not enough to organise contact and communication among members of different groups. If the different groups are in competition or have unequal status in the environment they share, such contact can inflame latent tensions and degenerate into conflict. On the other hand, if contact takes place in an egalitarian context, and if there are common objectives and shared purpose, prejudices and latent hostility can dwindle and give way to co-operation. It would seem, therefore, that learning must take two complementary paths: on one level, gradual discovery of others, and on the other, experience of shared purposes throughout life, which seems to be an effective way of avoiding or preventing latent conflicts (Delors, p. 92).

Living together is the capacity to establish partnerships between equals, to be ready for a dialogue. "Dialogue is not merely a set of techniques for…enhancing communications, building consensus, or solving problems. It is based on the principle that conception and implementation are intimately linked with a core of common meaning. During the dialogue process, people learn how to think together…in the sense of occupying a collective sensibility, in which the thoughts, emotions and resulting actions belong not to one individual, but to all of them together" (Senge, 1994, p. 358).

Being able to live together is also the willingness to take responsibility not only for oneself, but for others as well. It requires rule-guided co-operation and the ability to work in a team-based environment. The outcome of being able to live together should be to live and work in dignity, to live positively with cultural, ethnic and linguistic diversity.

When individuals or groups with varying beliefs come together on a task, conflict can arise. Managing interpersonal and group conflict is the ability to identify sources of conflict between oneself and others or between other groups and to take steps to overcome disharmony. This requires flexibility and tolerance. Being able to live together is thus strongly related to communicating and understanding the different views of the others.

As the New Zealand report of the DeSeCo Project states while the concept of joining and functioning in socially heterogeneous groups is important, it is equally important that heterogeneity is not understood as leading to assimilation within the dominant culture. In many contexts such as New Zealand, it is more a matter of acknowledging and valuing cultural differences and their diversity, than 'overcoming' them" (Kelly, 2001). Heterogeneity is not conflictual in itself and should be valued.

4.3 Critical thinking

Critical thinking is both a cognitive and behavioural attribute. It is the capacity to understand, appreciate and value the meaning of facts, hidden and covert actions and intentions. And it is also the capacity to judge, to draw conclusions and to purposefully act, value and behave accordingly. Critical thinking means to be reflective and to act autonomously: to take critical distance, to express compassion, to be able to doubt, to express solidarity, but also to revolt in face of inequality, oppression, unequal treatments, poor living conditions, manipulation and extremism. Groups and societies also need a critical and reflective stance on the conditions and circumstances as well as the values, customs and vision in order to transform them for enhancing better conditions of life, better relations within the group, tolerance and respect for other groups. It should be stressed that the conjunction of these individual – mental and action-oriented – attributes and their transformation into a group dynamic is critically essential for social life, for interaction between groups.

This competence is connected with the individual competence to act autonomously and reflectively, stressed in the DeSeCo Discussion Paper, to being able to change, and to communicate in order to be able to decode information or to transform it.

4.4 Being able to change

This is the capacity to direct and re-direct change and deal with the transformations taking place in society as a whole, in order to face the challenges ahead. We have to learn not only to change and to accept and adapt to change, but also to act as an agent of positive change and proactively direct or re-direct change for human well-being and development. Today adapting to rapid change and coping with uncertainty appears as a major purpose of lifelong education and lifelong learning. "Flexibility, team work, entrepreneurship, autonomy, and even creativity and problem solving skills are needed for being able to change. The idea of individuals and social groups taking part, deciding and actively controlling the nature and direction of such changes, is for the most part absent from political, social and educational discourse" (Torres, 2002).

Being able to change is connected with critical thinking, creativity (which will always be needed for technological advances, social progress, economic dynamics and other human endeavours), innovation and risk taking. Aspiration is also related to the capacity of being able to change. "Aspiration is the capacity of individuals, teams and eventually larger organisations to orient themselves toward what they truly care about, and to change because they want to, not just because they need to" (Senge, 1994, p. 18). Learning is, therefore, a response to change, but it also creates it; and learning is a mechanism of adaptation, but it also has the capacity to evoke it.

4.5 Creativity

Creativity is an important attribute of individuals and also of group and social work and transformation. It is mostly linked to thinking and acting processes, rather than to aesthetic expression. It is the clearest manifestation of human freedom to express beliefs and thoughts. It is the achievement of something new, which transforms the field of endeavour in a significant way.

Amabile (1983) describes creativity as the confluence of intrinsic motivation, domain-relevant knowledge and abilities and creativity-relevant skills. The creativity-relevant skills include a) a cognitive style that involves coping with complexities and breaking one's mental set during problem solving, b) knowledge of heuristics for generating novel ideas, such as trying a counterintuitive approach and c) a work style characterised by concentrated effort, an ability to set aside problems and high energy.

According to the theory of Sternberg and Lubart, creativity requires a confluence of six distinct but interrelated resources: intellectual abilities, knowledge, style of thinking, personality, motivation and environment (Sternberg & Lubart, 1999, p.10–11). "Three intellectual abilities are particularly important: a) the synthetic ability to see problems in new ways and to escape the bounds of conventional thinking, b) the analytic ability to recognise which of one's ideas are worth pursuing and which are not, and c) the practical-contextual ability to know how to persuade others of…the values of one's ideas. The confluence of these three abilities is also important. Analytic ability used in the absence of the other two results in powerful critical but not creative thinking. Synthetic ability in the absence of the other two results in new ideas that are not subjected to the scrutiny required, first to evaluate their promise and second, to make them work. And practical-contextual ability in the absence of the other two may result in the transmittal of ideas not because the ideas are good, but rather because they have been well and powerfully presented" (Sternberg & Lubart, 1999, p. 11).

Creativity is strongly related to the capacity to be flexible and to be able to adapt to/and change. Creativity means taking risks, finding new connections between old ideas adapting them to today and preparing the future. It also encompasses the ability to find new solutions to problems, to wonder, to speculate. Creative thinking and critical thinking are often contrasted. According to R.S. Nickerson, "creative thinking is expansive, innovative, inventive, unconstrained thinking. It is associated with exploration and idea generation. It is daring, inhibited, fanciful, imaginative, free-spirited, unpredictable, revolutionary. Critical thinking is focused, disciplined, logical, constrained thinking. It is down to earth, realistic, practical, staid, dependable, conservative" (Nickerson 1999, p. 397). However, if creativity and critical thinking are taken as independent dimensions, it is reasonable to assume that both competencies should be developed simultaneously.

5 How Can the Different Competencies of Lifelong Learning Be Developed?

Key competencies for both individual and social performance have to be acquired, consolidated, renewed and transmitted in multiple educational institutions. The key tool to their acquisition - and the foundation of LLL – is learning to learn. Learning to learn implies the assessment of how new tasks can be tackled, the capacity to transfer competencies to a new situation, and the readiness to engage in a task-oriented activity.

5.1 Formal institutions

5.1.1 School and higher education institutions

Schools and higher education institutions are the social institutions responsible for educating present and future generations, transmitting values and norms, maintaining social harmony that requires a movement from status quo to radical transformation. Co-operation between levels of education and within levels of education is needed. The school is the place par excellence to forge critical thinking, autonomous behaviour, curiosity, and innovation. Schools are endowed with the prime function of developing and transmitting the key competencies expected by the social fabric for today's stability and tomorrow's transformation.

The key competencies are also needed by the graduates in higher education. New foundations for higher education programmes should be developed and based on lifelong learning of key competencies. Society must motivate students to learn.

The notion of learning is often associated with classroom, teacher, book, tests, scores. Learning outdoors, at home in the community, at the workplace, on the street, through the media, with peers, by doing, by reading and writing, by observing, by reflecting, by discussing with others, by getting access to the computer and the Internet, in everyday life, is rarely acknowledged as learning (Torres, 2002). LLL embraces learning in any type of setting ranging from formal education systems of all kinds, through diverse sorts of non-formal educational provision to the limitless situations and contexts in which informal learning can occur. Therefore, in this paper we will look at the specific role of non-formal alternatives and adult education institutions in mediating, transmitting, consolidating and improving key competencies. A cursory reference will also be made to the role or acquisition of key competencies in the so-called informal sector of work and economy.

5.2 Non-formal and informal institutions

Non-formal and informal institutions include families, the communities, the workplace and the media. They focus attention on people's empowerment. The ability to better understand, to actively participate in most matters, to negotiate, to live together, and to develop critical thinking are capacities which can, for instance, be developed further in non-formal organisations such as sport organisations, where the value of fairness is developed or different church organisations, where different groups (age, gender, etc.) can be brought together. "The purpose of education is to form social action for the development of a more humane, tolerant, just, egalitarian society of liberated, empowered individuals, acting collegially in the public good. Education is seen as informing both social action itself and the reflective and discursive evaluation of that action: an on-going process of action and reflection, together commonly labelled 'praxis'" (Freire, 1972).

Thus, lifelong learning implies that learning opportunities are available outside the formal school system, and that adults, both those who are employed and those who are unemployed, must learn in order to cope with rapidly changing demands of the workplace (Palepu, 2001, pp. 767–768).

5.2.1 Family

It is within the family, which is seen as the basic community structure, that the great majority of these competencies should be learned and practised. Tolerance and diversity as well as recognition and respect for others and acceptance of diversity and promotion of self-confidence and self-criticism should start being developed within the family among the family members in order to be able to adapt this to a larger group in the community.

5.2.2 Community

The term community is very comprehensive. It includes neighbourhood, peer groups, social, cultural and political groups, professional groups, trade unions, and so forth. It also includes workplaces such as industries, commercial enterprises, public administration and all other places where the individual continues to learn in a planned or incidental manner. Similarly, religious institutions, and organisations of social welfare are included under the notion *community*. "The community as a whole should feel responsibility for the education of its members, expressed either by means of constant dialogue with the school or, if there is no school by taking partial charge of their education in a non-formal setting" (Delors, p. 106). NGOs can play a key role in assisting communities to assume their social responsibilities. By developing key competencies, they can be very effective in developing awareness and efficiency and in promoting participation of all members of the community.

5.2.3 The media

A whole range of social structures is brought into play in providing a vast variety of learning systems and opportunities for all members of the community to develop themselves and participate creatively in the development of others. The media are an integral part of our cultural environment in the broadest sense of the term. The media for mass communication, such as newspapers, radio and TV have a vital share in the process of lifelong learning, and are also widely recognised as an effective means of providing non-formal education and adult education.

5.2.4 The informal sector of work and economy

The question of how competencies are acquired for the world of work – in both formal and informal economies – has been the subject of intense and controversial discussion during the last decade. UIE has conducted some research studies on vocational and technical education in the context of lifelong learning (e.g., Singh, 1999).

Assistance in skills training in developing countries has concentrated mainly on technical competencies for the formal sector of the economy. More recently, emphasis has been placed on management and market-related aspects. In all these approaches, however, key competencies are hardly taken into account, although these are significant for all successful work-related activities. Competencies for conducting an economic activity are acquired outside the formal system of education, mainly through informal avenues of adult learning, which include traditional forms of apprenticeships, non-formal programmes and informal learning processes. The acquisition of these competencies is necessary if small entrepreneurs are to succeed, be oriented to the market and show profits.

International research on key competencies for the informal economy has shown that work-related competencies cannot be reduced to vocational skills. They have to be related to social relations, personal and group development, cultural and human values. Job-specific technical and entrepreneurial skills, although a mandatory condition of survival, are not sufficient on their own. The five key competencies mentioned above (communicating, being able to live together, critical thinking, being able to change and creativity) apply in multiple contexts: the context of family, community, work, physical location and social relationships. They are particularly needed for earning money and securing a livelihood, as well as for marketing and servicing products. The ability to co-operate and communicate and to represent collective interests is central to conducting business in the informal sector. This is also important in organising co-operative forms of production, when it comes to pooling know-how, co-operating in fixing the prices of products and searching for new customers. Literacy and cognitive competencies facilitate the organisation of economic activities and are used to develop communication skills such as giving advice, convincing and negotiating. Of central importance is whether people in the informal sector possess social capital and are able to convert this capital into economic benefit and human capital. For example, an important factor for securing a livelihood is the significant role of working in groups and self-help organisations. Persons acting through social networks generally do better than those operating individually. This is a way to gain access to information on new technologies or new markets, as well as on social security services. Curiosity, creativity, self-initiative and independence, learning to learn, a sense of responsibility, frustration tolerance, improvisation, building compromise and the readiness to take risks are qualities needed for successful living and working in the informal economy, in which the majority of the people in developing countries work and live.

The above description of key competencies and their acquisition shows that the development of informal institutions and organisations is crucial, as they focus attention on people's empowerment, that is, on the active participation of individuals in their communities, on the ability to make informed choices in daily life situations and to

negotiate better conditions for themselves. These activities are often treated as having little relevance to productivity. However, wider social relations have a positive value in terms of human capital. Strong families, strong communities and strong social institutions are crucial to many forms of effective activities related to work (Singh, 1999, p. 184).

> *The engine of lifelong learning is the development of human potential at all levels, the focus of education is the satisfaction of the needs of every learner. Lifelong learning becomes what it says it is:*
>
> *'life-long' – from cradle to grave, from 0–90, as long as we have the blessed gifts of brain that will accept learning.*
>
> *'learning' – giving learners the tools to learn according to their own learning styles and needs – not teaching, not training, nor even education in its narrow didactic sense. An out and out focus on the needs and requirements of the learner.*
>
> *'for all' – excluding no-one and proactively creates conditions in which learning develops one's creativity, confidence and enjoyment at each stage of life.* (Longworth, 2001, p. 592)

"Embracing a lifelong learning philosophy can strengthen all institutions. The promotion of a lifelong learning ethic within organizations (involves) team building and a process of open collaboration, building trust through information sharing, encouraging change and preparing for it, identifying and examining underlying societal and individual assumptions concerning learning and education, clarifying misconceptions, identifying barriers to co-operation and change and making use of change management tools" (Palepu, 2001, p. 768).

Lifelong learning should provide the conditions and capacities for genuine inclusion and empowerment, particularly under conditions of diversity and inequality. This genuine empowerment and inclusion depends on the above-mentioned key competencies. The acquisition of those key competencies depends on education in formal and informal sectors. Thus, there is a need for co-operation between the formal and non-formal sectors, mutually reinforcing each.

6 Conclusion

Should competencies be measured? The answer is yes, if possible. It is indeed desirable to be able to assess the key competencies in order to give a sense of magnitude, but it is also obvious that not everything and not all competencies can be easily measured in the present state of the methodologies and tools available. Does this imply that only what is measurable should be considered as a competence? The answer is certainly: No.

While using the generic term of key competencies, it must be made emphasised that these key competencies are and should be adapted to the specific contexts of each country, each group or even each individual.

The mastery of these competencies by a large number of people will, without any doubt, equip them to manage and organise their lives not only from the standpoint of economic and material wealth, but also in pursuit of happiness as defined by them. Key competencies will also empower individuals to exercise their right to an equitable and democratic society that, in turn, should result in a more peaceful and better world.

7 References

Amabile, T.M. (1983). *The Social Psychology of Creativity*. New York: Springer Verlag.

Copley, A.J., & Dave, R.K. (1978). *Lifelong Education and the Training of Teachers: Developing a Curriculum for Teacher Education on the Basis of the Principles of Lifelong Education*. Hamburg: UNESCO Institute for Education (UIE).

Dave, R.H. (1976). *Foundations of Lifelong Education*. Oxford: Pergamon Press.

Dave, R.H., & Skager, R. (eds.). (1977). *Curriculum Evaluation for Lifelong Education. Developing Criteria and Procedures for the Evaluation of School Curricula in the Perspective of Lifelong Education: A Multinational Study.* Hamburg: UNESCO Institute for Education (UIE).

Delors, J. (1996). *Learning: The Treasure Within*. Report to UNESCO of the International Commission on Education for the Twenty-first Century. Paris: UNESCO.

Dewey, J. (1966). *Selected Educational Writings*. F.W. Garforth (Ed.). London: Heinemann.

Edwards, R., Hanson, A., & Raggatt, P. (Eds.) (1996). *Boundaries of Adult Learning*. London: Routledge.

Faure, E. (1972). *Learning to Be*. Report of the International Commission on the Development of Education. Paris: UNESCO.

Freire, P. (1972). *Pedagogy of the Oppressed*. Harmondsworth: Penguin.

OECD/SFSOD/DeSeCo. (2001). Definition and Selection of Competencies: Theoretical and Conceptual Foundations, Background Paper.

Kelly, F. (2001). *Definition and Selection of Key Competencies in New Zealand*. Retrieved June 2, 2003, from http://www.statistik.admin.ch/stat_ch/ber15/deseco/sfso_deseco_ccp_newzealand_19122001.pdf

Longworth, N. (2001). Learning Communities for a Learning Ccentury. In D. N. Aspin, J. Chapman, M. Hatton, & Y. Sawano (Eds.), *International Handbook of Lifelong Learning* (pp. 591–618). Dordrecht, Netherlands: Kluwer Academic Publishers.

Nickerson, R. S. (1999). *Enhancing Creativity*. In R.J. Sternberg, Handbook of Creativity (pp. 392-430). Cambridge: Cambridge University Press.

Palepu, R. (2001). Promoting Lifelong Learning in Developing Countries: The Institutional Environment. In D. N. Aspin, J. Chapman, M. Hatton, & Y. Sawano (Eds.), *International Handbook of Lifelong Learning*. Dordrecht, Netherlands: Kluwer Academic Publishers.

Senge, P., et al. (1994). *The Fifth Discipline Fieldbook*. New York: Currency Doubleday.

Singh, M. (Ed.) (1999). *Adult Learning and the Future of Work*. Hamburg: UNESCO Institute for Education (UIE).

Sternberg, R.J. (Ed.) (1999). *Handbook of Creativity*. Cambridge: Cambridge University Press.

Sternberg, R. J. & Lubart, T. (1999). The Concept of Creativity: Prospects and Paradigms. In R.J. Sternberg (Ed.), *Handbook of Creativity*. Cambridge: Cambridge University Press.

Torres, R.M. (2002). *Lifelong Learning a New Momentum and a New Opportunity for Adult Basic Learning and Education (Able) in Developing Countries* (Background Document) (Unpublished). A Study Commissioned by Swedish International Development Cooperation Agency (SIDA). Buenos Aires: Instituto Fronesis. Retrieved June 2, 2003 from http://www.bellanet.org/adultlearning/ABLE_RMTorres_Eng.pdf

United Nations Educational Scientific and Cultural Organization (UNESCO). (1990). *World Declaration on Education for All: Meeting basic learning needs*. Retrieved on May 29, 2003 from http://www.unesco.org/education/efa/ed_for_all/background/jomtien_declaration.shtml

United Nations Educational Scientific and Cultural Organization (UNESCO). (1997). *Final Report - Fifth International Conference on Adult Education, Hamburg, Germany*, 14-18 July 1997. Paris: Author. Retrieved on June 2, 2003 from http://www.unesco.org/education/uie/confintea/publications.html

Yeaxlee, B.A. (1929). *Lifelong Education*. London: Cassel.

Definition and Selection of Competencies From a Human Development Perspective

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1 Overview

Building a conceptual framework for the definition and selection of the competencies needed for effective participation in contemporary society is no easy task. Indeed, some participants in the DeSeCo process to date have declared it to be impossible, perhaps even undesirable. The remaining participants have viewed it as merely difficult, even if desirable. Given the lack of consensus and the inherent difficulties in making progress on this task, it is crucial to understand the background of the work and to articulate even more clearly, if possible, its potential value as well as its limitations. As argued below, attention to cumulative knowledge building is especially important in the human sciences, where personal biases and political influences make such progress especially challenging.

In the first section on clarification of the conceptual frameworks for the project, I summarize the historical background (within the DeSeCo Project, but also more generally). I then clarify the assumptions and constraints pertinent to the ongoing project. Finally, I consider the current conceptual overview, presented in Rychen and Salganik (2000) and based on the commissioned papers and expert consultations to this point.

In the next section, I summarize the major challenges to achieving an integrated and coherent conceptual framework for the definition and selection of competencies. Here, I attempt to distinguish between those challenges that represent fundamental issues to be resolved from those that are mere misunderstandings and miscommunications arising as we traverse disciplinary boundaries. The important distinction between a multidisciplinary collection and an interdisciplinary integration is introduced at this point.

In the third section, I review the criteria that may be able to guide the building of the desired conceptual frameworks. Recognizing the DeSeCo initiative as a program of work, rather than as a set of a priori decisions to be made from a review of the current scientific and policy literatures, I attempt to make explicit the criteria by which such a program of work can proceed. This is acknowledged as a preliminary (but not arbitrary) set, open to revision. I then draw on the foregoing analyses to examine the core issues for building two related conceptual frameworks:

- one for the understanding of competencies; and
- the other for social action and policy capable of supporting the development of competencies in contemporary societies such as those in the OECD orbit.

In both cases, the analyses point toward necessary next steps for moving forward with this ambitious agenda, whose "overarching goal is to provide general reference points for further theoretical development and future work in the measurement of competencies" (Salganik, Rychen, Moser, & Konstant, 1999, p. 11).

In section four, I illustrate the feasibility of such a program of work in a précis of a complementary initiative on human development designed to deal with overlapping issues (Keating & Hertzman, 1999). Both the content and the process of this interdisciplinary integration are informative for the DeSeCo Project. Paramount to this effort is the construction of a coherent conceptual framework that is sufficiently comprehensive to deal with evidence from many disciplines, and at the same time sufficiently comprehensible to be used by researchers, policy-makers, and community developers alike.

In the fifth and final section, drawing on all the preceding analyses, I put forward a proposal for how the process of defining and selecting competencies might be framed as a dynamic system designed to advance the agenda. In the annex, I examine a candidate model of core competencies as an illustration of how the proposed process and criteria might be used.

Before turning to the task at hand, a personal observation is in order. The DeSeCo agenda, with all its challenges and difficulties, represents one of the most promising initiatives to date for the enhancement of human development in the broadest sense of that term. As I will argue below, the building of a "learning society" (Keating, 1998, 1999) poses many challenges, one of which is the necessity of meaningful feedback through "performance" indicators at a societal and community level.

Existing projects to supply such indicators have important limitations, however, and the current project has the potential to address many of the most severe ones. This potential will not be realized if the initiative is construed either too narrowly (a modest addition of a few new workplace "skills" to the traditional set of academic indicators) or too broadly (an abstract set of competencies that can not be meaningfully acted upon, thus remaining easy to ignore). Navigating this Scylla of narrow special interests and the Charybdis of abstract irrelevance is no easy task, but is well worth attempting under the OECD auspices.

2 Conceptual Frameworks for DeSeCo

2.1 Historical background: Broadening the field

At the simplest level, the motivation for DeSeCo is quite clear. Much of the initial OECD work on population indicators for education, like that for companion or similar national indicators projects, focused understandably on specific educational achievements – literacy, mathematics, science – that are defined relative to school curricula and are relatively easy to measure. It is important to recognize that the inclusion of such indicators in economic analyses represented a major step forward, going beyond even less grounded indicators such as educational credentials or years of schooling completed (Levy & Murnane, 2001). As Levy and Murnane argue persuasively, the inclusion of such indicators has substantially enhanced our understanding of labor market function, with consequences for policy considerations. At the same time, it has raised many questions about the proper understanding and interpretation of these enriched analyses.

Precisely because such indicators have become rapidly recognized as critically important to a wide range of social policies, not just education policy, there has been concern in many quarters that the range of indicators may be far narrower than would be desirable, on several grounds. Although such performance indicators do move several important steps beyond traditional human capital indicators such as years of schooling, they nevertheless remain tied to a conceptual framework of economic utility. This gives rise to at least two broad concerns. First, the notions of economic utility may themselves be dated, to the extent that the emerging "knowledge economies" may make demands beyond those captured by traditional educational performance indicators (Rohlen, 1999). Responding to these demands requires the "soft skills" described by Levy and Murnane (2001). Second, realms of human activity not explicitly tied to academic or economic performance are potentially excluded from social policy consideration.

These two excluded domains form the starting point and the consistent lodestone for the DeSeCo initiative. There are numerous views on what should be included, and for OECD projects alone (Salganik et al., 1999), they range across

- broader cross-curricular skills, such as capacity to learn or adaptability, that are nonetheless primarily cognitive;
- non-cognitive elements such as emotion, motivation, or navigation of social space;
- moral considerations, such as tolerance or other personal characteristics and dispositions that are seen as essential to civic society; and
- aspects bearing on personal fulfillment, or what is necessary for the "good life."

Rather than begin with a process of theoretically resolving the connections between the traditional indicators and the excluded domains, or among the excluded domains themselves, it was decided to embark on an incremental, pragmatic, empirical approach. This has generated a number of important insights and valuable data that the conceptual discourse needs to address. On the other hand, this work did not resolve the conceptual complexity that characterizes the inclusion of previously excluded domains of human activity (Salganik et al., 1999). An example is the CCC project, in which it was clearly easier to extend beyond traditional academic indicators, but more difficult to extend beyond implicit boundaries of cognitive assessment of skills and self-perception.

The current project status arises from the subsequent solicitation of discipline-based reviews of the goals and progress of DeSeCo, in which a set of broad questions reflecting the above concerns were posed to a set of scholars. Expert commentary on these reviews from both the policy and the academic domains was obtained, and a subsequent overview of all these contributions (Rychen & Salganik, 2000) constitutes the current status of the overall project.

It is also useful to place the current project in a broader historical perspective. One might ask (with Goody, 2001) why population indicators of competence are necessary in the first place. A skeptic's answer may well be that they serve only the interests of homogenization and marginalization of the less powerful. It is important to acknowledge this as a legitimate risk of any enterprise to monitor the performance of populations and subgroups within populations.

On the other hand, it is difficult to imagine how societal "learning" could occur in the absence of reliable feedback of this sort. The obvious analogy is to the enormous value to public health that has occurred through increasingly refined approaches to epidemiology. The weakness in this analogy is that there is a general consensus that health is a public as well as a personal good. The extended discourse among DeSeCo participants to date suggests that a process by which values are placed on various competencies is required to ensure the broadest obtainable consensus. It has also become evident that such a consensus is unlikely to emerge spontaneously.

Two types of conceptual broadening of indicators have been envisioned. The first is the inclusion of domains that have not been as directly tied to economic productivity and competitiveness as have the traditional educational indicators of academic performance. Elements that pertain to participation in civic society and to personal fulfillment constitute two major categories, although it should be mentioned that there may well be economic value in these competencies as well. The second and related type of broadening is to include competencies that are less clearly rooted in the formal institutions of schooling and are more likely to arise from interaction with informal social institutions and networks. Both types of broadening are conceptually necessary to encompass DeSeCo's larger mission of "understanding the skills and competencies needed to lead a personally and socially worthwhile life in a modern democratic state" (Salganik et al., 1999, pp. 10–11).

2.2 Assumptions and constraints

Given the already complex nature of the DeSeCo initiative, it may be useful to highlight in advance some assumptions and constraints necessary for fulfilling the task associated with this paper. These are of substantive as well as procedural importance, in that they help to identify the stage of the overall DeSeCo process and point toward next steps.

2.2.1 Use of DeSeCo work to date

The task is defined specifically to discuss the current contributions, including the expert reports, subsequent comments, and overview, from the basis of relevant literature in education research, for the identification of a set of key competencies. Accordingly, the primary sources for this contribution are the existing DeSeCo materials to date, including references therein, and additional sources from the educational research literature are introduced as necessary to fill out specific topics. Because education is inherently interdisciplinary, and because the range of disciplines already sampled in the DeSeCo process is quite wide, much of the relevant literature has been discussed or, minimally, referenced in the existing work.

2.2.2 Disciplinary considerations

The aspects of contemporary education research that are relevant for DeSeCo are population indicator approaches used to study measurable outcomes, and developmental models that move toward an unpacking of the observed patterns. The major additions to the literature already surveyed by DeSeCo are drawn from these perspectives. Beyond this, however, the necessity is to ground DeSeCo firmly in an integrated framework based on an interdisciplinary model. I refer to the full interdisciplinary set as "the human sciences," and I identify the perspective guiding this integration as human development. Space does not permit a full explanation of the necessity of this perspective (see Keating, 1998), but the essential notion is that scientific understanding and societal advancement are fundamentally inseparable in this domain. The necessity of such an integrated interdisciplinary approach to building conceptual frameworks in this domain is elaborated further below.

2.2.3 Observables as goal

Related to this is the expectation that this contribution will "address and discuss key competencies at the level of observable entities and therefore go beyond the abstract level of the sets of key competencies suggested by various experts from different disciplines." This is an important constraint, as noted above and elaborated below, because it requires that the project move beyond abstract value discussions toward an empirical testing of the world. This is not to say that the discussion of the conceptual framework should be limited to those domains or competencies for which indicators already exist. Indeed, it should not, because this would prematurely constrain the conceptual framework. But it is a valuable and necessary step to be able to at least envision whether observables would become possible with adequate research investments, in order to bring the project into the real world.

2.2.4 Policies affecting the transmission of competencies

It is clear that an equal goal for the DeSeCo endeavor is an analysis of society's role in the transmission (I prefer the metaphor of "optimization") of competencies, through its institutions, policies, and practices. It is essential that this be maintained in the forefront of analyses of competencies themselves, in that it contributes essential elements both to definition and to selection of competencies.

Further, it is crucial to note that this analysis is not to be restricted to educational institutions, policies, and practices, but rather to the broader society. As several contributors have noted, many (perhaps most) of the broader set of competencies are unlikely to be fostered primarily through formal schooling. A complete analysis would need to include, at least, consideration of family policies; policies affecting workplace participation, learning, and renewal of competencies; policies affecting the quality of the social and physical environment where people live and work; health and health care policies; and policies dealing with retirement, activities of older citizens, and elder care.

This may seem to introduce inordinate complexity, until one compares it with the attention given to fiscal and economic indicators and policies, or even to environmental indicators and policies. Modern governments would not contemplate undertaking policy changes in any area without analysis of economic consequences. Building the knowledge infrastructure to enable analysis of consequences for the development of human competencies is a first essential step to elevating these equally important concerns to the same status (Keating, 1999).

2.3 Current conceptual overview for DeSeCo

Based on the contributions and discussions to date, Rychen and Salganik (2000) put forward a conceptual overview for DeSeCo (Figure 1, p. 70). They categorize four sets of influences that have been identified as having an impact on the definition and selection of key competencies: theoretical models and concepts; visions of society and individuals; cultural context and biographical variability; and political negotiation and consensus formation. They note that these multiple factors were identified by various contributors.

This is indeed a valuable overview for collecting and organizing the wide range of issues that have arisen in the discussions to this point. This model does not, however, make a crucial distinction necessary to avoid confusion in future work: It appears to conflate a conceptual framework for the *societal process* by which competencies can be defined and selected with a conceptual framework for understanding the *nature and content* of competencies.

2.3.1 A Framework for content versus a framework for process

This is a critical distinction for several reasons. If we generate only a process by which various considerations in the definition and selection of competencies will be included, there can be no assurance that the resulting set of competencies will be thoroughly grounded in the human sciences. If we seek to impose a purely scientific structure of key competencies, on the other hand, we have no assurance that the highlighted features will have social and policy importance.

Thus, there is a necessary feedback loop between (1) the societal process for defining and selecting competencies and (2) the grounding of content knowledge about competencies firmly in the human sciences. Each requires a clear conceptual framework, but the two frameworks cannot be the same. Moreover, the transmission processes by which society creates the opportunities for the acquisition of competencies and the measures and indicators of how well competencies are developing in individuals and in the population at large currently stand outside the conceptual overview. They need to be brought inside the framework, but this is difficult, perhaps impossible to do when the two types of frameworks – process and content – are conflated. In Section 4 below, I return with greater precision to this issue and identify some key elements of each conceptual framework as well as the relationship between them. In Section 6, I propose a process model as an initial effort at integration. In the annex, I provide an analysis of a candidate content model to illustrate how the process model might function.

Before turning to some comments on the important elements identified by Rychen and Salganik (2000, Figure 1, p. 70), several observations about the task at hand are in order. First, it is precisely such attempts at integration that afford the opportunity to sharpen thinking about conceptual frameworks. Useful conceptual frameworks for complex problems must have this evolutionary quality. They are fundamentally dynamic systems. A second and related point is that, to be useful, such efforts take considerable time. The rough time frame for an individual's acquisition of high-level expertise in a given domain has been estimated at about 20,000 hours. For attempts at constructing interdisciplinary integrations, it is likely to be even longer. Third, it requires the enduring participation of a relatively small number of sufficiently diverse minds who systematically engage the task (though not necessarily as their primary work). This is necessary to establish both trust and translation mechanisms across disciplines and social fields. Otherwise, most of the intellectual effort goes into recycling old issues in new forms, and oscillation rather than progress is the norm.

Below I briefly return to the necessity of viewing the building of such frameworks as a program of work rather than a task to be completed at the start of an initiative. In other words, conceptual frameworks are unlike engineering blueprints, which by contrast must capture and interrelate all the important information in advance of construction. If the DeSeCo goal is viewed as setting in place the conceptual frameworks in advance of the work that will substantiate them, disappointment is inevitable.

With respect to the specific categories included in the conceptual overview as contributing to key competencies (Rychen & Salganik, 2000), I identify some core issues that will be taken up in more detail below.

2.3.2 Theoretical models and concepts

This is closest to what one might mean by a conceptual framework of key competencies, as distinct from a framework for identifying competencies. Most of the contributors and several of the commentaries spoke directly to this concern. Weinert's (2001) very clear overview identified the many different, and not yet reconciled, views on the model that should be used to govern our understanding of human competencies essential for modern societies. His preference was to highlight "metacompetencies" that are needed for many specific competencies. Other contributors suggested lists at various levels of abstraction.

As with the historically similar debates about the nature and function of human intelligence, as Haste (2001) points out, these conflicting views go unreconciled because they start from different assumptions and privilege certain kinds of evidence over others. Operating solely within a theoretical perspective, it is unlikely to be resolved, for both empirical (Keating, 1984) and epistemological (Keating, 1990c) reasons.

A more productive approach might focus on the question, "What are the criteria for determining the organization of key competencies?" Gardner's (1983) theory of multiple intelligences has made substantial headway in the psychological and educational literature (Haste, 2001), at least in part because he made explicit the criteria that

should govern the identification of a core "intelligence." Building on this idea, it is possible to consider a set of criteria that are both theoretically and empirically grounded (in the sense just described) and at the same time incorporate societal criteria regarding value and desirability. I return to this theme in Section 3.

2.3.3 Cultural context and biographical variability

This topic has generated considerable controversy in the DeSeCo process to date. There are two related threads in these disagreements, and separating them may go some way toward understanding the core issues. The first thread is the polarity between universal and diverse competencies. This is a fundamental tension that will not go away, but can be made into a creative tension. On the one hand, it is clear that there are core competencies that can be regarded as species characteristics. Language, in the Chomskian sense, is one that is species specific and highly canalized. This means that in the absence of severe biological disorganization or environmental trauma, it will emerge. Moreover, it is clearly "generic" in the sense that it is fundamental to existence in any human society; indeed, it is largely what differentiates human societies from non-human primate societies (Donald, 1991). But precisely because it is universal in this sense, it tends not to be included in lists of key competencies, because virtually everyone possesses it. There is no variability in its attainment to concern us at a societal or population level. At the other extreme are highly specialized competencies, which are valuable in an absolute sense, certainly to those who possess them (Goody's [2001] example of the lore of fisher folk comes to mind), but which are so localized that we would not likely include them on any list of generic or key competencies. We would no doubt regret the loss of such competencies for a host of reasons (e.g., aesthetic reasons and regret for the loss of a way of life, as in the way we regret the passing of languages when the members of the community die out), but it is hard to imagine circumstances in which we would seek to generalize the possession of such specific competencies.

Clearly the focus is on some intermediate point between the extremes of highly canalized and thus unquestionably generic competencies (such as language acquisition) and highly specific competencies for which there is no press toward broader social distribution. The problem is identifying at what point on the spectrum to focus. Literacy is a good example, in that it is clearly not a biologically canalized competence (Scribner & Cole, 1981), but one that is so essential to functioning in modern industrial democracies that such societies are understandably concerned about whether and how well it is being achieved on a population basis. Even literacy can of course be problematized (Goody, 2001), but for the foreseeable future its utility to elites, masses, and the marginalized alike would be hard to deny. (Obtaining data on its perceived value across different sectors of society would presumably address this; perhaps such data already exist. The educational aspirations of immigrants to Canada, for example, would seem to reflect the high value placed on academic competence.)

One characteristic of such "intermediate" competencies is that they are by definition differentially distributed in the population. This leads to the second thread, namely, how equitably are they distributed. There is ample evidence (Keating & Hertzman, 1999) that even in the most egalitarian societies, there are always gradients in the distribution of competencies. The nature of these distributions offers some important directions to understanding the origin and maintenance of such gradients, which I take up in Section 5. But the concern expressed by a number of experts is that this distributional quality empowers some at the expense of others, and that by "standardizing" an ever wider range of human competencies, the rich get richer and the poor get poorer.

On the other hand, it is not self-evident that equity is better served by ignoring these gradients (Keating, 1999). Indeed, the evidence suggests that societies with steeper distributions fare less well overall, which may provide the social impetus to enhance the opportunities for more broadly based acquisition of competencies throughout the population. But the evidence also suggests that the impacts of socio-economic status (SES) differences appear early in development and have a long reach, which raises the urgency of addressing gradient and equity issues.

2.3.4 Political negotiation and consensus formation

The animating concern for both of these issues really is, "Who will have the power to value or to devalue human competencies, whether through dismissing them as marginal or by denying access to those widely viewed as key?" It is important to emphasize that there is no scientific or definitional escape from this tension. It is an example of Foucault's stance on the inseparability of knowledge and power; there is no privileged epistemological perspective that trumps all others (Keating, 1990c).

Rather, we need to develop the means to make it a dynamic tension that animates both deeper research and broader public discourse. Approaching the (idealized) universal discourse described by Habermas (1975) would be one model for undertaking this aspect of the agenda. If it is instead perceived as, or operates as, another avenue for global penetration of market forces into new arenas of human activity (such as, say, emotion or motivation), then it is unlikely to inspire consensus or to facilitate the building of learning societies.

2.3.5 Visions of society and individuals

It is indeed crucial to recognize that these views have shaped and will shape not only what are perceived to be key competencies, but also the energy and resources that go into the promotion of those competencies. The concept of a learning society can serve as a model, in that it incorporates views of autonomous actors (Perrenoud, 2001) voluntarily collaborating to achieve some collective good (Keating, 1999). Meaning making and identity formation were nominated by several contributors to DeSeCo as key competencies for the "good life," and it is clear that both activities are always simultaneously individual and social. The notion of the autonomous actor with sophisticated notions of self (Kegan, 2001) is an emergent property of modern societies (Taylor, 1989).

A core tension at the heart of the DeSeCo process is embedded in this category, and deserves to be made explicit. The goal of projects whose focus is on population indicators arises from an intellectual and empirical tradition that perforce views them as personal characteristics or traits (whether they measure health, academic performance, or behavioral patterns such as criminal or antisocial activity). They are composed of what individuals are observed to do.

The other side of the equation, societies' roles in developing competencies (or health or normative behavior) in their populations, is more rarely invoked. DeSeCo would ignore this dynamic tension at its peril, both in terms of public support and in terms of its relevance to a post-industrial era. Ritchie's (2001) commentary illustrates one effective critique of a singular focus on competencies that exist in the population: If social structures (especially those affecting economic activity) do not adequately foster existing competencies in the population, it is unlikely that levels of competence in the population will increase.

More generally, if societies do not afford their citizens meaningful opportunities to use the competencies that they have and value, then erosion rather than enhancement of competencies is the more likely outcome. This notion of "societal affordances" for competencies is an essential complement to efforts to enhance competencies in the population.

For example, there is substantial human evidence that dealing with complexity is central to maintaining cognitive flexibility into later life (Schooler, 2001). As well, there is recent animal evidence to support the view that this is deeply rooted biologically through mechanisms of hippocampal neurogenesis (Gould, Reeves, Graziano, & Gross, 1999). Specifically, the animal evidence suggests that, contrary to the belief that brain growth ends early in life, new brain cells are generated throughout life. But the degree to which those cells become networked for use in memory and learning (a key role of the hippocampus) is largely determined by the complexity of the learning environment in which the animal is functioning. Both the human and the animal evidence thus point to the "use it or lose it" phenomenon. Creating the social conditions for the development of key competencies is not enough. Effort needs to be devoted to social policies that afford the active use of competencies throughout the life span. To date, social policy with respect to human capital has focused on its initial formation through schooling, and its eventual payoff in economic terms. A shift to equal consideration of societal affordances as a crucial method for renewing, retaining, and reinforcing competencies throughout the population is needed to complete the picture. Such effort is likely to be multiply rewarded, however, in that both economic growth and enhancement of civic society are plausible beneficiaries of such a regime (Keating, 1998, 1999).

3 Challenges Arising from Work to Date

In my review of the DeSeCo work toward a conceptual framework to date, I have identified a number of challenges. Those that contribute to conceptual issues are taken up in subsequent sections. In this brief section, I address some challenges that pertain to the method by which the task can proceed. As noted above, I have interpreted the task of this contribution to be one of integration from a human development perspective, rather than as adding anoth-

er layer of literature upon the already substantial accumulation of disciplinary perspectives. Here, I address three obstacles that could threaten the viability or limit the value of this initiative: the absence of coherence, disciplinary language barriers, and the need to progress from a state of multidisciplinary accumulation to one of interdisciplinary integration.

3.1 Absence of coherence

The challenge here is to move toward further coherence while retaining the desired breadth and complexity. The first step is to begin sharpening the underlying conceptual frameworks, which serve as mission statements or goals for the project. As noted, this is best achieved through a sustained discourse that is as inclusive as possible, but that also attempts to move toward greater coherence. The next step, which can not be too long delayed, is initial enactment of specific activities that begin to test the conceptual framework against the real world, through consideration of existing evidence or the collection of new evidence. The move from the abstract to the observable is essential for making the conceptual frameworks real. As the coherence and the reality base of the frameworks (hopefully) increase, further testing of them in a wider variety of applications becomes key. My impression is that DeSeCo is on track in many respects, but that moving toward coherence amongst the complexity is the currently looming challenge, an issue to which I return below.

3.2 The language barrier: Discourse across social fields

Artificial barriers to coherence often arise from disciplinary languages working unintentionally at cross-purposes. Real disagreements need to be addressed in the forging process of building conceptual frameworks just described. But this work can easily be derailed by the absence of a common language. As Perrenoud (2001) notes, social fields must have their own presumptions and networks in order to function efficiently. These efficiencies, however, pose obstacles in traversing different social fields.

The most obvious of these barriers for DeSeCo is of course the concept of competence itself. As Weinert (2001) described clearly, competence is a term fraught with multiple, and sometimes mutually contradictory, meanings. The adoption of a pragmatic conceptual approach (Rychen & Salganik, 2000) goes some distance toward constraining the multiple meanings, and will likely help move toward coherence. The two articulated criteria are:

- competencies are functional assemblages organized around task demands, and are more than knowledge and skill, although they incorporate them along with strategies and procedures, emotions and attitudes, and management of these components
- competencies are learned rather than innate, and encompass both personal effort and social opportunities

These criteria would find substantial support in the scientific literature (Gardner, 1983; Masten et al., 1995; Masten et al., 1999; Sternberg, 1985; Wachs, 1992). The first is akin to a construct I have termed “habits of mind” (Keating, 1996; Keating & Miller, 1999) that incorporates similar features. Below I take up the difficult issue of how to move toward observables given this functional perspective. The second is a useful political statement, with relatively less scientific content. Even the most canalized human competencies, such as language, are “learned” in the sense that there must be a language-using environment for them to be elicited. It is useful rhetorically, however, because public understanding remains confused on the nature/nurture issue. The scientific work on this question has made it clear that these are inseparable components and that all behaviors are both nature and nurture. It will take some time for this understanding to be absorbed (Darwin has yet to be fully absorbed over a century later [Dennett, 1995]), so a formal caveat is reasonable.

Another potential confusion lies in the competence/performance distinction alluded to by several contributors. The formal distinction arose first in language acquisition, to distinguish the deep structures (i.e., competence for language, which is a species-specific universal) from the surface structure (i.e., performance of a specific language, as shown in mastery of its syntactic features). A more informal use has been taken up in many discussions, especially as a critique of the use of indicators. This critique notes, correctly, that one can only measure performance, from which an underlying competence can only be inferred. The gap between competence and performance, in this sense, may be problematic in that it may be much larger for disadvantaged segments of the population. When performance indicators are used for decisions about individuals (for educational admissions or selection into careers, for example), the concerns are magnified (Keating, 1984, 1990c).

There is clearly a power dimension that animates these concerns. If I set the task demands (a functionalist operation), then I am empowered to make inferences about your competence based on your performance, whereas you are compelled to try to maximize your performance in order to persuade me of your competence. This is the precise power differential that is revealed as one moves from population indicators to accountability or selection regimes. It is generally non-problematic for elites or for those who hold power, but if the goal is to move toward broader enhancement of competencies, this power differential can not be ignored.

Competence is not the only term with potential to create disciplinary language barriers, only the most prominent. The general principle is that these terms need to be unpacked and understood in the language of several disciplines so that disagreements are productive rather than superficial.

3.3 Multidisciplinary collections versus interdisciplinary integration

The largest current challenge to the DeSeCo initiative is that in an effort to include the full range of disciplinary contributions, the current overview risks losing coherence. This occurs on several levels.

On one level, the relations among various types of competencies and among specific competencies are unspecified, and hard to imagine. There are three generic key competencies, four conceptual elements of key competencies, and five dimensions subsumed under one of the four conceptual elements.[1] Yet the specifics appear to be overlapping such that an overarching structure is hard to discern. For example, one of the three generic key competencies is "joining and functioning in socially heterogeneous groups" (Rychen & Salganik, 2000, p. 77). One of the four analytic elements is that "key competencies are multidimensional" (p. 13) and one of the five dimensions under this analytic element is the cooperative dimension, defined as "developing social orientation, trusting other people, listening and understanding others' positions" (p. 79). These seem strikingly similar on the surface (and would be viewed developmentally as indicators from a domain of "social competence"), yet they appear to reside at quite different levels of analysis. It is not clear (at least to me) how to resolve this complexity into a coherent and useable framework.

Let me hasten to add that this is not intended as a criticism of the effort. Each of the lists (of three, four, and five) makes individual sense, and would find support in the relevant scientific literatures. Trying to relate them to each other makes sense, if they move toward greater coherence. It is in the attempt to integrate them, however, that the need for sharpening becomes most apparent.

At another level, a substantial gap continues to appear between the abstractness of the generic, key, and dimensional competencies, on the one hand, and the desire to envision them as observables (at some future point). This is a tension that needs to be acknowledged and addressed. The desire for generic, multifunctional, transversal competencies that require mental complexity is understandable. But the more abstract the definition, the harder it is to translate into an observable entity from the top down. The contrasting method that has guided most indicators research has been bottom up (aptly described by Levy & Murnane, 2001), which is to find possibly useful things to measure and test empirically whether they connect with an admittedly arbitrary dependent variable (such as labor market success). This is equally unsatisfactory as a way toward a broader framework, for reasons that Levy and Murnane (2001) acknowledge.

At both levels, the underlying problem is that these approaches tend to generate multidisciplinary collections of ideas rather than conceptual frameworks based on interdisciplinary integration. This kind of integration is admittedly arduous. But the alternatives seem worse. Absent a clear framework and well-grounded criteria, the abstract notions can be laden with almost any set of indicators, with only superficial links amongst them. If the decision criteria are vague or non-existent, then the observable entities can be derived and justified on the grounds of plausibility, availability, popular appeal, economic utility, or hidden agendas. It seems advisable instead to confront the task of interdisciplinary integration, for which there are now some precedents (Keating & Hertzman, 1999).

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[1] Editors' note: This is referring to the conceptualization of key competencies (Rychen & Salganik, 2002; see http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_discpaper_jan15.pdf) as 1. multifunctional, 2. transversal, 3. implying a higher order of mental complexity, and 4. multidimensional (i.e. representing mental processes composed of know-how, critical thinking and communication skills as well as common sense).

4 Generating Explicit Criteria for the Definition and Selection of Competencies

Following the analyses above, it is clear that building the necessary conceptual frameworks is not a preliminary task, but rather a continuing effort. It is necessary, however, to articulate a set of criteria to guide the effort. In this section I propose a possible set of criteria for consideration. It is not a fixed set, nor an arbitrary one. It derives from experience with network efforts at interdisciplinary integration (Keating & Hertzman, 1999), but requires modification for new questions. The general point is that articulated criteria are needed as the project builds its conceptual frameworks. Most of the key issues in this section have been foreshadowed in the analyses above, and are thus summarized as concisely as possible. In the following section (Section 5), a conceptual framework arrived at through such a process is reported in précis form for illustration. In the final section (Section 6 and the annex), a proposed process and a candidate model are described, building on the preceding analyses.

4.1 DeSeCo as a program of work

DeSeCo, to succeed, needs to be viewed as an ongoing program of work rather than as preliminary work to set the stage for research and development. This point requires little elaboration at this stage of the discussion. The critical feedback loops between indicators research, research on underlying processes, and policy research must be operable for some time to evaluate the worth of any specific conceptual framework. This is an iterative design process, rather than a construction blueprint. Issues relevant to building a conceptual framework on human competencies and those bearing on a conceptual framework for social policy and action must be considered in relation to each other.

4.2 Building a conceptual framework for competencies

4.2.1 Populations and persons: Indicators and processes

Some of the DeSeCo discourse to date suggests that an implicit criterion needs to be made explicit. The project needs to be simultaneously concerned with populations and with persons within populations. Because of disciplinary heritages, it is often difficult for scientists to think simultaneously about factors that impact on populations and about processes that affect individuals. One level of analysis or the other is preferred. Both, however, are essential to a conceptual framework on human competencies.

Societies have an implicit goal of maintaining or enhancing population competencies, at least those that serve economic utility and material survival. Individuals pursue goals as well, involving personal satisfaction and meaning in a myriad of ways. These are interdependent but not identical, and they can of course be in conflict depending on circumstances.

Indicators are the ending point (or eventual goal) for DeSeCo, given that it is situated within such a context. But this approach needs to be complemented by an approach to the identification of competencies that is grounded in fundamental developmental processes. One element that is clearly necessary is a recursive research agenda from population indicators to underlying processes at the individual level, and from identified processes to the design of useable indicators.

Indicators address "what" questions; research on fundamental processes asks "why" the patterns emerge as they do. This feedback loop is essential, because inferences about underlying processes from indicators alone may yield incorrect inferences (due to unexamined or proxy variables), and thus provide faulty guides for policy. Levy and Murnane (2001) offer a number of examples where indicators alone may be misleading, and Ritchie's (2001) commentary offers additional examples of potential misinterpretations that can lead to poor policy analysis.

Such a recursive research agenda guards against two other potential problems. The first is the problem of reification, in which an indicator or marker takes on the characteristics of a real entity. The use of IQ test scores as proxies for a particular hypothesized innate quality of the person is one example (Keating, 1984; Carson, 2001). The second is the problem of rampant relativism, characterized by objections to any assessment of performance as potentially demeaning to individuals who do not perform as well as others. Grounding indicators projects in an explicit study of underlying processes renders both reification and relativism far less problematic, by focusing on the underlying mechanisms.

4.2.2 Identifying key competencies

Revisiting this question within this framework allows us to ask what criteria should guide the definition and selection of key competencies. Further work is needed to discover whether applying these criteria leads to a coherent set of key competencies that are potentially translatable into observable entities.

The three generic key competencies and the four analytic elements of key competencies appear to be desiderata – any set of key competencies should have these specified qualities. From this perspective, they are reasonable, although it would remain important to specify from what grounds the desiderata arise. The five dimensions of competence seem to be a candidate list for competencies that should be included. Again, they seem like a sensible list, but the grounds for including these and excluding others are not well specified. It would be helpful to consider some existing indicators that have some social consensus to see if and how they would fit these criteria, or describe a specific candidate competence in terms of how it meets the criteria. For example, it was not clear to me whether literacy would or would not meet the criteria for a competence using the implicit criteria in the existing DeSeCo framework. I return to this issue in Section 6, with reference to a proposed integrative process and in the Annex, with reference to a candidate model for competencies.

A provisional set of criteria for grounding such selections could include the following. Joint consideration of multiple criteria would of course make the task more difficult and also more reliable.

- *Biological and developmental plausibility*: Rapid growth in the sophistication and accessibility of brain imaging techniques and similar rapid increases in understanding basic developmental mechanisms make it more feasible to imagine grounding indicators at this level of specificity. For example, executive control functions appear to emerge early in life, to continue to develop in sophistication at least through middle adulthood, to be reasonably well grounded in specific brain developments (primarily in the prefrontal cortex), and to govern a coordinate suite of integrated functions involving emotional regulation, social interaction, and normative judgments (Damasio, 1999). If we were to learn that, for instance, good judgment and high social competence were rooted in similar neural architecture, emerged at similar developmental periods in similar ways, and were highly correlated functions, we might ask whether these should be viewed as one, two, or several domains. The point of this scenario is that theoretical models of competence will become increasingly well specified in terms of their underlying biology and development, and that our understanding of key competencies should not arise in ways that are incompatible with such models.
- Related to this is the *analysis of developmental trajectories* and their interrelationships. Epidemiology is a set of methods for identifying sources or determinants of disease through examination of patterns of occurrence (in place, in time, by associations of people, etc.). Such methods have been adapted to look at life course patterns of developmental health (Keating & Hertzman, 1999). These methods of longitudinal epidemiology offer unique opportunities to explore the emergence and relations among various performance indicators. Robust patterns in these life course data may well signal the presence of "attractor states" among key competencies that serve as partial determinants of subsequent performance. As noted below, some of these trajectories are quite similar to health trajectories, which could point toward a common set of social influences on competence and on health. The value of epidemiological evidence in the definition and selection of competencies is illustrated below (in Section 6) with reference to the proposed dynamic system and the candidate model.
- The study of *social transmission processes* could focus on the social conditions and associated policies that shape developmental trajectories. Transmission processes (such as particular parenting styles or workplace practices) that yield similar patterns of outcomes could be identified as root sources of key competencies.
- *Societal needs* are an important component for grounding the selection of key competencies, even though a purely utilitarian model would receive little approbation. One way to validate such competencies is through their relationships to important dependent variables, that is, to assess whether competencies identified through an analysis of perceived societal needs, assuming that they can be measured, make additional contributions to the (statistical) "explanation" of important outcomes, such as economic utility, social cohesion, life satisfaction, and so on.

4.3 Building a conceptual framework for social policy and action

Identification of key competencies would be only the first step. This would point the way toward social arrangements that foster or inhibit the acquisition and expression of key competencies, and thus to social policies that guide such arrangements. An understanding of social transmission processes in the identification of key competencies would be a particularly important domain of investigation. A conceptual framework for social action and policy would become equally urgent.

Any such conceptual framework should be guided by attention to lifelong learning. There is now overwhelming evidence that humans at all ages are capable of learning and mastering new knowledge and skills. Social policies that promote learning in formal and informal ways throughout the life span are likely to maintain and enhance population competencies. To do this effectively, the full range of social policies noted above would come under scrutiny, and would consider at least the following issues:

- Policies specific to *particular developmental transitions*. A one size fits all policy solution will clearly not work, and thus a wide range of policies would need to be examined from the perspective of their impact on the maintenance and enhancement of key competencies.
- Such an examination would focus both on *formal institutional arrangements* that support competence at different points in the life course, and on *informal practices and networks*. For example, workplace policies regarding parental leave would be examined for their impact on the acquisition of the base for key competencies in early childhood.
- *Societal affordances* for the use of competencies, as noted above, would also be subject to review from the perspective of how much day-to-day support exists for the use of competencies.
- Mechanisms for *monitoring and feedback* are essential for a learning society, and policies that could convey not only what has been learned, but how to act collectively on that information would need to be developed.
- Social policies that support adaptation to a *rapidly changing social environment* will be critical, given the pace of social change that is being generated by an innovation dynamic that is in a positive feedback loop now and for the foreseeable future.

5 Socio-historical context of the task

As we undertake the task of developing conceptual frameworks for key competencies, it will become critically important to understand the dynamics of change that are now upon us. We have characterized the nature of this change as an innovation dynamic, in which an accelerating feedback loop has been created through the interaction of our evolutionary and cultural legacies in human development (Keating, 1999; Keating & Mustard, 1993). The acceleration is evident from the timing of the major changes in how Homo sapiens has lived, once having acquired a penchant for reproducing culture, from the Neolithic Revolution of 40,000 or so years ago, to the Agricultural Revolution of some 10,000 years ago, to the Industrial Revolution of a few hundred years ago, to the current onset of the Knowledge Revolution.

Although we often focus in the historical record on the technological breakthroughs characterizing these sea changes in human experience, it is clear that they are equally provoked by social innovations (respectively, cross-group communication in the Neolithic era, urban concentrations for knowledge generation in the agricultural era, and globalization of trade and information in the industrial era), and in turn provoke the need for new social arrangements. Even a cursory review of contemporary demographics and labor markets indicates the degree and pace of change that we now experience – as if our own lives were not sufficient evidence.

What may make this current revolution in information and knowledge different is the potential to use the essence of the innovation dynamic in a conscious way to support broader human development goals. If we use the information we now have and will develop about the core dynamics of human development and key competencies to design flexible systems to support development, we will move toward what we have characterized as a "learning society." Such a society would become capable of monitoring and adjusting social practices and institutions toward that goal. In the same way that we routinely use economic and environmental feedback loops to guide policy, we clearly need human development feedback loops that now exist only in rough and emergent form.

In the final section that follows, a proposed process model is put forward as an initial step in framing this critical task. Drawn on the work described above (in and outside the DeSeCo process), the proposal is designed to organize and focus the task ahead, rather than to propose final answers. In the Annex to this report, I analyze one candidate model to provide an example of how such a process might operate.

6 A Proposed Dynamic System for the Definition and Selection of Competencies

The analyses and examples of the preceding sections point toward a specific way of moving forward with the definition and selection of competencies. Most of the relevant issues have been raised for discussion and consideration in earlier stages of the process, and the goals have become clearer. This has led toward the identification of some consensus criteria for the definition and selection of competencies.

It has also led to the identification of some critical tensions that underlie the project. The conflict between the high level of abstraction and the need for concrete observables, the means to achieve consensus on what the array of competencies should include, and the conflicting needs for breadth and for specificity in candidate competencies have been previously discussed within the DeSeCo initiative and have been noted above. What is most needed at this point, I argue, are two specific types of frameworks to sharpen the discussion and clarify the work yet to be done, one that focuses on the process of work and the other on a candidate model of the content that such a process might yield. Both are intended to foster the discourse rather than to foreclose it.

An important caveat of this work is that there is no "true" model that we can hope to discover. Indeed, such efforts are epistemologically unrealizable (Keating, 1990c). What can potentially be achieved is a well-grounded account of the notion of competence relevant to the current work, and an articulated set of criteria against which to evaluate candidate models. For the process framework, a number of explicit and implicit criteria have been advanced, and these are summarized in Section 4. Dealing simultaneously with multiple criteria is difficult in the absence of a coherent framework to organize the key questions.

In Figure 1, I suggest one possible integrative approach. This is illustrated as a dynamic systems process, in the sense of a model or metaphor, not as a mathematical representation (Keating & Miller, 2000). Specifically, the illustrated process envisions an iterative feedback loop among the various levels of the model. These iterations flow in both directions, moving from the bottom up as well as the top down. I will provide a brief description of each level and its importance, as well as ideas on how one might move practically from one level to the next. Following this overview, I provide additional details on relevant work at each level.

Another way to understand the model in Figure 1 is that it describes a set of questions for which we would need affirmative answers in order to define and select any particular competence for inclusion in the set. Thus, for any proposed competence, we would ideally like to be able to claim that:

- We understand, or at least have the tools to understand, the basic biological and developmental processes that underlie the competence, and can specify that those processes are sufficiently coherent internally that they can be usefully viewed as a specific competence. Note that the biological models in question are explicitly developmental in nature; they are not fixed. The notion of biological embedding specifies the circumstance under which experience becomes part of the individual's biology, and takes note of the social implications of this process.
- There is the potential to develop population level indicators, or such indicators already exist, so that it is theoretically possible to describe the distribution of the competence in the population and its subgroups and to monitor the development of that competence across time.
- There is some potential for social policy to have an impact on the acquisition of the competence. Specifically, there are societal institutions and practices that could be modified so as to optimize the competence. If there are no social policy levers, then knowledge about the competence cannot be acted on.
- The competence has societal importance, is valued in substantial measure by individuals, and is validated as "key" through mechanisms of political consensus building.

Two elements of this system need to be emphasized. The first is that it describes an integrated process, such that exclusive pursuit of any one level of analysis does not meet the overall goal. The second is that it describes a program of work, rather than identifies a set of competencies for which we now have all the requisite knowledge at all four levels. The purpose of the model is to frame that scientific and policy discourse so that it can be conducted systematically. A final preliminary note is that this is explicitly a consilience model, to use Wilson's (1998) term. Consilience, in this context, means the simultaneous and integrated consideration of evidence and arguments from all relevant levels of understanding, from the most reductionist of the natural sciences to the broadest questions of human value. Without a model of consilience, it is possible to pursue any one level of analysis to its own logical conclusion, but this does not advance the overall goal of general understanding.

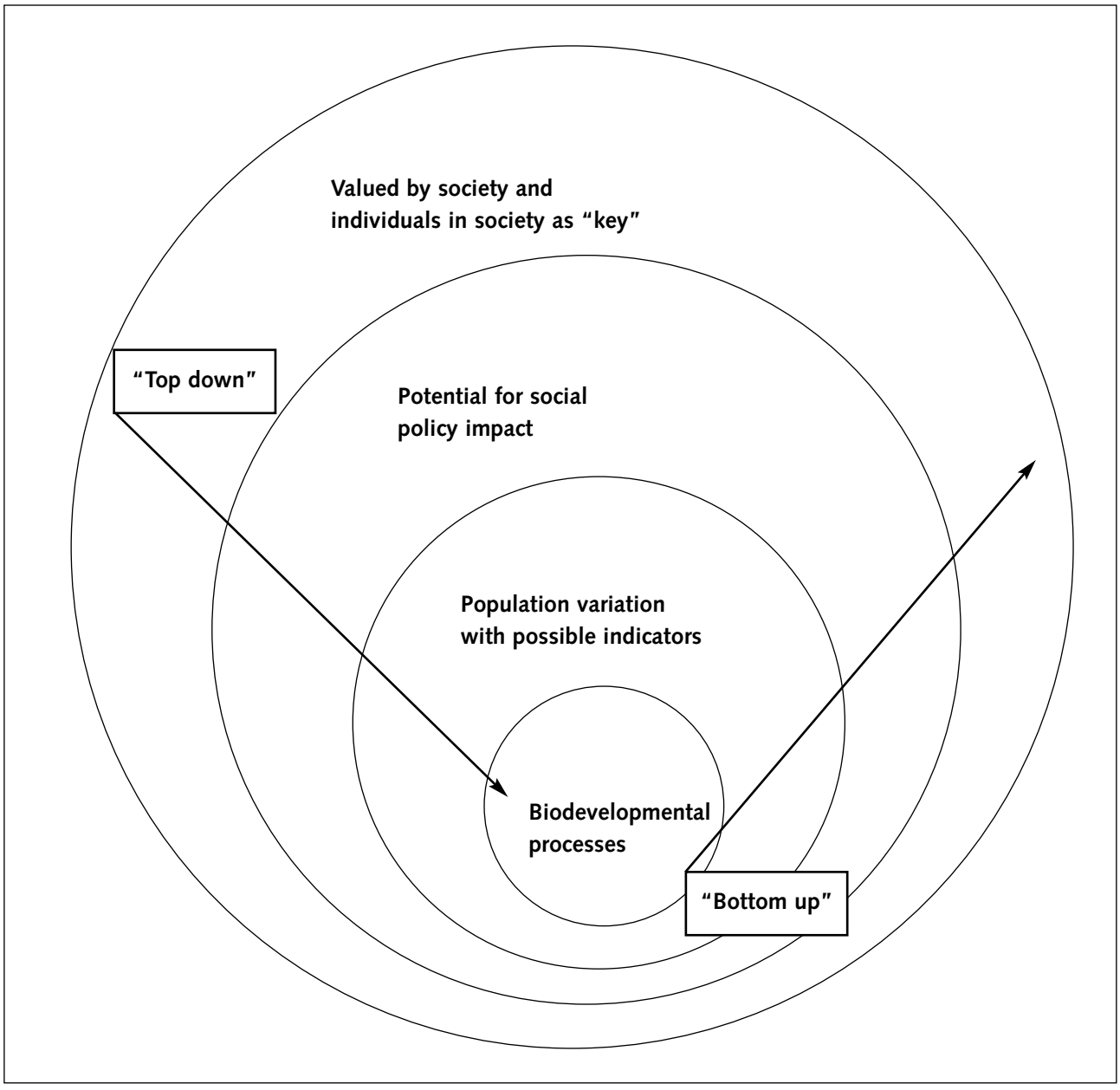

Figure 1: Proposed Dynamic System for the Definition and Selection of Competencies

A pair of contrasting examples may be useful at this point.

Literacy is one of the most widely studied candidate competencies, and in fact we have reasonable information at each level. We understand a good deal about the contributing factors to literacy acquisition from early childhood onward (Christian, Bachnan, & Morrison, 2001), and there is good neurological evidence that literacy activities have identifiably specific neural functions (Posner, Abdullaev, McCandliss, & Sereno, 1999). We have reasonably reliable indicators of literacy at the population level, and substantial evidence on its patterns of distribution (Willms, 1999). There are good reasons to believe that social policies, especially educational policies (Willms, 1999) but also policies that affect early childhood development (OECD, 2001), can have a substantial impact on both overall levels and the population distribution of literacy. Finally, there appears to be widespread public consensus that education in general and literacy in particular are of considerable value in the modern world. Evidence on this could be systematically obtained, if it is not already available. The evidence that it is an important contributor to the human capital of societies is summarized by Levy and Murnane (2001). The argument that literacy should be considered a key competence is a strong one, applying the logic of this model.

Musical talent serves a useful contrast. Gardner (1983) argues that it should be viewed as one of a set of "multiple intelligences," and he points to both developmental and neurological evidence to support the view that this is indeed a coherent, unified intelligence. Although there are no population indicator studies of this domain, they would likely be easy to create. Further, there is little doubt that social policy could impact the acquisition of musical talent. Anecdotal evidence (and perhaps systematic studies not known to me) supports the view that communities that place a high value on music have a much more widespread acquisition of this domain of talent (or intelligence). But it seems harder to argue that society as a whole should have a vested interest in encouraging this as a key competence. If one wished to argue for it as a key competence, it is clear that the likely limitation would be at this level of "values." The key question for this proposed competence would be: Should societies invest substantially in universal acquisition of musical competence?

Thus, one utility of the process model in Figure 1 is that it focuses attention on where the substantive discourse needs to occur as various candidate competencies are put forward. A brief overview of each level highlights the major considerations each brings to the model. How they could be applied to a candidate model of competencies is described in the Annex to this report.

The *biodevelopmental processes* represent the most fundamental and reductionist level that is relevant to the task at hand. Productive integrating work between the neurosciences and developmental psychology has set the stage for a much more rigorous grounding of theories of competence (Nelson, 1999; Tremblay, 1999). This level of fundamental processes is not the appropriate one for fully defining the competencies that should be included. It does, however, provide a way to test the scientific plausibility of models that propose how competencies are organized. From the "bottom up" perspective, we would want to know how specific processes give rise to specific competencies that can be observed at a population level. From the "top down," we can think of these processes as ways to "unpack" systematically observed variance in behavior or function at the population level. It is important to understand the underlying developmental dynamics, because otherwise one might be misled in the formulation of social policies or prevention/intervention strategies (Keating, 1999).

Population variation, observable (or potentially so) by obtainable indicators, represents the core target of social policy formulation. Where there is little or no population variation (as in, for example, basic language skill in one's mother tongue), the competence might be quite important, but there is no policy target, considering that it is nearly always achieved. Where there is substantial variation in the population, and if it is an "important" competence, then there is much to concern us. Is it possible to develop reliable population indicators? How is it distributed? Why is it distributed in that fashion? Does the pattern of its distribution interfere with equity and opportunity goals? Is there improvement or decline in the distribution of the competence when monitored across time? And so on. The link to the next level defines the original "indicators" model that has been in use for some time (Section 2). Thus, if it is a key competence, and if it manifests variability at the population level, then social policy might well be concerned to find ways to optimize its achievement. The economics paper in the DeSeCo series (Levy & Murnane, 2001) is a prime example of this linkage. Variations among the population in specific competencies are linked to specific economic utilities. Enhancing the population attainment of these competencies could then become a social policy goal for reasons of equity and of economic growth (Keating, 1999).

Potential for social policy impact represents a third level of analysis, and a third high priority perspective for research and analysis. Even if the understanding of a particular competence is well grounded at the levels of developmental processes and population indicators, it is of much less interest if it is an area in which the likely impact of social policy is minimal or non-existent. This could be true for a variety of reasons such as privacy concerns (for example, spiritual competence or sexual competence) or the absence of a compelling societal interest (competence in team sports, for example). Any given example is open to debate, of course, but a reasonable criterion for a candidate competence in the DeSeCo context is that a social policy impact is plausible. On the other hand, this needs to be understood broadly, certainly to include more than just education policies, the traditional means for influencing competence. The early childhood period is particularly salient (Keating & Hertzman, 1999; OECD, 2001), as are policies for workplace learning or retraining. The overarching social policy goal should be to optimize key competencies, both with respect to the total available competence in the population (a human capital issue), and to the linked issue of the distribution of opportunities for developing competencies across the life span.

Any proposed key competence needs to be *valued by society and by the members of that society*. Indeed, the origins of the DeSeCo initiative can be traced to a concern that valued competencies not associated directly with economic utility would be overlooked under traditional indicators. An exclusive focus on the competencies that are easier to create indicators for and that make a quantifiable contribution to economic outcomes would likely (perhaps inevitably) lead to population profiles of human competence that ignored human competencies that are less directly economic and more directly social – although the possibility that there are indirect economic effects of these competencies should not be overlooked (Keating, 1999; Levy & Murnane, 2001). On the other hand, a proposed competence that is broadly regarded as valuable, but that may be too abstract to be translated into observable processes or indicators, is not a good candidate. One needs to be able to move from this "top" level of analysis – what do people value – "down" toward a clear grounding in observables. These can be potential observables, of course. One of the DeSeCo goals may well be to guide a research process whereby valued competencies that do not have a strong empirical base can be investigated for the possibility of creating a firmer ground for them.

6.1 Next steps

What are the next steps implied by the conceptual framework described in this contribution? First, it will be essential to seek reaction from those who have participated in the previous discussions. Does it capture the ideas already generated in a meaningful way? Does it frame the work to be done in a productive way? Does it overlook important considerations? Are there better alternative models of how to proceed? Recall that this is put forward as a program of work, and considerable iterative refinement is anticipated. Launching the discourse among the previous participants would offer important feedback on its potential value. Such a discourse would be most valuable if it focused on the overall framework, and not only on particular pieces of it.

The framework, as noted, includes (1) a proposed dynamic system as a process of relating the interdisciplinary research and questions, (2) for purposes of illustration, a candidate model for the competencies to be included (described in the Annex), and (3) two sets of criteria, arising from the prior DeSeCo work and from the integrative model in Figure 1, against which candidate models should be judged (see Tables 1 and 2 in the Annex). Each of the elements is open to refinement, of course, but the joint consideration of an integrative conceptual framework, a specified content model of competencies, and the relevant criteria to evaluate the output, is also required.

In the second step, assuming that a reasonable consensus model of the process emerges (akin to the model in Figure 1) and that the explicit criteria in Tables 1 and 2 can be refined with respect to a common understanding, systematic reviews of relevant literatures are used to "fill in" the matrices of (suitably revised) Tables 1 and 2. Note, however, that a core argument of this contribution is that such reviews must be undertaken within a framework of interdisciplinary integration in order to be meaningful. Isolated reviews will not advance the goal.

Third, existing and potentially new research initiatives on competencies and indicators should be evaluated or re-evaluated against this template. How are current projects best understood with respect to a coherent framework achieved through the work in steps 1 and 2? What new work needs to be undertaken to address the gaps identified in the preceding steps? What types of interdisciplinary research efforts or networks (existing or created for this purpose) can execute the consensus plan?
Finally, what mechanisms can ensure that the output of the work on such a model has an impact on social policy and practice? The value of carrying out the scope of work envisioned in the DeSeCo process will be largely unreal-

ized unless there is a way to embed the monitoring of identified competencies into routine social policy analysis and formulation. This will likely require new collaborations across research and policy sectors (Keating, 1999; Offord et al., 1999). Such a social innovation, however, is an essential component of moving toward a learning society model that can support human development for individuals, populations, and societies in the face of rapidly mounting challenges of the contemporary era.

7 References

Brooks-Gunn, J., Duncan, G., & Britto, P. R. (1999). Are socioeconomic gradients for children similar to those for adults? In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 94–124). New York: Guilford.

Canto-Sperber, M., & Dupuy, J.-P. (2001). Competencies for the good life and the good society. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 67–92). Göttingen, Germany: Hogrefe & Huber.

Carson, J. (2001). Defining and selecting competencies: Historical reflections on the case of IQ. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 33–34). Göttingen, Germany: Hogrefe & Huber.

Christian, K., Bachnan, H. J., & Morrison, F. J. (2001). Schooling and cognitive development. In R. J. Sternberg & E. L. Grigorenko (Eds.), *Environmental effects on cognitive abilities* (pp. 287–335). Mahwah, NJ: Erlbaum.

Csikszentmihalyi, M. (1990). Flow: *The psychology of optimal experience*. New York: Harper & Row.

Damasio, A. (1999). *The feeling of what happens: Body and emotion in the making of consciousness*. San Diego, CA: Harcourt.

Dennett, D. (1995). *Darwin's dangerous idea*. New York: Touchstone.

Donald, M. (1991). *Origins of the modern mind*. Cambridge, MA: Harvard University Press.

Gardner, H. (1983). *Frames of mind*. New York: Basic Books.

Goody, J. (2001). Competencies and education: Contextual diversity. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 175–189). Göttingen, Germany: Hogrefe & Huber.

Gould, E., Reeves, A. J., Graziano, M. S. A., & Gross, C. G. (1999). Neurogenesis. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 337–347). New York: Guilford.

Habermas, J. (1975). *Legitimation crisis* (T. McCarthy, Trans.). Boston: Beacon Press.

Haste, H. (2001). Ambiguity, autonomy, and agency: Psychological challenges to new competence. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 93–120). Göttingen, Germany: Hogrefe & Huber.

Keating, D. P. (1984). The emperor's new clothes: The "new look" in intelligence research. In R. Sternberg (Ed.), *Advances in the psychology of human intelligence* (Vol. 2, pp. 1–35). Hillsdale, NJ: Erlbaum.

Keating, D. P. (1990a). Adolescent thinking. In S. Feldman & G. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 54–89). Cambridge, MA: Harvard University Press.

Keating, D. P. (1990c). Structuralism, deconstruction, reconstruction: The limits of reasoning. In W. F. Overton (Ed.), *Reasoning, necessity, and logic: Developmental perspectives* (pp. 299–319). Hillsdale, NJ: Erlbaum.

Keating, D. P. (1996). Habits of mind for a learning society: Educating for human development. In D. R. Olson & N. Torrance (Eds.), *Handbook of education and human development: New models of learning, teaching and schooling* (pp. 461–481). Oxford: Blackwell.

Keating, D. P. (1998). Human development in the learning society. In A. Hargreaves, A. Lieberman, M. Fullan, & D. Hopkins (Eds.), *International handbook of educational change* (Part 2, pp. 693–709). Dordrecht, The Netherlands: Kluwer.

Keating, D. P. (1999). The learning society: A human development agenda. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 237–250). New York: Guilford.

Keating, D. P., & Hertzman, C. (Eds.). (1999). *Developmental health and the wealth of nations: Social, biological, and educational dynamics*. New York: Guilford.

Keating, D. P., & Miller, F. K. (1999). Individual pathways in competence and coping: From regulatory systems to habits of mind. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 220–233). New York: Guilford.

Keating, D. P., & Miller, F. K. (2000). The dynamics of emotional development: Models, metaphors, and methods. In M. D. Lewis & I. Granic (Eds.), *Emotion, development, and self-organization: Dynamic systems approaches to emotional development* (pp. 373–392). New York: Cambridge University Press.

Keating, D. P., & Mustard, J. F. (1993). Social economic factors and human development. In D. Ross (Ed.), *Family security in insecure times* (Vol. 1, pp. 87–105). Ottawa, ON: National Forum on Family Security.

Keating, D. P., & Sasse, D. K. (1996). Cognitive socialization in adolescence: Critical period for a critical habit of mind. In G. Adams, R. Montemayor, & T. Gullotta (Eds.), *Psychosocial development during adolescence* (pp. 232–258). Thousand Oaks, CA: Sage.

Kegan, R. (2001). Competencies as working epistemologies: Ways we want adults to know. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 192–204). Göttingen, Germany: Hogrefe & Huber.

Levy, F., & Murnane, R. J. (2001). Key competencies critical to economic success. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 151–173). Göttingen, Germany: Hogrefe & Huber.

Masten, A. S., Coatsworth, J. D., Neemann, J., Gest, S. D., Tellegen, A., & Garmezy, N. (1995). The structure and coherence of competence from childhood through adolescence. *Child Development*, 66, 1635–1659.

Masten, A. S., Hubbard, J. J., Gest, S. D., Tellegen, A., Garmezy, N., & Ramirez, M. (1999). Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence. *Development and Psychopathology*, 11, 143–169.

Miller, K. A., Kohn, M. L., & Schooler, C. (1985). Educational self-direction and the cognitive functioning of students. *Social Forces*, 63, 923–944.

Nelson, C. A. (1999). Neural plasticity and human development. *Current Directions in Psychological Science,* 8(2), 42–45.

Organisation for Economic Co-operation and Development. (2001). *Starting strong: Early childhood education and care*. Paris: OECD.

Offord, D. R., Kraemer, H. C., Kazdin, A. E., Jensen, P. S., Harrington, R., & Gardner, J. S. (1999). Lowering the burden of suffering: Monitoring the benefits of clinical, targeted, and universal approaches. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 293–310). New York: Guilford.

Perrenoud, P. (2001). The key to social fields: Competencies of an autonomous actor. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 121–149). Göttingen, Germany: Hogrefe & Huber.

Posner, M. I., Abdullaev, Y., McCandliss, B. D. & Sereno, S. (1999). Neuroanatomy, circuitry and plasticity of word reading. *Neuroreport*, 10, 12–23.

Ritchie, L. (2001). Key competencies for whom? A labor perspective. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 236–240). Göttingen, Germany: Hogrefe & Huber.

Rohlen, T. (1999). Social software for a learning society: Relating school and work. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 251–273). New York: Guilford.

Rychen, D. S., & Salganik, L. H. (2000). Definition and selection of key competencies. In *The INES compendium: Contributions from INES networks and working groups* (pp. 67–80). Paris: OECD. Also available at: http://www.pisa.oecd.org/Docs/Download/GA(2000)12.pdf

Salganik, L. H., Rychen, D. S., Moser, U., & Konstant, J. W. (1999). *Projects on competencies in the OECD context*. Neuchâtel: Swiss Federal Statistical Office.

Schooler, C. (2001). The intellectual effects of the demands of the work environment. In R. J. Sternberg & E. L. Grigorenko (Eds.), *Environmental effects on cognitive abilities* (pp. 363–380). Mahwah, NJ: Erlbaum.

Scribner, S., & Cole, M. (1981). *The psychology of literacy*. Cambridge, MA: Harvard University Press.

Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York: Cambridge University Press.

Taylor, C. (1989). *Sources of the self: The making of the modern identity*. Cambridge, MA: Harvard University Press.

Tremblay, R. (1999). When children's social development fails. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 55–71). New York: Guilford.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wachs, T. D. (1992). *The nature of nurture*. Newbury Park, CA: Sage.

Weinert, F. E. (2001). Concept of competence: A conceptual clarification. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 45–65). Göttingen, Germany: Hogrefe & Huber.

Willms, D. J. (1999). Quality and inequality in children's literacy: The effects of families, schools, and communities. In D. P. Keating & C. Hertzman (Eds.), *Developmental health and the wealth of nations: Social, biological, and educational dynamics* (pp. 72–93). New York: Guilford.

Wilson, E. O. (1998). *Consilience: The unity of knowledge*. New York: Knopf.

8 Annex

8.1 Candidate model of competencies in the DeSeCo context

As an illustration of how competencies might be identified, I provide a candidate model of competencies, two possible sets of criteria, and a brief discussion of how each set of criteria can be used to evaluate the candidate model. The first set of criteria is derived from the DeSeCo work to date, and the second is derived from the research and analysis process model in Figure 1. These criteria and their application to the candidate model are summarized in Table 1 and Table 2, respectively.

One note of caution is that the overview of the evidence relevant to the application of the criteria is selective and illustrative, rather than comprehensive. Specifically, completing the matrices in Tables 1 and 2 with systematic reviews of the extant literature would be a valuable step in refining the candidate model, or in evaluating competing candidate models. Such systematic reviews would also be of great value in identifying research gaps that need to be filled as the project moves forward. But such systematic reviews of the evidence relevant to these (or revised) matrices are beyond the scope of this contribution

The initial step is to decide how abstract or concrete a model one wishes to explore, and thus how many or how few specific competencies to identify. Several lines of evidence serve as potential guides for this decision.

One is to use a specified utilitarian rule. For example, as Levy and Murnane (2001) propose, one could begin with competencies that already show evidence of enhancing a specific goal, economic value. This becomes the dependent or criterion variable to be predicted in regression equations, and competencies are added if they are capable of adding significant new variance to the prediction of the selected dependent variable. Using this approach, Levy and Murnane (2001) report evidence that soft skills, such as the ability to work well in groups, add significantly to the prediction of economic outcomes, and could thus be added to the list of candidate competencies.

A second approach is to appeal to fundamental constructs of competence as defined by theory and empirical research. There are a number that are relevant. Gardner's oft-cited work on multiple intelligences as frames of mind (1983) proposes that different domains of competence can be regarded as separate intelligences. Multiple criteria are proposed to determine whether a particular area of achievement, skill, or competence should qualify as an intelligence. These include neurologic evidence, developmental patterns, evolutionary history, construct covariance, and others. Using this model, Gardner and his colleagues have identified seven (or perhaps eight) intelligences. This is a rich resource for generating ideas about key competencies and is drawn on by DeSeCo contributors (for example, Haste, 2001). As the example above of musical intelligence indicates, some intelligences may not qualify as competencies using the proposed criteria for DeSeCo. The analysis presented here, however, is influenced by and compatible with this model. Sternberg (1985), starting from similar critiques of traditional models of intelligence and competence, arrives at a "triarchic" theory of mind (roughly, technical, practical, and creative). He also uses a variety of evidence, especially the covariance of performance and experimental investigations of the organization of competence. Again, this is a useful theoretical guide, although the derived areas are perhaps one level of abstraction above that which is most useful for DeSeCo. Nonetheless, they match up reasonably well with the broad areas of competence shown in Figure 2. Masten and her colleagues (Masten et al., 1995; Masten et al., 1999) use structural equation modeling of longitudinal developmental trajectories and panel (cohort) data to identify the structure and coherence of competencies at different developmental periods. The broad areas identified are also compatible with the major structural elements of Figure 2. They include academic achievement, social competence, and "conduct" (the absence of externalizing or antisocial behavior) for both developmental periods, with the addition of job and romantic competence later in development. Although there is considerable overlap in general, it is clear that the specific determination of key competencies depends heavily on the theoretical and analytic framework. This re-emphasizes the need for DeSeCo to make its criteria as explicit as possible, in order to move forward with the agenda.

A third approach is to look at existing work on indicators to see what competencies show population variability, and how those are related. Most of the existing work has focused on academic achievement (Levy & Murnane, 2001). But a number of studies have begun to explore elements of an omnibus construct of "developmental health" in which outcomes of physical and mental health, competence, behavior and emotional problems, and

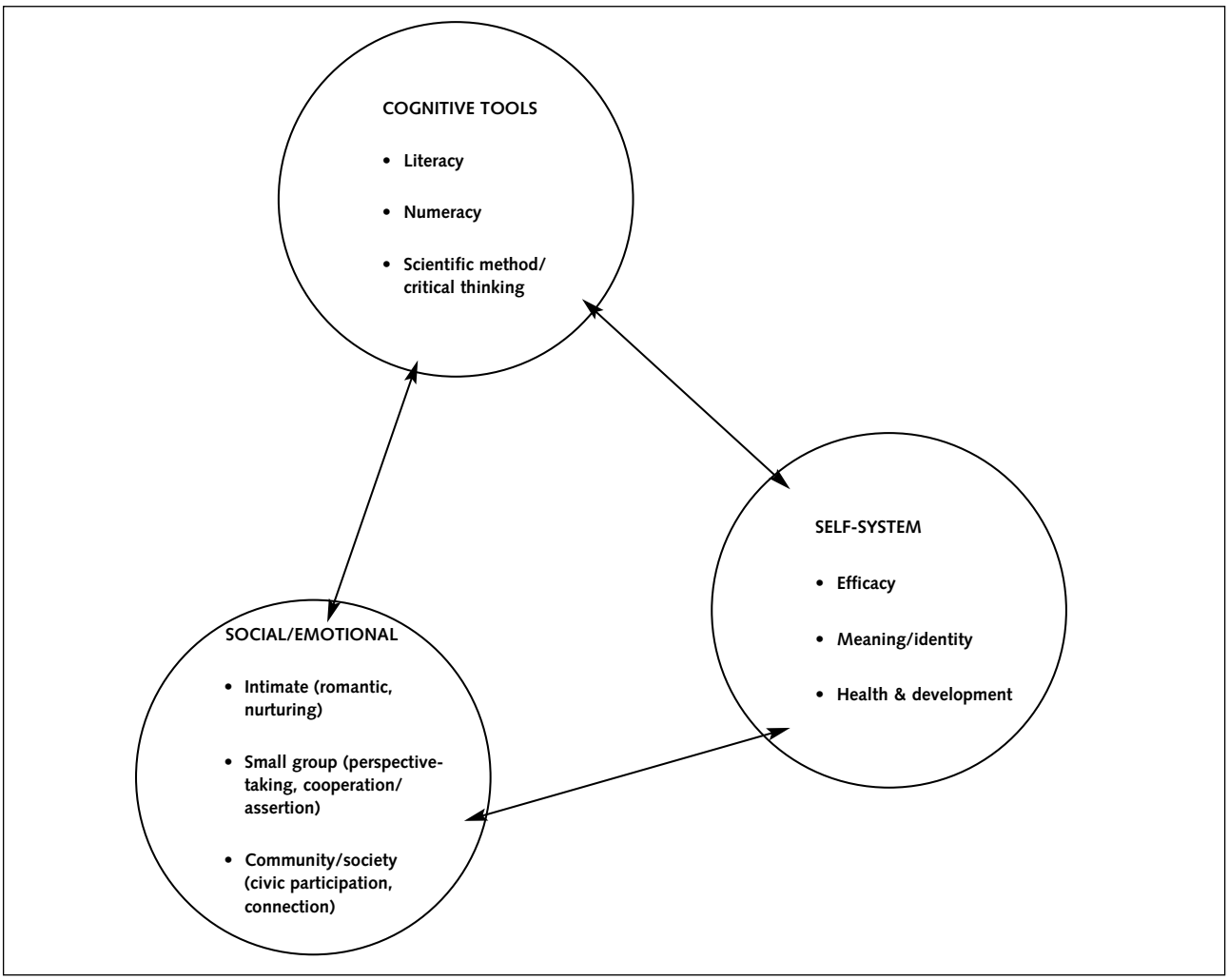

Figure 2: Candidate Model of Competencies in the DeSeCo Context

coping are considered together (Brooks-Gunn, Duncan, & Britto, 1999; Tremblay, 1999; Willms, 1999). To the extent that these show similar patterns of population variability, we may be inclined to hypothesize about common developmental pathways. But population patterns alone are insufficient to identify key competencies.

A fourth approach is to consider what is generally valued by society, or should be valued on theoretical or philosophical grounds, and propose candidate competencies consistent with those value analyses. In the proposed framework, this would be an initial step, which would then be enabled through a goal of guiding research to try to substantiate the competence. Several of the DeSeCo contributions have this character, and a number of important candidates are identified. Although not every link back to this candidate list is drawn here, it is through tying these proposals to a program of work, incorporating them into a coherent candidate model, and applying specified criteria that it becomes possible to test them beyond an abstract level.

8.1.1 The Candidate Model of Competencies

The *first broad system, cognitive tools*, is used to aggregate three domains that comprise the traditional indicators approach: literacy, numeracy (mathematics), and scientific thinking. As noted below, these appear to meet most of the criteria derived from the DeSeCo process and from the dynamic system research model (Figure 1).

There is one modification to this traditional set that is noteworthy. Whereas literacy and numeracy are broadly applicable to a wide range of fields and functions, it is less clear that science knowledge, as traditionally assessed via indicators, has the same quality. Often it is measured as science information, rather than as the ability to carry out scientific reasoning. This latter quality, which has also been termed "critical thinking," is indeed highly transversal and multifunctional, but is much harder to measure (Keating, 1990a).

Scientific thinking, however, is an increasingly important competence, not only with reference to having a useable understanding of the natural and social world in an increasingly globalized planet, but also with reference to dealing with a global information environment in which market and media influences are so dominant and have their own agendas that sometimes distort social realities. This critique resonates with important elements of the philosophical perspective advanced by Canto-Sperber and Dupuy (2001), especially the dimension of coping with complexity and the normative dimension. The adolescent transition may be a critical period for the development of critical thinking (Keating, 1990a; Keating & Sasse, 1996), and thus educational policies that focus on the adolescent transition are a primary focus for the development of this competence.

Two notes are of interest with respect to this first competence system. First, it is obvious that tools, whether cognitive or physical, always carry their context with them (Vygotsky, 1978). Thus, the cognitive tools included here are those which are most broadly applicable to effective functioning in a modern industrial (or post-industrial) society. They would be less useful among Goody's (2001) fisher folk, and the possessor of these tools who lacked fishing lore would be relatively useless in that context. The fundamental interdependence of tools and context is an inescapable constraint. The goal of identifying decontextualized competencies is not compatible with the DeSeCo goals, because such competencies would necessarily be too abstract for practical utility. Second, it should not be assumed that the specified competencies within this system, or indeed between this and the other proposed systems, are independent. Quite the contrary: they are largely interdependent at all levels of analysis (from Figure 1). Recall the example of executive function, which likely has neural bases and substantial influence on all three systems. One might make the argument that it is a good candidate for a key competence, but it is harder to reconcile with the other criteria. But the door should remain open to reconsideration of these and other specific variations of the candidate model.

The *second broad system, the self-system*, brings together a number of disparate ideas that arose in the DeSeCo process and have roots in several research literatures. It is somewhat far removed from traditional indicators approaches, although there have been some efforts to look at indicators of self-efficacy (also referred to in various literatures as self-esteem, perceived self-competence, self-worth, and self-direction). There is an empirical link between this domain and academic achievement (Miller, Kohn, & Schooler, 1985). The meaning/identity competence involves the ability to be reflective about one's self, especially in relation to others and to society at large. It is especially likely that this is a crucial element of sustained motivation to engage the world and to make use of one's competence. It contains elements of Canto-Sperber and Dupuy's (2001) perceptive and narrative dimensions, and resonates as well with Perrenoud's (2001) construct of autonomy. Although identity development and, to a lesser extent, meaning-making have been a focus of interest for developmental researchers interested in basic developmental processes (see Kegan's [2001] commentary), there has been little work on how to translate these into indicators. But the social importance of this competence component seems likely to increase, as the power of external structures and institutions (state, religion, culture) to impose "motivation" wanes. Self-motivation, by contrast, seems largely to engage one's sense of the meaning of one's own efforts, and an absence of this competence could be seen as having negative consequences from anxiety to boredom (Csikszentmihalyi, 1990).

The last competence component in the self-system is more speculative, and draws on a wide range of domains and strategies. The core idea here is that as access to information about health and development becomes more widely available, individuals have the opportunity to make use of that information for their own benefit, and that of their families and other social networks. Relevant research falls under many rubrics such as health promotion, lifestyle choices, human development education, and others. Supporting one's own health and development (and that of others in one's orbit) is likely to emerge as a key competence. At this point, it is situated more easily at the "top" levels of Figure 1 (values and policies), with much less information about indicators and processes. Its absence, however, could be seen as an important gap in a model of competencies for the modern world.

The *third broad system, social and emotional competence components*, incorporates a number of ideas discussed in DeSeCo and elsewhere. There are a number of ways to separate the elements of this system, and this model draws on several sources to balance between theoretical purity and practical utility. Most of the DeSeCo contributors reference one or another aspect of this competence system: Canto-Sperber and Dupuy's cooperative and normative dimensions, Perrenoud's (2001) notion of navigation of social fields, Levy and Murnane's (2001) inclusion of soft skills like teamwork, and Haste's (2001) reference to interpersonal domains in Gardner's work, and subsequent elaborations under the heading of emotional intelligence. Clearly, this is an increasingly recognized and valued domain of human competence, but it will be important to understand how to organize this system with respect to the DeSeCo criteria.

The organizational principle used here is derived from the nature of the social interaction involved: intimate, as in romantic or family relations; small group, as in group or team work contexts; and large group, such as community or society involvement. Although this is a convenient grouping based on how the research literature divides, there are also good biodevelopmental reasons to see them separating in this fashion. The behavioral and biological systems governing each of them are at least somewhat distinct. The competence to sustain intimate relationships is important to a range of outcomes, including personal physical health and the social necessity of family formation and child rearing. Effectiveness in small group settings is increasingly important economically (Levy & Murnane, 2001). Two aspects combine to shape this competence: a more cognitive component that allows one to take another's perspective, and a more behavioral one that allows the appropriate regulation of social interaction by balancing cooperation and assertion. It seems likely that each is valued, that there are social policy implications of each of them, and there is a reasonable fundamental process account of each. The challenge for each is more likely to occur at the level of translation into population indicators, although efforts on the civic engagement competence have been made.

8.1.2 A system, not a list

There is an important caveat to be noted here. Reading only the descriptive text above might lead one to view this candidate model as a comprehensive "list" based on prior DeSeCo work and other literature. This would be wrong. The model in Figure 2 includes not just components of competence within broad domains, but also is meant to give equal weight to the linkages among domains. For example, possessing the technical skills of literacy in the absence of a motivational system to make effective use of those skills would not qualify as a key competence in the sense intended by "key competencies" articulated in the DeSeCo process to date (Rychen & Salganik, 2000). The three competencies emphasized there each contain elements of a combination or coordination of specific components of competence, a point also emphasized by Weinert (2001). This is consistent with my theoretical perspective as well, which has focused on habits of mind (Keating, 1996, 1998), in that the skills, dispositions, emotions, and motivations associated with habits of mind are not isolated from each other. It is thus the full system that is intended by a candidate model of competence, rather than isolated parts. This exemplifies the noted tension between a meaningful overall model of competence and identifying components of competence that can become indicators.

8.1.3 DeSeCo-specified criteria

With this candidate model of competence in mind, we can turn to its appraisal against two sets of criteria. The first set is derived from the DeSeCo work to date. A number of criteria have come to the fore in the discussion to date. For clarity, there has been some compression and reorganization of the identified criteria, and the column headings reflect this. The first combines the notions of requiring mental complexity, not being automatized, and engaging not just rote knowledge or skill application. Although there are subtle differences among these proposed criteria, for practical purposes they have similar implications: Competencies require more than mere application of a rote routine. The second criterion is that each competence is conceivably an individual characteristic, which is essential to the overall model. The third is that each competence has a fundamental acquisition component, rather than a mere genetic manifestation. As I note above, this is essentially a given once we have a proper understanding of nature/nurture interaction, but I have included it as a way to introduce the policy-related issue of which period of development, if any, is key to the acquisition of that competence. The final criterion is that the competence is multifunctional and transversal, both of which speak to a competence being generalizable beyond a particular domain. I was unable to detect exactly how these criteria differ from each other, but further discourse may clarify a distinction that could then be applied to this or other candidate models.

The products of this analysis are shown in Table 1, and it would be redundant to repeat them here. There are two important notes, however. The first is that not only are the criteria up for discussion, but also the entries in the cells formed by crossing criteria and candidate competencies. I have entered my best estimate of the status of each resulting cell, but it is easy to see that many of the cells merit a full-scale review of the research literature, which is beyond the scope of this contribution. This is the second point, to which I return below. Although framed as decision criteria, the initial value of such a scheme is to clarify one's model of the importance of the various elements that have been discussed, and then to identify areas for which new knowledge integration or generation is required in order to move forward. These points apply equally well to the criteria discussed below, with reference to Table 2.

Criterion Competence	Complex/non-automatic	Individual characteristic	Acquired	Multifunctional & Transversal
Literacy	No ceiling	Yes	Preschool, school and beyond	Needed for all fields
Numeracy	No ceiling	Yes	School and beyond	Needed for most fields
Scientific method/ critical thinking	No ceiling	Yes	School and beyond	Needed for specific fields, and for dealing with markets/media
Self-efficacy	Lifelong mastery goals	Yes	Lifelong	Needed for all fields
Meaning/ identity	Lifelong self-knowledge goals	Yes	Lifelong; adolescent critical period [?]	Needed for all fields, for motivating power
Health & development	No ceiling	Yes	School and beyond	Relevant for all aspects of self-development
Intimacy	Lifelong	Yes	Lifelong; early childhood critical period [?]	Needed for all close rela tions, family formation
Group interaction	Lifelong	Yes	Preschool, school and beyond	Needed for all group or team work
Civic engagement	Lifelong	Yes	School and beyond	Needed for society community functions

Table 1: Application of DeSeCo-specified Criteria to Candidate Model of Competencies

8.1.4 Criteria derived from proposed dynamic system model for research and analysis

A similar process is undertaken in Table 2, in which the candidate model is evaluated with respect to the criteria arising from the application of the dynamic system illustrated in Figure 1. Each criterion is associated with a specific level of research and analysis in Figure 1. Specifically, each candidate competence is assessed with respect to whether there is existing work addressing each criterion, or whether there is the prospect of fruitful research in the future. Note that there are a number of cells designated "Uncertain." In some cases, there may be existing literatures that address this topic, of which I am unaware. In other cases, it may be that the topic has not yet received systematic research attention. In all cells, a program of work is required to validate and concretize what is known, and how it relates to the evaluation of this or other candidate models for the definition and selection of competencies.

Criterion Competence	Biodevelopmental processes	Indicators	Potential for policy impact	Valued by society as a "key" competence
Literacy	Reasonably specific models with evidence	Already developed, need refinement of conceptual bases	Existing policy research	Yes
Numeracy	Reasonably specific models with evidence	Already developed, need refinement of conceptual bases	Existing policy research	Yes
Scientific method/ critical thinking	Some specific models, some evidence	Partially developed; less developed for critical thinking	Existing policy research	Uncertain
Self-efficacy	Some specific models, some evidence	Partially developed	Uncertain	Yes
Meaning/identity	Some specific models, evidence scattered	Some process measures, no indicators at present	Uncertain	Uncertain
Health & development	Some specific models, some evidence	Some indicators, poorly developed	Some policy research	Yes
Intimacy	Some specific models, some evidence	Some process measures, no indicators at present	Not widely viewed as a policy goal	Yes
Group interaction	Some specific models, some evidence	Some process measures, no indicators at present	Some policy ideas	Yes
Civic engagement	Some specific models, some evidence	Some indicators, conceptual refinement needed	Some policy research	Uncertain

Table 2: Application of the Dynamic System Model Criteria to Candidate Model Competencies

Key Competencies – Moving Toward Indicators and Assessments

In light of the goal of broadening the range of competencies, what new areas of competence should be considered for inclusion in comparative international assessments?

What are the strategies that might best contribute in the short-, medium-, and long-term to developing internationally comparable assessments and indicators of key competencies for all?

What can be learned about key competencies from current international large-scale assessments? What empirical evidence do these studies provide?

Following a presentation by Tim Oates, Qualifications and Curriculum Authority, London, based on his work on assessing key competencies that is presented in this section, a panel discussion, moderated by Laura Salganik, of the Education Statistics Services Institute, American Institutes for Research, was held. Panelists included Jean-Claude Emin, Department of Programming and Development, French Ministry of Education; Scott Murray, Statistics Canada; Andreas Schleicher, OECD; and Judith Torney-Purta, University of Maryland.

Key Skills/Key Competencies: Avoiding the Pitfalls of Current Initiatives

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1 Overview

This paper examines contrasting frameworks of key skills/key competencies and some taxonomies for exploring the nature of skills/competencies that are included in contemporary policy in this area. It provides a critical examination of the concept of 'transfer', arguing that the concept of 'adaptability' is both more robust and more helpful in the development of policy and innovations on key skills/key competencies. The paper analyses some key tensions between assessment and learning, suggesting that all initiatives in the area of key skills/key competencies should possess clarity in aims and objectives before launching into the development and implementation of innovations in learning and assessment.

2 'Key Skills' and 'Key Competencies' Defined

Concepts of 'key competencies', 'key skills', 'core skills' and 'generic skills' have been prominent and persistent in European discussions of reformed education and training systems for the last 25 years (MSC, 1984; Levy, 1986). However, not only have the concepts in some national states' systems been unstable (Brown, 1998; Bresciani, Clematide, & Oates, 2000), but different states' understanding of these concepts has displayed wide variations, a topic I will address below. Beyond this, the implementation of key competencies, key skills, etc., has naturally occurred in the specific contexts of national education and training systems (Green, 1991; Funnell & Muller, 1991) and has thus seen very different balances in the relative emphasis placed on specification of skills/competencies, on assessment, and on pedagogy. For example, the English implementation of key skills (originally 'core skills') has focused on tightly specified skills, with a strong assessment-led implementation strategy. Government concern to secure rigorous assessment has increased the role of formal testing of skills for both youths and adults, in educational and work settings. In contrast, Danish curriculum innovation on key skills has emphasised forms of learner-focused pedagogy, rather than the tight specification/definition of skills linked to formal assessment seen in England (Bresciani, Clematide, & Oates, op. cit.). Later in this paper I shall argue that while precision in the construct base for key skills is important, neglect of pedagogy can seriously compromise attempts to operationalise policy intended to develop key skills in the labour force.

The construct base of key skills/key competencies varies significantly between different nations' systems. In what was then West Germany, the concept of 'key competencies' was introduced into the dual system during the 1970's as a tool for '...enhancing trainees' personal development in order to enable them to fulfil increasingly complex work roles...' (Ertl, 2000, p. 22). Key competencies are here defined loosely, relating to constructs such as 'ability to plan', 'execute and control occupational tasks independently', 'work and assume responsibility in a team', 'acquire special skills quickly and to solve problems creatively' and 'capacity for abstract and theoretical thought' (Ertl, loc. cit.). They are contentious elements of the system, with uneven commitment to them in different sectors and amongst different groups. Rather than remain discrete outcomes on which programme assessment is focused, the key competencies are used as a tool or framework for design of national occupational profiles (*Berufsbilder*) and local curricula. Thus, they form part of the design criteria when Government and social partners periodically revise each of the 370 national occupational profiles. In this process, the competencies act very much as part of the overall design criteria for the national profiles, rather than appearing in exactly the same form in each occupational profile. In addition, they have been used in local curriculum development in individual enterprises in order to construct learning projects for trainees that encourage the development of skills which will be of use in future settings.

While key skills in the English system share policy aims with the German key competencies – namely to provide skills which enable learners to cope with increasing complexity in work tasks (Mertens, 1974; Levy, 1986) – the German approach contrasts strongly with key skills in England, both in terms of the skills identified and the way in which they are used in education and training settings.

In England, the key skills have been defined as comprising six areas: application of number; communication; information technology; improving own learning and performance; working with others; and problem solving – all defined separately at five levels of performance.

In the early 1990's, these were drawn up into unit (module) specifications, using the model for units/modules, which was then operating for National Vocational Qualifications (NVQs) (Oates, 1991). While at that time there existed a wide range of initiatives from different bodies (such as the BTEC Common Skills; the CPVE core modules; CGLI general skills), Government work on core skills was underpinned by research-based concepts of 'skill transfer' (Annet, 1989; Annet & Sparrow, undated; MSC 1985). The Manpower Services Commission (MSC) work-based learning core skills – 103 skills in 14 groups – were based on principles of transfer drawn from transnational comparative work (e.g., of Art De W. Smith's North American work on generic skills), and skills derived from empirical analysis focusing on common components of a wide range of training materials (Brown, Evans, & Oates, 1989). The MSC core skills failed to gain currency, but the underlying principles were imported into the later development of the NVQ core skills units, initially incorporated into General National Vocational Qualifications. From this base, the units were adopted more widely across the education system, after being strongly endorsed by the Dearing Review of 16–19 year olds' qualifications (Dearing, 1996), being incorporated in the curriculum framework for Modern Apprenticeships, and emphasised in the bulk of Government policy aimed at reform of the education and training system.

3 Methodological Problems Afflicting Key Skills

There are three deep methodological problems afflicting the key skills units in England. I shall take each of these in turn.

3.1 Inadequate theorisation in relation to skills

The first deep problem relates to inadequate theorisation in relation to the six specific skills chosen (Wolf, 1991; Oates & Fettes, 1997). The selection of the six areas was led more by consensual discussions amongst policy bodies than by research-based inquiry. The discussions failed to distinguish between:

- *Commonly occurring skills*: those skills that happen to occur frequently across activities in different education and training programmes, and in different work settings. Policy statements at the time (Baker, 1989) reflected a perception that advanced education programmes lacked employment-oriented skills, and that vocational qualifications were too narrow.
- *Generic skills*: those skills that make up effective performance in a wide range of settings and can be said to explain or generate effective performance.
- *Skills of transfer*: those skills and strategies which are not themselves embedded in effective performance, but which allow a person to redeploy existing skills in new settings and to adapt to the demands of new tasks and new settings (Levy, 1986; Annett & Sparrow, undated).
- *Skills which currently are uncommon in the labour force but which are likely to be needed in future*: at the time of the launch of the national core skills initiative (1989), both information technology and competence in a foreign language were included, with the rationale that modern labour markets would need these skills and they would best be delivered as 'core skills'.

In a flurry of interest in core/key skills, lists appeared from the CBI (Confederation of British Industry, 1989), from HMI (Her Majesty's Inspectorate, 1989) and the TUC (Trades Unions Congress, 1989). These lists were developed through discussions within the bodies and from consultation exercises with educationalists and employers, rather than through empirical research on generic skill components. These appeared in addition to the frameworks and qualifications already offered by awarding bodies. As a result, the scene in 1989/90 was characterised by a large number of core/key skills listings, all jostling for position. In an attempt to rationalise national strategy, a very rapid

review by Felicity Munday and Ken Gadd – involving a brief literature review and rounds of discussions with policy makers – produced a list of six skill areas. This listing lacked theoretical underpinning and/or empirical validation, being based solely on a notion of extraction of common components from existing frameworks (Mundy & Gadd, 1990).

The next stage of work involved setting up a task group of nominated experts familiar with post-16 provision and core/key skills. The four-month project produced specifications of the core skills, using the methodology used in NVQs for the specification of occupational standards. The short time frame did not allow for original empirical work, but the group considered a very large range of existing frameworks (more than 20), research in each of the skill areas, research on generic skills and skill transfer, and undertook substantial consultation with international experts in these areas (Oates, 1992). However, the task group was unable to shift substantially from the existing listing of skills, despite unease in the team about its very mixed nature. Some changes were made in the listing:

Original areas 1990	Key skills units 1992-on
1 communications	**1** communications
2 numeracy	**2** application of number
3 information technology	**3** information technology
4 personal skills (split into two)	**4** working with others
5 problem solving	**5** improving own learning and performance
6 modern foreign language (dropped as a key skill – qualifications in this were deemed to exist already)	**6** problem solving

Table I: Changes to Skill Areas

This 1992 framework has remained intact, although the specifications have been through a series of revisions in content and layout (Oates & Fettes, 1997). The Review of Qualifications for 16–19 Year Olds (Dearing, 1996) strongly endorsed key skills in the system, but renamed them 'key skills units' rather than 'core skills units'. Since the mid-1990's, the many frameworks competing with the key skills units have for the most part decayed. The Government has adjusted public policy statements, curriculum frameworks (such as the frameworks for Modern Apprenticeships) and funding mechanisms in order to promote convergence on the national key skills units. In England, when the term 'key skills' is used, this is taken to refer to the national key skill specifications developed and maintained by the Qualifications and Curriculum Authority (QCA). The exception is Higher Education, where individual institutions frequently have developed their own specifications (Atkinson, 2001).

Of the original NCC listing of six areas, the first three were considered by Gadd and Munday to be present in all post-16 vocational and academic qualifications, and the remaining three present only in some. This listing of skills has apparent face validity, but is in fact a confused framework. The first four can be defined without undue overlap, and this is indicative of a coherent listing. It is also possible to see how these are enduring, underpinning skills

which actually help to explain the skills which make up effective performance in a wide range of settings. In contrast, information technology, however essential in contemporary society, is not a core skill like the first four. It is useful in the current state of development of the economy, but will change in form rapidly as technology changes – unlike the preceding four. In addition, it is only possible to define IT coherently as a mixture of the first four skills. Certainly, skills in IT can be described in a highly technical 'IT-specific' way, but they can best be seen as a context-specific application of skills in *problem solving, communication, personal skills* and *application of number*. *Modern foreign language* is different again. It is not possible to define competence in this area without simply reproducing the framework, which is present in the *communication* core skills units. In a sense, the language units are simply a contextualisation – in a foreign language – of the general skills outlined in the *communication* core skills units.

In summary, the current position looks like this:

Class 1 core skills:

Application of number, communication, working with others, improving own learning and performance: present in a wide range of activities and essential to performance in those activities. Whilst possessing some overlap (e.g., working with others involves communication), they can be defined with precision and without too much overlap. Note that the skills in *improving own learning and performance* are fundamental to learning in general, but the units currently emphasise action-planning, target-setting, and reviewing; in other words, they advocate a particular model.

Class 2 core skills:

Problem solving: different from the other core skills in that it is very close to describing effective thinking processes (cognition); all the other core skills involve effective problem solving, and it is therefore 'embedded' in the other core skills. The reverse is not true: not all activities involving problem solving *necessarily* involve written or spoken communication, nor number or IT. *Problem solving* should perhaps be thought of as more fundamental than the skills listed above, since it is essential to them all.

Class 3 core skills:

Information technology: different from class 1 and class 2; activities can be stated in a technical, IT-oriented way, but effective performance in the tasks requires effective *application of number*, *communication* and *problem-solving* skills.

Class 4 core skills:

Modern foreign language: different again, since this is simply a contextualisation of the *communication* units, but in the context of a foreign language. If there are any differences in the units then these can only be justified on the basis that there is something different required for optimisation of learning in a foreign language.

Given all of this, it could be assumed that the prime candidates for incorporation as mandatory or strongly recommended components of national education and training programmes would be *problem solving, personal skills* and *communication,* with *application of number* a close contender because of the need for learners – particularly in the context of post-16 general education programmes where students can drop all elements of maths study – to continue to develop their maths skills. However, Government emphasis has been on *communication, application of number*, and *IT*. *Working with others* and *improving own learning and performance* (the personal skills units) have been used in a wide range of schools and colleges and have been welcomed as a valuable curriculum enrichment (Fettes & Green, 1995). *Problem solving* only recently has been accredited as a unit and has not been widely used as yet.

The framework includes skills of a very different order and kind. This does not improve manageability or the communication of clear guidance about what should be done in learning programmes. Combined with the effects of the insistence on a mechanistic system of levels and concerns that some of the content does not relate to the kind of categories of skill/performance linked to adaptability, this very mixed framework may not be robust in the medium- and long-term.

In a sense, it depends on the policy intentions. If policy makers simply wish students to possess a set of useful – albeit very disparate – skills, then this framework may be adequate. If the intention is to promote adaptability, then the skills areas chosen and the strong English emphasis on assessment rather than pedagogy may need to be revised substantially (Wolf, 1991; Oates & Fettes, 1997). From the analysis of the development and implementation of key skills in the English system, we can see the importance of robust determination of the construct base for key skills.

This can be summed up relatively simply: just what *are* we talking about when we refer to 'key skills'/'key competencies':

- *A concept approximating to 'G' (general intelligence)* – i.e., fundamental to the level of sophistication in reasoning and action which a person is able to demonstrate?
- *Capabilities similar in kind to 'spatial awareness'; 'verbal reasoning'* – i.e., categories of capability which are essential to purposeful human activity?
- *Skills present in a wide range of work activities* – i.e., categories of skill which explain 'skill mix' in different work settings and enable people, by acquiring a broader portfolio of skills, to take on more complex work roles?
- *Skills which young people must acquire as 'building blocks' for later performance* – i.e., early acquisition of the skills is necessary to enable more effective later learning?
- *Skills of transfer* – i.e., specific strategies and approaches in respect of learning new tasks and of coping in unfamiliar contexts?
- *Affective dimensions* which have been neglected in previous analyses of work performance – i.e., aspects of motivation, attitude, etc.?
- *Really useful skills* – those skills required in modern economies and which not all workers currently possess?

The difference between these is not a trivial matter. Different sorts of enquiry and proof are required to validate the listings of skills which each of these gives rise to.

For example, generating a list of 'really useful skills' requires labour market analysis for skill shortages; work with employers, etc., on the changing nature of skill requirements; and consensus-oriented validation with employers, trainers, and policy makers. This has given rise to lists which include skills relating to modern languages, ICT skills, etc. (Oates, 1996). In contrast, work on skills of transfer has examined through controlled empirical trials the extent to which specific learning strategies enhance young peoples' ability to tackle unfamiliar problems, using reduced learning time or enhanced educational achievement as a measure (Adey & Yates, 1990). In developing robust frameworks of key skills/key competencies – whether for assessment or for learning – the construct base is fundamental. For curriculum analysis and development purposes, frameworks not unlike the German listing of 'key competencies' have been used – for example, in Coles' empirical analysis of the skills used in science-related occupations, (Coles, 1998). Such frameworks (see the annex for Coles' framework, derived from workers and organisations' accounts of skill content) typically are more extensive and detailed than the key skills units, since the units have focused on those elements of skill capable of being stated at five levels and amenable to criterion-referenced, outcomes-based assessment.

3.2 Defects in 'skill transfer'

The second problem relates to the concept of 'skill transfer'. As outlined above, the one thing shared between core/key skills development in different nations is an aim relating to better preparation for changing demands in work. Often this is stated as a broad concern, e.g., in the German commitment to key competencies; in other instances, it has been stated as a specific and detailed theoretical underpinning, e.g., in England, in Canada, in Spain. However, in England, the link between key skills and skill transfer has over the last decade become less prominent in policy debates on the key skills. A greater emphasis has been placed on ideas of providing learners in employment and education settings with 'essential' and 'basic' skills. Conceptual underpinning relating to transfer has become progressively diluted as the key skills units and the associated assessment model for them has been refined over the period 1992–2001. A move away from assessment in more than one context and an increase in pen and paper tests have adversely affected the English key skills' ability to make a strong claim to be assessing learners'/candidates' ability to transfer skills.

The concept of 'skill transfer' is not free of problems, and it is important to examine these in order to see whether skill transfer can operate as a robust underpinning for operational policy relating to key skills/key competencies. Certainly, lack of clarity and imprecision in the purpose of key skills/key competencies is likely to severely compromise the development of valid assessment instruments and effective learning programmes.

It is important not to confuse *credit transfer* and *skill transfer*. Skill transfer refers to the way in which individuals are able to respond to the demands of new tasks or situations. Credit transfer, however, whilst obliquely concerned with this, is primarily concerned with how one course/qualification or part of a course/qualification relates to another, thus allowing credit from one context (e.g., an FE college course) to be transferred to another (e.g., a university programme). I am concerned here with the former (which seeks to explain learning processes) and not the latter (which relates to an administrative feature of certain education systems, such as the credit transfer arrangements operating in the U.S. higher education system).

The dominant definitions of 'skill transfer' express it operationally; that is, they describe how to recognise when it has occurred rather than the mechanisms through which it occurs. In consequence we have definitions such as:

> *transfer: the benefit obtained from having had previous training or experience in acquiring a new skill or in adapting an old skill to a new situation. Normally measured as the percentage saving in time or effort for the new learning which can be attributed to previous learning.* (Annett & Sparrow, undated)

In addition, experimental work has yielded some measures which can be used to examine when transfer may or may not be occurring. Positive indicators include:

- reduction in time taken to learn a new skill/task or to adapt an existing skill to a new context (this may include a reduction in the amount of training required)
- achievement to a higher level of performance than normally shown by a learner on an unfamiliar task or in an unfamiliar context
- solution of problems in new tasks without specific training

A clearer conception of transfer can also be gained by thinking about the issues surrounding *negative transfer*. That is, where an individual's previous learning and established ways of thinking and behaving interfere *adversely* with the ability to perform in a new setting. For example, my own ability to learn how to use a new computer terminal was hampered by the fact that the function of one of the keys on the new keyboard was different from that on the computer I had been using for a couple of years. I kept on hitting the key, which, on my old machine, would move the cursor back a space. On this new machine it wiped the whole screen every time it was pressed. I was finding it really difficult to break a behaviour pattern, which previously had enabled me to perform very quickly and efficiently on the old keyboard. The important thing was that I was finding it more difficult to learn to use the new terminal than the woman next to me who had used a third type of keyboard previously. My old learning was preventing me from learning in the new setting.

Clarifying what we mean by 'skill transfer' is critical. Unfortunately, in the world of education and training there are persistent, endemic misunderstandings about what 'transfer' actually means. In fact, the term itself generates confusion. It gives rise to the notion that a skill is learned in one context – e.g., a general skill such as 'provide information in writing and by means of tables and diagrams' (Levy et al., 1989) – and then this is 'transferred' to new contexts. What's more, this conception of transfer in the past has been perpetuated by the general currency of qualifications such as degrees. It is significant that the notion that 'recruiting graduates gets you a certain type of person – you don't need to bother too much about the subject area' is being eroded by the recognition in industry that more focused selection processes are needed. Indeed, many employers now test candidates on categories of skills such as 'communication', 'critical thinking', etc., during their selection processes. They do not assume that these have automatically been developed in higher education, nor that they have been developed equally in all individuals. Of course, these testing regimes fall foul of the same objections that I have already raised in respect of frameworks of 'core skills', 'transferable skills', etc., with which we are familiar in vocational education and train-

ing: The listings of skills are poorly theorised and seldom tested in detail as to whether they genuinely identify 'transferable skills'. I explore below why this notion of 'learning to take it with you' (Hayes, et al., 1983) is defective.

Another misleading conception of transfer comes from the use of the terms 'near transfer' and 'far transfer' (Fotheringhame, 1989). The ideas surrounding these terms suggest that if a new task or situation is similar to the tasks or situations which an individual has addressed in the past, then the 'distance which the person has to travel' to become competent in the new task/situation is not great. If the new task or situation is very different, then the individual will have a great deal to learn; a 'long distance to travel'; hence 'far transfer'. But this has given rise to difficulties. It has encouraged people to think that there is a fundamental distinction between 'far' and 'near' transfer, and, perhaps worse, that the only important factors governing transfer are those relating to how similar the new task/situation is to the old task/situation. This latter misconception is compounded by some theoretical work on transfer which posits the notion of 'identical elements'. If we break situations down into different operational components – e.g., number techniques, communication elements, etc. – we can see that they have elements in common. For example, if two different jobs demand the use of a micrometer, then having learnt this in one job will help with becoming competent in the other job. Well, yes and no. This is a very atomistic approach to transfer; it takes jobs apart and then fails to see that competence in the job is actually a function of how someone puts all the different aspects of the job together in real situations. For example, the two jobs may both involve using the micrometer, but recognising *when to use the micrometer* (rather than estimating the fit of parts or relying on automated quality control systems) may be far more significant and may prevent someone from performing effectively in the new setting.

Compounding the confusion and reinforcing misleading conceptions of transfer, the term 'transferable skills' is certainly gaining ground. This implies that some skills are transferable and some skills are not. It reproduces the 'common sense' view of transfer, strengthened by the term itself. But this is a very static notion of skills: you learn them and then 'redeploy' them in new settings. There is evidence that this falls far short of an adequate explanation of transfer.

We need to revisit the original definition of transfer presented above:

> *transfer: the benefit obtained from having had previous training or experience in acquiring a new skill or in adapting an old skill to a new situation. Normally measured as the percentage saving in time or effort for the new learning which can be attributed to previous training.* (Annett & Sparrow, undated)

We can now see that this definition contains very different elements. It defines transfer in terms of an observable function: *the benefit obtained from having had previous experience in acquiring a new skill*. This says nothing about the mechanisms of transfer; it tells us how we can detect it once it has occurred. But the next part of the definition makes a much stronger claim, that benefit can be obtained from *adapting an old skill to a new situation*. This reinforces the notion that *adaptation* is a very important component of transfer, something endorsed by Piaget's model of effective performance.

We find in Piaget's model a far more powerful explanation of what occurs every time we face a new task or situation, one that erodes the 'common sense' notions of transfer and 'transferable skills'. He asserts (Boden, 1979), that effective performance and learning emerge from an interaction between our existing skills, constructs, etc., and a new task or situation. Every instance of performance – even in very routine work – gives rise to learning, since our skills and strategies are based on partial, imperfect views of the world. When we use our existing skills and strategies, we will find that they do not work in their entirety, they do not always correspond exactly to the demands of the tasks/situation. If we want to perform effectively we will need to modify – often very subtly – the strategy or skills we use. It may involve such things as using a tool in slightly new way or deliberately thinking through how to present the ideas in a research report in a coherent way. Transfer and, I would argue, *learning* thus involve *conflict*. This conflict centres on the disparity between our existing skills/strategies and the demands of tasks/situations.

This conception of performance and of learning is reinforced, of course, by the general importance we attach to a person's 'experience', even in very routine jobs. It's not that s/he has repeatedly done exactly the same thing over and over again in a job; rather, a real day-to-day job presents us with subtly changing demands, with interspersed crises and contingencies.

Of course, this then begs the question of 'when is a situation a new situation?'. The answer is actually quite simple: every situation we face is in some way or another different and new. Some of the differences may be trivial, some may be significant – and the significance of these differences can vary from person to person (Wolf, undated). So, all of this gives us quite a different view of transfer. It's quite different from the 'common sense' notion of transfer, in that rather than being centred on the idea of 'transferring' something (a skill) from an old situation to a new one, it gives the view that every new situation involves *changes* or *adaptation* of our existing skills and constructs. The extent of that change and the way we manage that change thus determines the extent and the speed with which we can learn to perform in that new task/situation. Piaget's model emphasises that effective performance is a function of (dialectical) interaction between (i) the existing skills strategies, constructs, etc., of the individual and (ii) the features of the new situation/task which faces her/him.

In contrast, both the idea of 'near/far transfer' and 'identical elements' throw the focus away from the individual and onto the situation he or she is in. Wolf gives us a more sophisticated and powerful view, showing us that whilst transfer goes on all the time in both trivial and complex settings, it can break down suddenly and unexpectedly for certain people in certain circumstances. A person can be confronted with a 'new' task which is in fact very similar to one s/he has successfully performed in the past, but despite the 'obvious' similarities between old tasks and the new, they are unable to perform effectively in the new setting. For example, Wolf outlines a case where a group of young learners was given two examples of an 'identical' addition sum involving exactly the same numbers. But the facility of the group changed markedly when tackling the second sum; even though the same numbers were involved. Why? Because the numbers in the second sum were arranged horizontally rather than vertically. This was enough to disrupt some individuals' performance but not others'. Thus, Wolf's question: 'What makes the same problem different' is a critical one (Wolf, op. cit.). And her work shows that the answer lies not just with the characteristics of the situation, but includes:

- the relation between (i) the demands of past performance, and (ii) the demands of the performance in the new task/situation
- the links which an individual makes (consciously and unconsciously) between the past task/situation in which s/he was competent and the new task/situation, that is, the extent to which s/he recognises (i) that this is a context in which existing skills, plans, strategies, concepts, bodies of knowledge, etc., can be used to good effect, and (ii) that new learning is required in key areas
- affective dimensions such as motivation, confidence (linked to incentives rewards, disincentives, etc.)

There is a sense in which any task we tackle is a new task, even the most mechanical and mundane. Aspects of the task can vary so that it requires us to adapt our approach, with the ever-present possibility that our ability to adapt our skills may not be successful, leading to a breakdown in performance in the new task.

The conclusion is this – that if the concept of 'skill transfer' is to be retained at the heart of 'key skills' or 'key competencies', the concept of transfer needs to be modified. It should be viewed as a process of *adaptation* of existing skills in order to perform in a new, unfamiliar context, rather than a process of transfer of existing skills. The term 'adaptability' is thus more robust than the term 'transfer'.

Elsewhere (Oates, 1996) I have also argued that '...there is a considerable body of research (Mayer, 1977, pp. 369–388; Neufeld & Barrows, 1974, pp. 1040–1050; Newble & Clarke, 1986, pp. 267–273) that indicates that transfer/adaptability is facilitated by some particular teaching and learning strategies and not by others.' The claim here is that different learning strategies result in qualitatively different learning outcomes. Some learning strategies are good at promoting short-term recall and rapid learning, whilst others are good at promoting transfer and "deeper learning".

The more effective learning strategies include:

- using a wide range of contexts in which strategies and skills are acquired and practiced
- inductive rather than deductive processes, e.g., examples followed by rules (theory) rather than rules (theory) followed by practice (although Boreham (1989) suggests a rather more sensitive sequencing of theory and practical components)
- problem-based learning contexts where the problems are 'integrated' rather than broken into discrete, artificial elements
- encouragement of self-directed learning and self-reflection on learning styles

Neufeld and Barrows (1974) and Newble and Clark (1986) also argue that these strategies not only result in 'deeper learning' and increased facility for transfer/adaptability, they also increase motivation and autonomy in learning.

Using the notion of 'adaptability' as a criterion, educational innovations which successfully have secured transfer/adaptability in learners [problem solving approaches to GCSE maths (Boaler, 1998), cognitive acceleration in science (Adey & Yates, 1990), US and antipodean medical education (Newble & Clark, 1986)] do not necessarily use a listing of key skills/key competencies. They secure transfer/adaptability but without the use of key skills frameworks (Oates & Fettes, 1997).

The implications of this are serious. It lends greater strength to the arguments of those who advocate pedagogy and not assessment as the principle focus for promotion of effective development of transfer/adaptability amongst young people and adults (Bresciani, Clematide, & Oates, 2000).

3.3 Development of assessment processes

This leads into the third problem: the development of valid, reliable, and manageable assessment processes. If transfer (adaptability) is retained as the underlying focus of assessment and learning associated with key skills, then there still remain options related to assessment techniques, but these options are heavily determined by exactly what kind of transfer we are interested in.

Working with ratio provides an example. This is a common mathematical technique which is crucial in a range of occupational settings, including sectors such as the agricultural industry (e.g., working with agro-chemicals) and medical care (e.g., dispensing drugs) (Howson & McLone, 1983; Pirie, 1984).

A knowledge-based test can be used to assess a person's *understanding* of the principles of ratio, asking for an explanation of ratio, how it is expressed (e.g., 12:1), etc. This does not assess the person's ability to work with ratio, so knowledge-based tests typically ask for some working with ratio in order to see whether the principles can be applied by the person, rather than the knowledge of ratio being simply reproduced. *Operational understanding* of the principles of ratio is thus invoked through the test. Crucial here is the *context, number of contexts*, and *extent of context variation* which such a test involves.

Context variation lies at the heart of transfer (adaptability). Test context can range from 'simple' working with ratios, e.g., numbers not rooted in any real-life problem, to a test item which is dense with real-life information. With 'dense' items, the person has to understand how to handle the information in order to extract the required information, turn the problem into one which can be tackled using ratio (e.g., 'mathematise' a practical problem), work on the now mathematically-expressed problem, and then turn the solution into a real-world solution (demathematise) (Levy, 1986). In exam test development in the 1980's in the UK, the construction of highly contextualised items was considered to be an aid to learners, making items more accessible. However, empirical work (Gipps & Murphy, 1994) showed systematic bias being introduced into tests by contextual content (often referred to as 'scaffolding'). By contrast, prior to the 1980's, many exam item writers strove to find items which would be equally *unfamiliar* to all candidates, associating this with 'fairness' (Wood, 1995). All of this serves to highlight the importance of context and the extent to which different test forms can be used in order to present the person being tested with very different requirements in terms of transfer (adaptability). Knowledge-based tests can include a range of contexts and demand that the same skill/knowledge set be used in those contexts. For example, a series of

problems relating to ratio can be set, with context systematically altered in each case in order to allow inference about the person's ability to adapt knowledge to new, unfamiliar contexts. This requires *multiple assessment*, either with a test or through a number of tests administered over time (note that it is important to differentiate level of demand from changing context. The problems focusing on ratio can be held at the same level of demand (in respect of the underlying operations relating to ratio) but with systematic change in context). Multiple testing is important. In any test using a single item approach there is of course a relationship between the contexts in which the person previously has learned and demonstrated knowledge/skill and the context demanded in the test. However, the proximity of this relationship is unknown to the test developer and anyone making an inference from the test result. The context in the item (a calculation of ratio) may be very close to the contexts in the learning programme or previous experience of the learner (and many educators of course strive to ensure that the content of instructional programmes replicates the content of the assessment (and vice versa) (Heubert & Hauser, 1999) – or it may not be close at all. However, if multiple occasions are used in the assessment, context can be varied systematically, to trace the way in which a person is able to transfer/adapt skills and knowledge, and where breakdowns occur.

So far, I have discussed this entirely in the realm of knowledge-based testing using pen and paper tests (or electronic equivalents). In vocational assessment in the UK during the 1980's and 1990's, the drive was towards performance-based assessment (Jessup, 1991; Wolf, 1995) in work contexts. The notion which lay behind this was that while an agricultural worker may be able to demonstrate knowledge of ratio in a written test, it is another matter to actually work with ratio in managing bulk chemicals under operational conditions, which can include intense time pressures, in difficult working situations, etc. The impact of this drive to maximise the validity of assessment of key skills was very significant. Through this, transfer/adaptability was associated strongly with application of skills in real settings, under workplace stresses and strains. 'Context' in assessment under these conditions becomes more open and flexible, and – in contrast to manipulating context in formal testing – less easy to constrain in such a way as to ensure comparability of demand from one assessment situation to the next.

The history of the attempt to switch to performance-based assessment for occupational skills and 'key skills' is not a noble one. It has involved dysfunctional hostilities between different parties in the assessment research and development community (Wolf, 1995; Hyland, 1994), and severe implementation difficulties. While proponents of 'authentic' performance-based assessment promoted *validity over reliability* (Jessup, op. cit.), Government became increasingly concerned with reliability, seeing in this important issues of public confidence and fairness in assessment. While in some sectors acceptable levels of reliability have been attained (Muphy & Wilmut, 1995), practical problems and high cost have characterised development and implementation efforts: '…competence based systems are, of course, far from alone in the second major source of implementation difficulties: people. The insistence of people on behaving in ways commensurate with their own priorities and interests, rather than with those of the organisation, is hardly new…assessors and candidates alike are part of social and workplace groups which have their own imperatives, such as the need to get on well and work together. There is an inherent tension here. The person who is in theory best able to judge a candidate's performance may be the least well placed to do so effectively. The assessment does not take place in a vacuum, but within a social context…the experience of professional groups which have practiced forms of competence- and workplace-based assessment for some years suggests that, in this situation, 'objective', standardised judgements are difficult to obtain…' (Wolf, op. cit., pp. 132–3).

In respect of key skills, assessment has switched emphasis in the last decade. Initial emphasis (1992–3) was on assessment through observation of performance, with three assessment occasions used for each skill component:

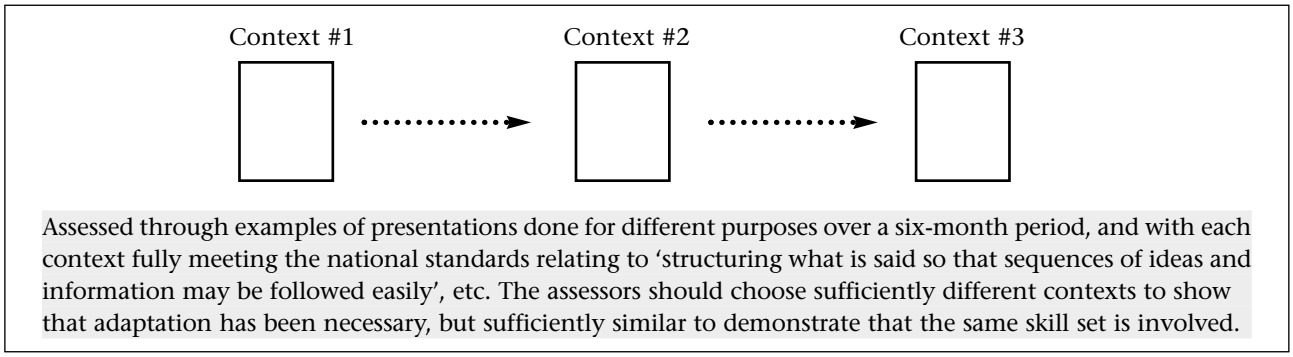

Figure I: Example – 'Making presentations'

It was held that assessing in different contexts provided a base for an *inference* (hence the dotted arrow) that skill transfer/adaptability had been demonstrated by the person being assessed. The key skills development team of 1992–4 expressed strongly the importance of more than two assessment occasions, with a minimum of three as the basis for the inference of transfer. This model was the basis of assessment in the 1992 version of the key skills units. It was abandoned in 1994 on the grounds that (i) it was too resource intensive, (ii) the content of the units had been increased and manageability thus was even more problematic, and (iii) since the assessment for key skills would essentially be based on observation of performance or gathering of evidence from learning programmes, it was insufficiently reliable in comparison with more formal testing. From 1994, multiple assessment of each component was abandoned. From 1997 on, formal (multiple choice) tests were introduced *alongside* portfolio assessment (i.e., continuous assessment through collection of evidence) for the first three key skills: *application of number; communication;* and *information technology*. The remaining three – *improving own learning and performance; problem solving;* and *working with others* – remain assessed by portfolio evidence alone.

Key skills have provided a stage on which the tensions between validity, reliability, and utility have been played out with force and complexity. The emphasis on reliability has seen the introduction of formal testing; the emphasis on application of skills in real settings has seen the retention of portfolio assessment for those elements of the key skills which are less amenable to valid formal testing, such as 'making presentations'. The cost and complexity of workplace assessment has lent credence to increased testing; the lack of validity of formal testing for some aspects of key skills has lent credence to portfolio assessment. In all of this, assessment of transfer (adaptability) has suffered, since while multiple assessment occasions are vital for managed assessment of transfer, it appears to policy makers and hard-pressed developers as just one more complexity in an already complex and hard-pressed assessment system.

3.4 Drawing out some lessons

To conclude, what emerges from this analysis that might be of significance for further development work on key skills/key competencies:

- *The importance of a secure underpinning to principal skill/knowledge areas:* There remain significant differences in the construct base of different systems – different skill listings with different rationales; lists containing very different kinds of skills. The lesson from this is that effort needs to be made to clarify with precision the construct base of each skill area which is included as a key skill/key competence and to ensure that skills are included that are consistent with the aims and purpose of policy.
- *Taking account of defects in the concept of 'transfer':* The notion of 'skill transfer' remains powerful within initiatives associated with key skills/key competencies, but is defective. 'Adaptability' is a more accurate term and better reflects the processes associated with effective performance in new, unfamiliar settings. This impacts on pedagogy and on assessment.
- *Being very clear about policy aims:* In broad strategy on key skills in the EU states, there is an absence of consensus on the appropriate balance of emphasis on assessment of skills versus development of skills. However, where pedagogy has been neglected (e.g., in the assessment-driven system within England) there is no evidence that transfer/adaptability has been secured on a widespread basis amongst learners. There should be clarity about whether a given initiative is principally concerned with (i) surveying key skills/key competencies (e.g., the ILES follow-up study on adult basic skills); (ii) assessing key skills/key competencies (e.g., the dominant approach in England); or (iii) developing key skills/key competencies in learners and workers. In the case of (i) and (ii), limitations of assessment technology quickly kick in, with constructs such as 'making presentations' (communication) and 'teamwork' (working with others) not being readily amenable to low cost or simply administered assessment/survey instruments.

4 The DeSeCo Issues

The earlier part of this paper outlined the centrality of the concept of 'adaptability' to English work on key skills. It also outlined how the emphasis, from the mid-1990's, on reliable assessment diminished the prominence of 'adaptability' as a policy aim. In particular, increasing amounts of specific content in the key skills units led to significant increase in the number of items to be assessed, with the result that in order to avoid overburden in the assessment requirements, assessment on multiple occasions was abandoned. In turn, this resulted in an

assessment approach that could no longer be claimed to assess adaptability with any validity. However, the key skills remain attractive to some tutors, teachers, and students (Hodgkinson, 2001), since they at least focus attention on skills such as communication, working with others, etc., and stimulate learning in these areas. However, the key skills remain a source of considerable concern across the education and training system, with problems focused on the complexity of assessment using a mix of structured portfolio and formal tests; the lack of clarity in the aims of key skills; and the low status which they possess in relation to academic qualifications (Matthews, 2001).

What are the implications of this for the research questions posed at the current stage of the DeSeCo programme?

4.1 Notions of competence

What do the notions of competence, key competencies, skills, etc., mean? How can these terms be clearly conceptualised and described?

Wood (1995) states that competence cannot be directly observed – it is inferred from observation of performance. The inference is conditioned principally by the number of times on which performance is observed (this can include performance in a written test as well as performance in a practical context), and the extent to which the performance can be said to exist in a causal relation with the aspect of competence in which one is interested (this is a dimension of validity – if you are interested in verbal communication then observation should focus on this rather than other aspects of communication). In addition, I have argued elsewhere (Oates, 1999) that concepts of competence underlying current outcomes-based qualifications in the UK are impoverished:

> *One of the most significant problems in the analysis of competence is a failure to recognise that 'competence' does not exist in any simple way – it is inferred through observing how an individual performs on a number of occasions in a number of settings (Wood, 1995). This problem is particularly acute in relation to key skills, which are characterised as 'generic skills which underpin performance in a wide range of settings' (Levy, Oates, Hunt, & Dobson, 1989). But this characterisation is naive and misleading (Oates, 1992). Simply because different performances in different occupational settings can be described using the same highly generic descriptions (e.g., of communication skills) does not mean that the same underlying competence is responsible. The term 'mammal' may be useful for some purposes but it does not mean that a mouse and an elephant can perform the same functions.* (Oates, 1999, p. 4)

The work of Lave and Wenger (1991) and more recent, adapted models of situated cognition (Boreham & Samurcay, 1998) suggest that the contexts in which competence is developed affect/condition the extent to which individuals are able to adapt to new contexts and demands.

> *The theory of situated cognition gives due recognition to the dependence of intellectual competencies on context, representing concepts and procedures as being constructed during activity in the workplace, and drawing on the culture of the workplace. However, it gives insufficient recognition to the development of competencies in the individual...understanding work in complex, dynamic and informated environments depends on analysing the worker's orientation, and the way in which he or she makes sense of the situation. The approach to orientation stresses that the work activity is not only functionally oriented but also aims both to satisfy the subjective needs and the conditions of cooperative work. The approach to sense-making stresses that in many flexible working situations, staff generate their own practices for dealing with crises and breakdowns in standard procedures...* (Boreham & Samurcay, 1998, p. 1)

This brings us back to concepts of adaptability. Wolf (undated) undertook empirical studies which suggest that adaptation of skills can break down in an unpredictable fashion – two individuals may appear to have the same level of competence in communication skills, but one can adapt to a particular new, unfamiliar context and another cannot. This problem led Levy and others (Levy et al., 1989) to posit a distinction between the 'skills of transfer' and 'transferable skills' – influenced by ideas of 'metacognition' (Annet, 1989). Although lodged in the discourse of 'transfer' rather than 'adaptability' (a problem explored in Oates, 1992), Levy suggested that transfer of skills of

communication, number, etc. was facilitated by the use of deliberate, conscious strategies to enhance transfer. This focused on deliberate reflection on the skills which one has and the contexts in which one has used them and developed them, as well as on the extent to which a new context resembles a context in which the skills were successfully used.

This notion of 'skills of transfer' is reinforced by three independent lines of work. Firstly, the work of Dreyfus and Dreyfus (1984), which suggests through the hierarchy of unconscious incompetence, conscious incompetence, conscious competence and unconscious competence (where the last category represents effective, competent professional performance) that conscious reflection on performance is an important transitionary phase in the development of competence under new contextual demands. This has implications for assessment which I address later. Secondly, the work of Adey and Yates (1990) on Cognitive Acceleration in Science Education (CASE) suggests that performance in science can be enhanced through the use of deliberate strategies such as 'bridging' ('…how does this new problem resemble old ones which you tackled…') and 'dissonance' (posing problems which cause tensions and contradiction on existing conceptual frameworks but which represent a realistic challenge). But crucially, they argue that this also leads to an improvement in subjects other than science – i.e., the learners have acquired general strategies which encourage adaptation of skills/learning. Thirdly, the work of Boaler (1996) on effective learning in mathematics reinforces Adey's propositions, that certain questioning approaches used by teachers can enhance adaptability, enabling learners to tackle unfamiliar tasks more effectively.

This carries important implications for conceptualisation and assessment of both competence and key skills:

- Competence is a product of the interaction of the skills possessed by an individual and the context(s) in which they are (expected to be) operating in; scrutiny of the 'characteristics' of the individual alone is insufficient to explain effective performance in a range of settings.
- Dispositional states (affective components) affect competence and adaptability, with conscious and unconscious components operating in different settings. The fact that conscious deliberation (skills of transfer/metacognition) appears to enhance adaptability suggests that assessment of knowledge may be appropriate (as a predictor) in assessing adaptability, whereas assessment of knowledge operates as a poor predictor in assessing occupational competence in settings where 'unconscious competence' marks out the skilled professional.
- Learning strategies (learning habits) are crucial in enhancing and supporting skill transfer/adaptability, and that programmes which emphasise assessment and ignore learning approaches stand far less chance of success at enhancing skill transfer/adaptability amongst learners/workers (Oates & Fettes, 1997).

4.2 Competence, human action and society, and the issue of measurement

What ideas about the nature of human beings and society should serve as a starting point for the definition of competencies and the selection of key competencies? What are the underlying normative criteria?

Which potential approaches could be used for eventual measurement and assessment of key competencies?

The majority of frameworks of key skills in the EU and US have been derived through consensual processes involving consultation, discussion, and intensive meetings (Oates, 1996). There are profound limits on the extent to which these can be considered to be valid, even where experts in specific fields were included in the processes. However, there are exceptions, which have been derived through empirical processes. These include: Art De W. Smith's generic skills (1979), based on extraction of common components of occupational specifications; MSC/ESF core skills (1983–1989), based on analysis of training materials, using a taxonomy of skills to identify commonly occurring components; and London into Work (1978–81), based on a study of 1,000 occupations. However, information on components of competence is increasingly being derived through specific empirical studies which are not directed in any explicit way at the issue of key skills.

These include studies of:

- learning difficulties and problems experienced by school children; patterns of learning in subjects such as science, maths, etc. (Johnson & Murphy, 1986)
- individual job roles, occupations, etc., by occupational psychologists. Work in medicine into the performance of medical professionals and medical teams (Boreham, 1998) is typical of this kind of study.
- breakdowns, errors and accidents in industrial contexts (Rasmussen, Duncan, & Leplat, 1987)

Although these studies throw considerable light on specific dimensions of competence, they are disparate – both in function/purpose and method. The English key skills initiative (1990–current) attempted to access this literature and base its analysis of necessary skills on the extant literature on the components of competence associated with adaptability. However, while this marks an attempt to move away from a purely 'common sense and consensual' approach to defining key skills, it was compromised by an overall framework of key skills (communication, problem solving, etc.) and a requirement for five levels of attainment imposed on the development work by politicians (Oates & Fettes, 1997).

While consensus may be essential for the effective implementation of a framework of key skills – just as it is for any radical innovation – a consensual approach to development has tended to produce poorly theorised frameworks which stand little chance of long-term success.

Analysis and critique have brought us to an increased understanding of the way in which skill transfer/adaptability can be theorised (Oates, 1992). It has developed an understanding of the importance of the shape, content, and processes of learning programmes which can enhance adaptability (Oates, op. cit.). They have also pointed out the limitations of existing assessment regimes, including the tests developed in the UK and in Australia. What has been missing from the development work on key skills has been a classic test design approach, informed by psychometrics. This is not to argue for an undue focus on assessment, since I have argued elsewhere that less attention to assessment would enhance the development of effective learning/development programmes (Oates & Fettes, 1997). However, if the aim is to survey key skills, a classic design approach has merits.

No programme to date has adopted the following:

- Identification of characteristics of adaptable workers/learners
- Identification of a population possessing these characteristics and a population not possessing them
- Identification of features which differentiate the populations
- Development of test items which test with validity and reliability the differentia
- Piloting and validation of instruments in a wider population

This approach has tremendous merits. The tests of differentia may emerge as very economic tests, not needing to test each and every dimension of key skills, a factor which has been such a handicap to the assessment of key skills in the UK.

In all cases to date, which the author has examined, the frameworks have been compromised by consensual approaches. Assessment has tended to be viewed as an 'add-on', with considerable urgency and expediency attached to the development of items, tests, and test arrangements. It is important to recognise, however, that carrying through such a programme does require time and resources. It is an ambitious programme, which must meet high standards in respect of science and enquiry. However, bearing in mind that the key skills in the UK have struggled for 10 years to gain currency and credibility, and that the assessment system continues to manifest lack of confidence and technical quality, it is arguably far more prudent to spend time developing valid instruments at the outset than to struggle to shore up defective instruments.

4.3 Different disciplines, different fields versus integrated performance

How can the perspectives of different academic disciplines contribute to the understanding and construction of a set of competencies that are considered indispensable for individuals to lead a successful and responsible life and for a democratic society to face the challenges of a changing and often conflictual world?

Which competencies are necessary for acting in different fields of life—including economic, political, social, and family domains, etc.?

To what degree do competencies operate independently or as an interdependent set? How do they relate to each other?

Is there a significant amount of overlapping between sets of key competencies across different environments? Recognizing the heterogeneity of scientific approaches and processes, to what extent should that heterogeneity be taken into account?

There has been considerable challenge to the notion that the traditional academic disciplines represent genuine demarcations in the structure of knowledge. There have been a number of significant efforts to design classifications of enquiry, experience, and knowledge which posit new classifications based on more rational principles – and in doing so imply that existing demarcations are historically derived constructs:

- in the UK, the work of Her Majesty's Inspectorate from 1977–1983 on 'eight areas of experience' (Her Majesty's Inspectorate, 1977)
- the work of Paul Hirst (Hirst, 1974) on seven forms of knowledge
- the work on themes in the English school curriculum (National Curriculum Council, 1989)
- in Finland, the new primary school framework which emphasises forms of enquiry and integrated explanation and experience

The work of Sternberg and Wagner (1986) challenges not only the existing Western classifications of skill and knowledge but also argues that integration of knowledge and of skills is essential for effective practical action (practical intelligence), while Thorndike (1920) and more recently Goleman have asserted the importance of 'social intelligence' and 'emotional intelligence' (Goleman, 1995; Williams, & Sternberg, 1988). Whilst challengeable in its detail, these latter acknowledge that individuals' competence does not only exist in relation to external objects and conditions which they transform through labour/action, but also exists within a social context. This is acknowledged in the more sophisticated work on 'work process knowledge' to which I have referred elsewhere in this report (Boreham & Samurcay, 1998).

The DeSeCo questions raise a critical issue in this area. The questions on 'a successful and responsible life' argue for a listing of skills which are embedded in specific cultural contexts and in a specific phase of historical development – 'respect for property' means something very different in Western capitalist economies as compared to middle-Asian communal economies. Such a view of key skills aligns with notions of situated cognition. However, the question of whether key skills can be identified which are independent of such contexts implies a notion of 'root competence'; i.e., components of effective performance which are the building blocks of situated competence – the 'generative elements'. These are 'generative' in the sense that they are the elements in terms of which one can explain effective performance in a wide range of settings. One class of such elements, elements such as 'verbal reasoning', 'spatial awareness', etc., (e.g., Zusne, 1970) has already been identified in mainstream psychology and is too often neglected in work on key skills. However, if the purpose of key skills is strongly associated with the notion of 'adaptability' – central to notions of lifelong learning and the way in which competence is developed in new, unfamiliar settings – then the set of characteristics and skills may be a new area of 'root competence' which can explain adaptability in a wide range of settings. As I have emphasised, an incisive empirical programme of the characteristics of those who have demonstrated adaptability has not yet been completed. Existing programmes of key skills have worked outwards from a framework of skills in order to try to stimulate adaptability rather than working back from observed adaptability to identification of 'generative elements'. This is new territory, and well worth exploring.

The issue of heterogeneity is a crucial one. I have outlined elsewhere (Oates, 1999) that the development of NVQs (National Vocational Qualifications) in England relied on assumptions that value-neutral, highly generalised descriptions of occupational competence could be developed. Despite being in existence for nearly fifteen years, there have until recently been no empirical studies examining how gender and other bias may be generated by the form of the descriptions. This is highly relevant to the development of key skills descriptors. Such descriptors are:

- linguistically based – and thus subject to the problems of the value-ladeness of language
- generic – and thus require contextualisation and interpretation by learners, assessors, etc.
- partial – and thus describe certain aspects of performance and not others

The bias that this inevitably entails requires care in the development of the descriptors (arguing for a sound theoretical and empirical basis to the programme of development of the kind I have outlined in this paper) and continual monitoring of the impact of the assessment/learning programmes which result from the identification and implementation of any framework of key skills. Both of these aspects have suffered from neglect in prior initiatives. The most significant problem – as I outline in my criticisms of NVQs (Oates, 1999) – is ruling inadmissible certain forms of effective performance because they are effective but gendered or culturally bound ways of performing/behaving, at odds with the dominant representation of performance/behaviour in qualifications or national specifications.

4.4 Key competencies independent of culture and age

To what extent is it possible to identify key competencies independent of culture, age, gender, status, professional activity, etc.?

The upshot of the work on situated cognition (Lave & Wenger, 1991) and workprocess knowledge (Boreham & Samurcay, 1998) is that while key competencies can be identified and described as discrete components (communication, problem solving, etc.) and that these can be identified as being developed to different degrees in different people, the measurement of these components in individuals does not yield information which enables reliable prediction of the extent to which an individual will be able to apply knowledge and skills in new contexts (adaptation). It is therefore possible to define key skills independently of culture, age, gender, status, professional activity, etc., but such abstracted descriptions of the components of competence fail to engage with the extent to which competence is enmeshed in context, and the competence of individuals is conditioned by the 'personal history' of the contexts in which they have performed.

Two examples throw into sharp relief the role of context. In the area of communication, certain processes are acceptable in some cultures and not in others – yet a generalised statement of communication skills fails to distinguish between the behaviours required in different cultural settings. For example, a crucial communication skill (included in a number of frameworks) is 'obtaining information from others through questions'. In Northern Europe and the US, it is entirely acceptable to ask people in the streets a direct question: 'How do I get from here to the bus station'. In Tanzania, this would be construed as offensive, lacking the necessary preamble asking how the person is, how things are going, etc., before asking a direct question. Both can be described using a general statement of communication skills. But the fact that both can be described using the same general statement conceals the fact that the 'communication performance' required in the two settings is very different, with ability in one being a poor predictor of ability in the other. In the area of problem solving, work by Johnson and Murphy (1986) suggests that enquiry and problem solving strategies used by women in scientific activities can be markedly different from those used by men. These differences are not reflected in statements of national standards (Oates, 1999), with some qualifications displaying homocentric descriptions of activities – potentially excluding some (equally effective) ways of approaching tasks. Seemingly neutral descriptions of competence are thus loaded with bias.

If the predictive power of existing assessment processes based on key skills is low, is there any point in developing listings of key skills? The answer is 'yes', since feedback from learners indicates (Hodgkinson, 2001; Levy, 1986) that the listings of skills helps with the process of *conscious reflection* on further development of the skills and on processes of adaptation.

4.5 Relevance to policy makers

What is the relevance of emerging ideas on key competencies to policy makers, including the development and interpretation of indicators designed to reflect competencies among the population? How could these issues be addressed and developed by future research?

Policy makers in Europe in particular have demonstrated a sustained enthusiasm for key skills. However, despite sustained development effort over fifteen years there has yet to be mass implementation of effective systems. This is an interesting socio-political phenomenon. Key skills have an allure to policy makers – analysis of speeches and statements suggests that key skills are an attractive construct because they hint at fundamental aspects of competence rather than a confusion of competing disciplines, complex occupational descriptions and increasingly disparate sub-disciplines. The attractiveness of this simplifying potential was captured in Alison Wolf's title to her attack on key skills '*Wisdom or Wild Goose Chase*' (Wolf, 1991). The work of Hirst and HMI referred to above, and the analysis I have presented suggests that there is room for conceptual ground-clearing in order to develop a new map of 'generative elements' relating to adaptability. Alongside this, there is evidence that programmes of learning directed towards adaptability have produced beneficial outcomes for learners (Adey & Yates, 1990; Hodgkinson, 2001). In addition, study of the multiplicity of qualifications and subjects in the English qualifications system suggests that the heterogeneity of competence is in many cases illusory (Coles, 1998); the same aspects of performance are described in different language – due to the occupational specificity of some descriptions, or the fact that different agencies developed different qualifications relating to the same area. Thus, the policy makers' concerns for a 'rationalising instrument' in key skills is perhaps not misplaced. However, developing and implementing an effective framework has, to date, proved elusive.

4.6 The role of social institutions

What is the role of social institutions in transferring competencies to the population?

As I have outlined, adopting a consensual approach to the development of key skills has proved difficult. I have offered an alternative programme for the development of a robust framework. As I mention above, dissemination and national implementation require careful construction, with levels of staff development which have been absent from current initiatives (Matthews et al., 2001). Key skills have a complex theoretical underpinning – where implementation in England has been successful, it has been in contexts where teachers, trainers, and learners understand the underpinning principles (Oates & Fettes, 1997). If the emphasis in policy is on increasing the adaptability of workers/learners and not simply on measurement of the extent to which key skills are possessed by a population, then the shape, content, and processes of learning programmes must not be neglected. As my analysis with Fettes shows (Oates & Fettes, 1997), there are examples, albeit restricted and dispersed, of excellent practice in learning programmes which stimulate adaptability. If the emphasis is solely on measurement, an incisive programme of development of instruments – based on sound psychometric principles – is required. To date, insufficient attention has been paid both to the former (learning programmes) and to the latter (robust assessment instruments) in most national contexts.

5 References

Adey, P., & Yates, C. (1990). *Better learning – A report from the Cognitive Acceleration through Science Education (CASE) project*. King's College, London.

Annet, J. (1989). *Training in transferable skills*. Manpower Services Commission.

Annet, J., & Sparrow, J. (undated). *R&D #23 Transfer of learning and training*. Manpower Services Commission.

Atkinson, A. (2001). *Key skills developments in HE*. Doctoral dissertation in progress, Brighton University.

Baker, K. (1989). Speech to the Association of Colleges of Further and Higher Education. Her Majesty's Stationery Office.

Boaler, J. (1996). *How valuable is international test success?* King's College, London.

Boaler, J. (1998). Alternative approaches to teaching, learning and assessing mathematics. *Evaluation and Program Planning*, 21(2), 129–141.

Boden, M.A., (1979). *Piaget*. Sussex: Harvester Press Limited.

Boreham, N. (1989). *Modelling medical decision-making under uncertainty*. Department of Education, Manchester University.

Boreham, N. (1998, October). *Competence in the medical and health care professions*. Paper presented to UEA/QCA seminar, Capturing the essence of effective performance.

Boreham, N., & Samurcay, R. (1998, December). *Models for the analysis of work competence: a critical review*. Paper presented at the WHOLE conference, Sienna, Italy.

Bresciani, P.G., Clematide, B., & Oates, T. (2000). *Qualifications, competencies and learning environments for the future*. CEDEFOP.

Brown, A. (1998, June). *Designing learning programmes in vocational education and training to promote transferability*. Paper for COST A11 framework for European collaboration on research in vocational education, University of Twente.

Brown, A., Evans, K., & Oates, T. (1989). *From rhetoric to reality – Final report of the evaluation of the MSC Core Skills Project*. Manpower Services Commission.

CBI (Confederation of British Industry) (1989). *Towards a skills revolution*. CBI.

Coles, M. (1998). *The nature of scientific work – A study of how science is used in work settings and the implications for education and training programmes*. Unpublished doctoral dissertation, Institute of Education, University of London.

Dearing, R. (1996). *Review of qualifications for 16–19 year olds*. School Curriculum and Assessment Authority.

Dreyfus, H., & Dreyfus, S. (1984). Putting computers in their proper place: Analysis versus intuition in the classroom. In D. Sloan (Ed.), *The computer in education: a critical perspective*. Teachers' College Press.

Ertl, H. (2000). *Modularization of vocational education in Europe*. Symposium.

Fettes, P., & Green, S. (1995). *Evaluation of the NCVQ Personal Skills units*. National Council for Vocational Qualifications.

Fotheringhame, J. (1989). *Summary of the proceedings of an invitational seminar on transfer*. Warwick University.

Funnell, P., & Muller, D. (eds.). (1991). *Vocational education and the challenge of Europe. Responding to the implications of a single European market*. New developments in Vocational Education. Kogan Page.

Gipps, C., & Murphy, P. (1994). *A fair test? Assessment, achievement and equity*. Open University Press.

Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.

Green, A. (1991). *Education and state formation: The rise of education systems in England, France and the USA*. Macmillan Academic & Professional.

Her Majesty's Inspectorate. (1977). *Curriculum 11–16 working papers: A contribution to current debate*. Her Majesty's Stationery Office.

Her Majesty's Inspectorate. (1989). *Post-16 education and training; core skills*. Her Majesty's Stationery Office.

Hirst, P. (1974). *Knowledge and the curriculum*. Routledge and Kegan Paul.

Heubert, J., & Hauser, R. (1999). *High stakes*. National Academy Press.

Hodgkinson, L. (2001). *Key skills – Making connections report for Higher Education Funding Council for England*. Open University.

Howson, G. & McLone, R. (Eds.). (1983). *Maths at work: Appreciating the uses of mathematics*. Heinemann.

Hyland, T. (1994). *Competence, education and NVQs*. Cassel.

Jessup, G. (1991). *Outcomes*. Falmer Press.

Johnson, S., & Murphy, P. (1986). *Girls and physics: Reflections on APU survey findings*. Department of Education and Science (APU occasional paper).

Lave, J., & Wenger, E. (1991). *Situated learning – Legitimate peripheral participation*. Cambridge University Press.

Levy, M. (1986). *Work based learning – tools for transition*. Further Education Staff College.

Levy, M., Oates, T., Hunt, M., & Dobson, F. (1989). *A Guide to WBL terms: Definitions and commentary on terms for WBL in vocational education and training*. Bristol: Further Education Staff College.

Matthews, A. (2001). *Evaluation of curriculum 2000 Sept 2000 – July 2001*. Qualifications and Curriculum Authority.

Mayer, R. (1977). The sequencing of instruction and the concept of assimilation to schemata. *Instructional Science, 6,* 369–388.

Mertens, D. (1974). Schlusselqualifikationen. *Thesen und Schulung fur eine moderne Gesellschaft, Mitteilungen aus der Arbeitsmarkt- und Berufsforschung 77*, 36–43.

MSC (Manpower Services Commission). (1984). *The New Training Initiative*. MSC.

MSC (Manpower Services Commission). (1985). *Transfer: A computer literature search*. MSC.

Mundy, F., & Gadd, K. (1990). *Core skills*. National Curriculum Council.

Muphy, R. & Wilmut, J. (1995). *Reliability and validity in NVQ assessment*. University of Nottingham.

National Curriculum Council (for England and Wales) (1989). *National Curriculum Orders*. Her Majesty's Stationery Office.

Neufeld, V.R., & Barrows H.S. (1974). The 'McMaster philosophy': An approach to medical education. *Journal of Medical Education, 49*, 1040-1050.

Newble, D., & Clark, R. (1986). The approaches to learning of students in a traditional and in an innovative problem-based medical school. *Medical Education, 20*, 267–273.

Oates, T. (1991). *Developing and piloting the NCVQ core skills units*. National Council for Vocational Qualifications.

Oates, T. (1992). Core skills and transfer – Aiming high. *Educational and Training Technology International*, 29(3). Kogan Page.

Oates, T. (1996). *The development and implementation of key skills in England*. National Council for Vocational Qualifications.

Oates, T., & Fettes, P. (1997). *Key skills strategy paper*. Qualifications and Curriculum Authority.

Oates, T. (1999). *Analysing and describing competence – Critical perspectives*. Qualifications and Curriculum Authority.

Pirie, S. (1984, July 12). Calculating the risks. *Nursing Standard*.

Rasmussen, J., Duncan, K., & Leplat, J. (Eds.). (1987). *New technology and human error*. New York: John Wiley & Sons.

Smith, A.D.W. (1979). *Generic skills. Keys to job performance*. Ottawa, Ontario, Canada: Canadian Commission of Employment and Immigration. (ERIC Document Reproduction Service No. ED 220 578).

Sternberg, R.J., & Wagner, R. K. (1986). *Practical intelligence – nature and origins of competence in the everyday world*. Cambridge University Press.

Thorndike, E.L. (1920). *Intelligence and its uses*. Harper's Magazine, 140, 227–235.

Trades Unions Congress. (1989). *Skills 2000*. TUC.

Williams, W.M., & Sternberg, R. J. (1988). Group intelligence: Why some groups are better than others. *Intelligence*, 12, 351–377.

Wolf, A. (undated). *What makes the same problem different?* Conference paper. Institute of Education.

Wolf, A. (1991). Wisdom or wild goose chase. *Cambridge Journal of Education*, 199, 189–201.

Wolf, A. (1995). *Competence-based assessment*. Open University Press.

Wood, R. (1995). *Assessment and testing*. Cambridge University Press.

Zusne, L. (1970). *Visual perception of form*. Academic Press.

6 Annex – Framework of Skills from Coles' Analysis of the Skills Requirements of Science-related Occupations

General Skills

Comprehension

checking validity of information, *application, practical*
integrate knowledge from different sources, *practical, application, synthesis*
note taking, *application, practical*
selecting relevant sources, *application, practical*
selection / abstraction of information, *application, practical*
understanding information, *application, practical*
using information sources – literature, *application, practical*

Environment

conservation, how human activity affects the environment, issues relating to industrial production and conservation, structure of the atmosphere, acid rain, ozone depletion, recycling (benefits, non-benefits), waste management, *interpretation, analysis*

Ethics

applied to scientific applications, *recall*

Evaluation

ability to make recommendations, advantages and disadvantages, ability to work out important aspects, ability to discuss science, design / use of controls – understanding of role of controls, *analysis, evaluation, synthesis*

Health & Safety

risk assessment, hazards / ideas that all situations have risks / safe lab practice, *application*

Information handling

Extrapolate from data gathered and draw new conclusions, *evaluation, practical*

Information Technology

data collection and storage, *practical*
generating graphs / data displays, *practical, application*
operating systems, *application, practical*
word processing, *application, practical*

Oral communication

adapting to audience level, *interpretation, practical*
clarity of expression, *practical, application*
communicate ideas, *application, practical*
communicate information, *application, practical*
communicate problems and issues, *application, practical*
debating / discussion skills, *application, practical*
fluency – command of language, *practical, application*
presentation – one-to-one, *application, practical*
presentation to group, *practical, application*
presentation to non-experts, *practical, application*
presentation to peers, practical, *application*
presentation to seniors / tutors, *practical, application*
questioning, *application, practical*
summarise information, *application, practical*

Personal skills

appreciate own strengths and weaknesses (self-criticism), *practical*
lateral thought, *practical*
independent working, *practical*
integrity – rigour, *practical*
time-management skills, setting priorities, meeting deadlines, managing own learning, setting project goals, *application, practical*
initiative, independent action, solve problems, be pro active, take responsibility for actions, *application*
meeting deadlines, managing own learning, *application, practical*

Planning

considering all options, evaluation of opportunities, *application, practical*
modifying (review and revision of plan), *application, practical*
aims – clarity of purpose, *application, practical*
prioritising tasks, target setting, *application, practical*

Problem solving

systematic approach to problems, *practical, analysis*

Social / economic / environmental issues

applied to scientific applications, e.g.: public health, air & water quality, *application*
impact of industry on society and the environment, *application*

Team working

accepting guidance / feedback, *application, practical*
appreciation of alternative perspectives, *application, practical*
appreciation of different roles in team, *application, practical*
appreciation of strengths and weaknesses of team members, *application, practical*
co-operative working with others – with others in team, *application, practical*
diplomacy, *application, practical*
flexibility / adaptability, *application, practical*
providing feedback to others, *application, practical*
work to agreed criteria, *application, practical*
work with new and different people, *application, practical*

Written communication

clarity of expression, *application, practical*
accuracy, *application, practical*
breadth of vocabulary, *application, practical*
essay writing, *application, practical*
fluency of expression (taken to be distinct from clarity), *application, practical*
forms of written expression, *recall*
grammar, *application, practical*
handwriting skills, *practical*
layout of documents, *application, practical*
present information in required form, *application, practical*
presentation of graphs, tables & charts, images, *application, practical*
punctuation, sentence & paragraph construction, *application, practical*
spelling, application, *practical*
structure and write reports, *application, practical*
using scientific nomenclature, *application, practical*
write using discussion format, *application, practical*

Accuracy and precision

error, *application*

Algebra

indices – multiplication, division, power and roots, *application*
solving equations – up to quadratics, *application*
solving simultaneous equations, *application*
substitute, rearrange formulae, *application*

Calculus

differentiation and integration, *application*
differentiation and integration of trigonometric functions, *application*

Geometry

co-ordinates – Cartesian and polar, *application*
hyperbolic function, *application*
spatial, three dimensional concepts (areas & volumes), *application*

Presentation of relationships

graphs / charts / tables, *application*

Interpretation of relationships

graphs / charts / tables, *application*

Logarithms

bases, scales, powers, *application*

Matrices

forms, manipulation, *application*

Modelling

form and solve equations, *synthesis*

Numeracy

add, subtract, multiply, divide, percentages, ratios, *application*
order of magnitude – estimation / approximation, *application*
order of magnitude, *recall*

Statistics

measures of significance of results, *application*
regression, *application*
standard deviation, *application*
variance, *application*

Trigonometry

sine, cosine, tangent, similar triangles, *application*

Vectors

addition, subtraction – two / three dimensions, *application*

Highlights from Current Assessments

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During this symposium, we have had much discussion of theoretical and conceptual issues related to key competencies. This is consistent with the objectives that the DeSeCo Project began with more than 4 years ago. We wanted to take a break – so to speak – from the pressure to measure, and allow ourselves time to think about these issues. But it has also always been the intention of the project that its work contribute in the end to the world of indicators – that is, statistics that are relevant to a policy context, to the concerns of policymakers.

Not surprisingly, the ideas presented and discussed here are a long way from statistics, which rely on a close connection between concepts which are quite broadly understood on the one hand and measurement methodologies and data collection and analysis strategies on the other.

But DeSeCo has always also recognized the benefit of iteration between conceptual and empirical work. Each contributes to the other as ideas are exchanged among those using these different approaches to increase their understanding of competencies. The time has come in this final session of the symposium to move to the world of empirical work.

Before I mention any specifics here, it is important to recognize that during the time that DeSeCo has been working in the theoretical and conceptual arenas, there has been a considerable amount of activity on the empirical front, with new findings released during the past year or so by both PISA and the IEA Civic Education Study, the addition of a large number of countries into the International Adult Learning Study and an ongoing pilot study of ALL, the Adult Literacy and Life Skills Survey.

PISA released its first findings just this past December. Its reading literacy component reflects a conceptualization that reading literacy consists not only of understanding written texts but also includes the capacity to reflect on them, and use the texts to achieve goals, develop knowledge and potential and participate in society. Speaking to a major policy concern – even one that we have heard about in this symposium – the disparities between high- and low-performing students, PISA found that high-quality outcomes can be achieved without the cost of large disparities. Many of the countries with above-average levels of student performance were among those with the lowest disparities between top and bottom performing students. PISA also found that the impact of the socioeconomic makeup of the school on student outcomes is considerable and in some cases as large as the impact of socioeconomic background of the students themselves.

The particular challenge of developing internationally comparable assessments and indicators for competencies that vary across different societies and cultures has been mentioned by many during this symposium. The IEA Civic Education Study tackled such a topic – civic education and citizenship. Through a commitment to a national case study phrase phase and serious consensus-building process, common elements of democracy and citizenship in the participating countries were identified, instruments were constructed and scales were created. In many cases, there is no one correct answer to an item; the items and scales allow relevant similarities and differences to be identified. Among the early results is the finding that in some countries, students score higher on skills in interpreting political information than on content knowledge, while in others, notably three of the post-Communist countries, students rank higher in content knowledge than civic skills. The study also found that classroom climate predicts both civic knowledge and engagement – expressed as likelihood of voting. Generally, students have more knowledge and are more engaged in classrooms where they are encouraged to express opinions and to consider the opinions of others. In the future, data from this study can be developed into indicators for publications such as *Education at a*

Glance and be analyzed by researchers to address questions related to citizenship and civic participation. The items could also be used on other assessments.

In the area of assessment of adults, in the year 2000, a final report was published for the International Adult Literacy Survey, with results for 20 countries. IALS originally included seven countries, back in 1995. With information about individuals past school age, IALS showed for the first time in an international context that literacy skills have an impact on earnings, independent of level of education. Before this, any empirical investigations in the area of human capital were limited to measures of years of education or educational attainment. The IALS data also make it possible to look at a range of ages and show that older adults generally have lower literacy levels than younger ones, even when taking education into account. Differences in this finding across countries suggest additional analyses and, of course, speculations about related factors.

It's also clear that this interest and work extends beyond the OECD countries. For example, PISA 2000 includes four non-OECD countries and plans are to add more than 10 additional non-OECD countries in 2003. This is consistent with one of the major messages coming out of the first DeSeCo symposium – and echoed also at this symposium – that the work of defining and selecting key competencies shouldn't proceed in isolation from the world outside of the OECD countries.

During the past decade, much progress has been made in the area of developing and implementing assessments of skills and competencies that are both conceptually rich and internationally comparable, and in using the data from these assessments to produce indicators. This has been accomplished through a great deal of hard work, using different organizational arrangements, and taking advantage of a variety of research methodologies.

So, what comes next? In light of the goal of continuing to broaden the range of competencies covered by international large-scale assessments, what are some potential next steps for advancing this work?

The first concerns broadening the range of competencies covered by international assessments: Looking at the ideas put forth in DeSeCo, developments and plans in ongoing, international large-scale assessments, and current policy issues, what new areas of competence should be measured?

The second is about what steps need to be taken to get from where we are now to the assessments and indicators of the future: What strategies and methodologies are promising for contributing in the short-, medium-, and long-term to developing internationally comparable assessments and indicators? How can we maximize the potential of international assessments for enriching the depth and breadth of indicators related to key competencies?

The third turns attention to current large-scale international assessments: What empirical evidence could they provide now that is relevant to policy questions about key competencies and their role in promoting individual and social well-being? How can these indicators contribute to the policy discussion in a wide range of areas, not restricted to education? We ask the panelists not to confine their thoughts to data analyses that have already been completed – for each of these studies, the potential for addressing many more questions is quite great.

Proposal for a Strategy to Assess Adults' Competencies

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French Ministry of Education

1 Introduction

Before embarking on a process of construction of policy-relevant evaluation, comparisons and indicators, it is prudent to have some kind of answer to the following three questions.

First, is it possible to define new areas of competence which have a universal value (i.e., which would be meaningful in all contexts and situations) that are complementary with, on the one hand, the competence areas which we are attempting to measure through surveys of young people such as PISA, and, on the other hand, the competencies which we aim to assess in surveys of adults such as IALS or ALL and could be comparatively measured through a model like that of the above mentioned surveys?

In addition, if this is possible, would such measures enable us to account—even in part—for the key competencies that all adults must possess wherever they are and whatever they do in order to fulfil their personal and professional lives?

Finally, and essentially, would those measures provide policy makers with the information they need to steer lifelong learning policies at a time when our societies are undergoing swift and complex social and technological changes?

These three questions must be reviewed before even thinking of constructing surveys, which are very costly in terms of time and money, two commodities that are in markedly short supply. This preliminary reflection is all the more important as decisive progress has been made over the past decades as far as the technology of assessment is concerned. Experts in this field may well think this provocative, but it has been suggested in some circles that it has become easy to produce data which appear robust on what may turn out to be shaky ground.

2 The Difficulty of Measuring Competencies in a Specific Context

Looking at the issues aired above, it seems rather difficult to define—and even more difficult to measure—key competencies which all adults must possess to enjoy a fulfilled social and personal life, wherever they are and whatever they do and at whatever time in their lives they are.

The scientific discussions brought about by the DeSeCo Project have demonstrated that this difficulty is real. Either one opts for a definition of competence which is so general that it becomes totally abstract and refers more to a system of values than to abilities which can be measured in situations which might be regarded as universal (this then puts a stop to any chance of ending up with anything remotely operational, since values are closely interwoven with specific socio-political contexts) or one is less comprehensive in one's ambitions and is content with assessing a few specific competencies in a necessarily limited context, such as the ability to use ICTs or, more traditionally, literacy or numeracy. It becomes possible, then, to construct an operational survey as long as the situations in which such competencies are used are specified.

If it is proving impossible to find a middle way between those two extremes, it is because the competencies we are looking for do not exist in themselves; they can only be demonstrated when an individual is acting in a specific context. This can be verified when looking at the assessment of young people in PISA. One of the characteristics of

PISA is to step back from our various school curricula and the contents of the various subjects taught in our schools. Yet, the context in which the assessment process occurs with our 15-year-olds remains resolutely a school context. It is precisely because we take into account the school context that we are able to give an interpretation of the results. Indeed, numerous pieces of research have shown that the subject's performance is largely dependent on the contents of the task, on any previous training the subject may have had, on the type of strategy resorted to, and on the formal characteristics of the task.

The same holds true when attempting to measure the competencies of adults. This is why several French institutions have launched a project to assess the competencies of adults in literacy and numeracy. This will result in a household survey which will be piloted in a few months and which has been entitled "Information and Everyday Life." This title has been chosen because the assessment of literacy and numeracy will take place in contextualised situations while the interpretation of the results will be carried out bearing in mind the specific situations in which they will have been produced.

We have been able to demonstrate that the same tasks undertaken in different situations—such as work situations or job interview situations—can yield very different results.

If we think that it is essential to test competencies in specific contexts, it is because of our theoretical approaches to the question in work psychology and ergonomics and also because of the more pragmatic approaches with which we have been experimenting over the past 10 years or so in adult competencies assessment and the certification of work experience.

This is why we think that the competencies which are discussed in the DeSeCo context do not become significant independent of individuals and of the way in which they behave in a specific context and at a given time. This is the reason why competencies keep developing throughout one's life and can end up eroding or even being lost if they are not used. Likewise, we cannot be sure that a particular competence developed at a given time in a given situation can be automatically transferred to another time in another situation.

As a result, it appears impossible—in the present state of the art—to envision measuring universal key competencies and even less possible to devise a hierarchy of competencies to express on a single scale which could be used in international comparisons.

3 Implications for Policy Makers

Naturally, this does not mean that nothing can be done to provide policy makers with some kind of insight about what strategies might be implemented to promote adult competencies in a lifelong perspective.

Before outlining how this might be achieved, it must be emphasised that it would be dangerous to consider as universal the instruments that have already been devised to measure competencies in a given situation. In other words, is it possible to use the PISA instrument that has been constructed to address the issue of competencies in 15-year-olds in a school context for the assessment of adult competencies?

In our view, the answer is no.

Using the same instrument is not enough to guarantee comparability. Using the same instrument with young people and with adults will not allow one to measure how a particular competence is developed, not to mention transformed, in relation to the experience individuals have encountered and to the actions they have carried out.

If this were possible, it would run contrary to any individual assessment dynamics; it would mean that the competencies acquired at school from an early age never evolve. On the contrary, it is known that new competencies are acquired by building on previous competencies, which themselves are transformed by the ongoing integration of new competencies.

Using instruments in this way would make them less reliable and weaken whatever conclusions might be drawn when they are used in the context for which they were devised. It would also distract from an essential task: the

need to devise specific instruments to fit specific situations. This explains in part why France has always clearly spoken against items from IALS being used in PISA and will be more than dubious regarding any conclusion coming out of such a use.

Having said this, what can be done to provide policy makers with the information they have every right to expect about strategies for the development of adult competencies in a lifelong perspective?

To ensure that the answer is relevant from a policy-making point of view, it is necessary to make reference to that which characterises a specific competence and to address the issue in the context of work training.

4 Referencing the Characteristics of a Specific Competence

To make reference to the characteristics of a specific competence means taking into account the fact that this competence must be understood as the sum total of the attitudes which enable an individual to act in a given situation and at a given time, and not as a clue pointing to general competencies:

- a particular competence does not exist as such, independently of any action
- it can only be observed—and hence measured—in a specific context
- it is the merging of cognitive elements, of abilities and of relational capacities
- it is always a combination and not a mere juxtaposition of acquired elements
- it is relevant for an individual, not an organisation

Implementing measurements in the context of work training allows a review of the relevance of such training to enable a specific population to acquire the competencies necessary to act efficiently in a given situation.

It also allows for an attempt to offer a direct answer to policy makers who are forever seeking "levers for action" rather than general considerations derived from general evaluation.

Furthermore, it tries to give direct answers to employers who nowadays refer more and more to the notion of "key competencies," and whose expectations regarding this issue are constantly rising.

Finally it allows an avoidance of the risk of hiding a number of ideological choices and of behavioural norms about which there is often disagreement within each country behind the notion of key competencies. We must be aware of the risk of creating, in the name of democracy, a new form of restrictive normality.

5 For a More Limited and More Pragmatic Approach

Given the various points made above, the recommendation which we would like to put forward at the end of 4 years of challenging work in the framework of the DeSeCo Project is that we should not to attempt to measure—to compare—key competencies which are deemed to be universal in young people and adults alike, but rather to adopt a more limited and more pragmatic approach in order to try and develop instruments which:

- are specifically devised for specified adult populations (for instance, poorly qualified unemployed people, workers in industries undergoing drastic changes, jobs whose characteristics change significantly with the advent of new technologies, etc.)
- are specific to clearly defined and limited in number competence areas

Such instruments would not, it must be emphasised again, be universal in their use and would not initially be devised for international comparisons, but rather would allow collaborative studies in interested countries.

It should be possible to select types of populations whose situation is a problem for political leaders and employers and to define together the areas of competence that are necessary for these populations.

It would, therefore, be feasible in the short term to develop simultaneously in interested countries a methodology to assess the relevance of some of our systems of work training; to measure their impact in the framework of lifelong learning; and to examine what consequences this has on each educational system. By developing within each socio-economic context a common methodology, countries will be in a position to look into the possibility—in the medium term—to develop international indicators in the area of key competence.

6 Implementing the Common Methodology

In order to implement this proposal, the countries must first identify a suitable target population to which the survey would be applied, that is to say, a population which policy makers and the business community regard as particularly vulnerable, given the questions that arise in connection with its competencies in relation with the job market and economic imperatives.

France proposes giving priority to the populations of 45-year-olds and above because this population will be increasingly called upon to remain in employment beyond the present actual retirement age. In addition, they are now reaching the age when people commonly receive less continuous training. Ultimately, they will have to implement competencies that they will not always have been able to acquire during their training and/or to perform in previous employment, particularly competencies related to information and communication technology.

Second, to implement this proposal, the countries must also look at key competencies that will be necessary if this population is to efficiently fill the posts which will be offered in the context of an increased professional life expectancy, as will be the case in most OECD countries. The present population will have to take over from the highly qualified work force that is about to retire in great numbers. The perspective for the survey will need to be one of "targeted" professional competencies, rather than of "universal key competencies" valid for both the social and the professional domains, a perspective which has been refuted above.

At this point in the process, it will be necessary to resort to knowledge acquired in the field of professional competencies, or possibly to launch new research to determine the competencies necessary for the performance of jobs which are being developed or transformed, and more importantly, to look at the kinds of contexts in which such competencies will have to be implemented in order to do these jobs.

It remains to be seen whether it is possible to define competencies (in the sense used above) that can be observed and therefore measured in all professional contexts. This part of the process will probably lead to the need to complement the choice of the target population with the choice of a number of professional areas and of types of qualifications. Such choices will necessarily be policy choices and be dependent on the priorities for employment and economic policies.

Third, to implement this proposal the countries must also construct assessment tools, which will make it possible to evaluate these competencies in the chosen contexts. Finally, to implement this proposal, the countries must administer these tools to the whole or to a part of the target population. Such a method, for which the implementation schedule remains to be discussed, ties in very well with the preferred pragmatic approach.

7 Conclusion

This method seems to us to be the most likely to generate knowledge and policy information throughout the various stages of the process, rather than simply at the end of it when it will become possible to construct internationally comparable indicators. In particular, this would make it possible to envisage at an early stage detailed examinations of the various professional training policies targeted at the late 40- and 50-year-olds in the participating countries, to do this on a comparative basis, and to facilitate exchange of good practice according to population categories: workers in employment needing to change to a new job, people who have been unemployed for a long time, etc.

Closing Remarks

Heinz Gilomen, Director of Social and Education Statistics at the Swiss Federal Statistical Office, closed the symposium by highlighting what we have learned thus far regarding the definition and selection of key competencies from an international and interdisciplinary perspective, outlining some preliminary implications for comparative assessments, and offering a forward-looking perspective on DeSeCo's work.

Conclusions and Next Steps

Heinz Gilomen
Director of Social and Education Statistics
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The diversity of contributions to this symposium reflects the diversity of inputs encountered in the DeSeCo Project itself. Throughout its brief history, DeSeCo has sought to include a broad range of perspectives, not just from the academic community, but from the public policy, labor, education, and business sectors as well. Attention has also been given to the different approaches found in the participating countries. Each input has contributed a unique combination of perspective, experience, expertise, and interest that has helped to shape the goals, definitions, limitations, and potential of DeSeCo. Based on the outcomes of this symposium as well as on the research and analysis that preceded it, we are now at the point where we can establish and affirm several important guiding principles, re-evaluate what DeSeCo can and should attempt to say, and look at the implications of DeSeCo for further work.

1 Review of Project Developments

DeSeCo has its origins in the need to develop an overarching theoretical framework to guide the OECD's development of education-related indicators. As statistics related to competencies began to be included in international indicator systems – and interpreted as indicators of the quality of education in different countries – it became important to broaden the range of education outcomes beyond traditional curriculum-based competencies. In addition, prior to DeSeCo several international assessment projects on competencies were operating simultaneously but without explicit linkages. Since these projects arose from different purposes and focused on different target populations, this lack was neither surprising nor considered a shortcoming. However, as these projects continued to grow in size and scope, it was thought that an overarching perspective could provide a common frame of reference and direct their expansion in a coordinated and purposeful fashion. Moving beyond the traditional and widely accepted indicator areas, the identification of "new" competencies would need to be based on sound conceptual and theoretical foundations. Several issues and questions that had not played such prominent roles in the past were considered important, including

- *Theoretical models and concepts:* What is a competence? What makes a competence "key?"
- *Cultural context, variability depending on individual factors:* Can key competencies be identified that are relevant across cultures and to individuals occupying different positions in society and the economy?
- *Political negotiation, consensus formation:* Which competencies do policy-makers value and which do they have an interest in assessing?
- *Visions of society and individuals:* What assumptions about the way the world should be and the way people should behave underlie the identified key competencies?

By taking an approach that was both conceptual and pragmatic, it was hoped that DeSeCo could further enhance the relevance of international assessments.

DeSeCo's work plan called for three phases. The first phase consisted of two projects: a clarification of concepts (Weinert, 2001) and an analysis of existing work related to competencies in OECD countries (Salganik, Rychen, Moser, & Konstant, 1999). Although the different competence-related activities in OECD countries shared some common elements, there was no widely accepted conceptual framework that could reconcile the different approaches and lead to a common understanding. This finding underscored the need for the work planned for the

second phase, which included commissioning additional expert papers from a variety of disciplines and a first international symposium in October, 1999 (Rychen & Salganik, Eds., 2001). The third phase of the project, includes the Country Contribution Process (CCP), additional expert reports, and this symposium; it concludes with the publication of the proceedings of this symposium (this volume) as well as a final report (Rychen & Salganik, Eds., 2003). Throughout each phase, attention has been given to ensure inclusion of both theoretical considerations, as represented in many of the expert papers, and practical and policy-oriented needs, as described most recently in the reports stemming from the CCP and discussed in previous sessions of this symposium.

2 The Concepts of Competence and Key Competence

Given the initial finding of a lack of a common conceptual framework of competencies, one valuable contribution DeSeCo can make is a proposal for a set of guiding principles for the definition and conceptualization of key competencies. DeSeCo is now at a point – based on an analysis of the research and expert opinions that have been conducted and contributed to date – where it can attempt to reverse the "conceptual 'inflation'" (Weinert, 2001, p. 45) that has come to characterize the usage of the terms "competence" and "key competence." Specifically, it can offer clarification in three areas: the concept of competence, the concept of key competence, and the functioning of key competencies in various contexts.

2.1 Competence

Although many projects that identify "key competencies," "life skills," or "desired outcomes" operate under the assumption that the meaning of these terms is understood or can be inferred, the intention of DeSeCo is to first establish a theoretically sound definition upon which the identification of key competencies may then be based. This is to ensure a common understanding, as well as consistency, in the identification of future competencies and in the development of related indicators.

As a result of some of the early work in DeSeCo, an initial set of parameters for the conceptualization of competencies was established. According to these parameters, a competence

- entails the ability to meet individual and social demands
- is a combination of interrelated attitudes, values, knowledge, and skills
- is assumed to exist on a continuum
- is strongly related to a given context
- can be learned and taught

Perhaps most important to this conceptualization are the notions that competencies are demand- and action-oriented and are made up of a combination of attitudes, values, knowledge, and skills. Competencies are observable in the actions an individual undertakes in particular situations and contexts. Another important aspect is that a competence is not a dichotomous quality that a person either does or does not possess. Therefore, it is not a matter of assessing whether an individual does or does not possess a particular competence or component of a competence, but rather of determining where along the continuum from a low to a high competence level an individual's performance falls. Further, it is important to emphasize that a competence can – by definition – be learned and taught, at least to some extent. Yet the identification or specification of the learnable and teachable elements calls for further educational research.

2.2 Key competence

Using the parameters just described, one could imagine any number of competencies. To identify *key* competencies, DeSeCo has focused on competencies that

- lead to a successful life
- contribute to the development of the quality of societies
- apply to multiple areas of life

Using these criteria as conceptual guidelines, and taking into consideration the multidisciplinary inputs to the project, three categories of key competencies have been proposed and discussed at various points throughout the project and were presented in more detail earlier in this symposium (see Rychen, this volume). These categories are *acting autonomously, using tools interactively, and joining and functioning in socially heterogeneous groups*.[1] It is important to re-emphasize that these categories are the result of a theory-oriented, interdisciplinary analysis and reflection, growing primarily out of the various scholarly contributions to DeSeCo. Preliminary findings from the CCP presented earlier in this symposium (see Trier, this volume) proved an important source for identifying key competencies within the three broad categories.

There is an important distinction between the categories of key competencies and the identified key competencies themselves. Whereas the categories are put forth as a complete set – meaning that there are no additional categories and that any competence that is key should fit into one of these three categories – the provisional key competencies (see Rychen, this volume) are only those that are consistent with the definitional criteria and appear most apparent at this point. There are certainly others.

2.3 The role and functioning of key competencies

DeSeCo's work on the concepts of competence and key competence has implications for additional issues of developing a broad theoretical and conceptual framework to support assessments and indicators of key competencies. These include the conceptualization of a successful life and a well-functioning society, the role of social and cultural context, the notion of constellations of key competencies, the life cycle context, and the transmission of key competencies. Each is addressed briefly in this section.

As the project has developed, the discussions and commissioned papers have identified several aspects of modern life that individuals are confronted with at the individual level, such as economic success, social capital building, political participation and influence, family building, health, personal security, and personal happiness. Aspects of the quality of society that have been identified include economic competitiveness and productivity, democratic processes, solidarity, social cohesion, the absence of discrimination, human rights, and a healthy environment. These aspects can form the basis for further conceptual work related to DeSeCo's definitional statements that key competencies must apply to multiple areas of life and contribute both to a successful life and a well-functioning society (Gilomen, 2003).

One of the questions raised most persistently in DeSeCo has been whether it is possible to define key competencies valid in different contexts. Particularly given the close relationship between competence and the demands of life and the normative underpinning of key competencies, is it possible to define key competencies that are valid within and across countries? As our work has progressed, we have argued that yes, it is possible – there is a broad normative framework, there are common individual and social demands, and there are underpinning theoretical elements and models that make the notion of key competencies not only valid but a useful tool for developing education policy. This said, we have also recognized that key competencies may vary depending on contextual factors. For example, in some cultures there is more of an expectation that individuals will place the needs of the group ahead of their own, which would imply greater importance for competencies related to joining and functioning in groups. Similarly, the relative demand for particular key competencies may differ depending on one's role in society. Further, for individuals to lead an overall successful life and contribute to a well-functioning society, they need to be able to mobilize multiple key competencies, which do not operate independently of each other, but rather as constellations.

Another topic for consideration is how competencies relate to individuals' life cycles. Competencies are characterized by a wide range of proficiencies or levels, and the mental development necessary to attain a high competence level continues into adulthood. Further, the demands on individuals can be expected to change throughout their adult lives as a result of transformations in technology and in social and economic structures. Although more research and analysis are needed to conceptualize the interrelationships between competence development and changes in context during the life span, the discussion so far points to the crucial importance of lifelong learning.

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[1] The category "joining and functioning in socially heterogeneous groups" was subsequently renamed "interacting in socially heterogeneous groups" to better reflect its meaning.

Besides school, other social institutions – such as the family, workplace, mass media, or cultural organizations – may be responsible for fostering key competencies. However, further research is required to understand the particular role that various social institutions may play in transmitting and enhancing the necessary key competencies.

3 Implications for Assessment and Future Work

One of the original objectives of DeSeCo was to "provide a reference point for indicator development and interpretation of empirical results." To fulfill this objective, DeSeCo should address theoretical and practical issues related to assessing and developing indicators of key competencies. Although we cannot provide definitive statements on either of these issues at this point, we can present the implications of DeSeCo's work thus far and outline several important steps in the near and not-so-near future to provide guidance for future research undertakings.

3.1 Assessment issues

If we examine PISA, IALS and ALL, one important point that can be made is that these studies are already consistent with DeSeCo's demand-oriented, functional approach to key competencies. Although they are arguably more aligned with traditional academic disciplines (e.g., reading, mathematics), none of them treats those areas in isolation; they all focus on the ability to succeed in real-life contexts that require skills in those areas. In the future, more importance and attention should be given to developing assessments of competencies in the categories of acting autonomously and functioning in socially heterogeneous groups, since the competencies in existing assessments fall primarily into the category of using tools interactively.

Although key competencies are outcome-oriented, it is not the case that there is a one-to-one correspondence between key competencies and specific outcomes. Since key competencies operate as constellations, whose form depends on the particular individual or social outcomes in question, it is important for assessments to explore the patterns that make up these constellations, the interplay among the multiple, interrelated key competencies. Future assessments should also seek to integrate and relate aspects of key competencies such as attitudes, motivation, and emotion as well as cognitive elements. Yet another prominent research challenge in this domain is to relate key competencies to social, economic, and political contexts as well as to desired outcomes in terms of a successful life and a well-functioning society.

Developing measures of competencies with titles such as "assert rights and interests" and "relate well to others" and addressing the issues mentioned in this section demand innovation. Relevant data may be derived from multiple sources including, but not limited to, the collection of data through large-scale assessment. It is also important to develop mechanisms for collecting data on social contexts, and for adopting a longitudinal and a cyclical assessment structure, as well as to emphasize that the outcome- and context-oriented nature of key competencies necessitates a very open approach to assessment methodologies. As we look to develop a system for providing policy-relevant information on key competencies, it will be necessary to consider alternative assessment methodologies.

3.2 Next steps

To address the assessment-related issues just described, but also to more firmly establish the theoretical and conceptual statements discussed earlier, several important steps are necessary. Most crucial will be the dissemination and further discussion of the recommendations of the project, as well as building consensus around them. From the beginning, it was planned that DeSeCo as a distinct project would have only a brief life. However, if the work that has been carried out in this short period of time is to be truly successful, the questions raised and the answers provided will serve as a foundation for indicator and policy development for several years to come.

In the short term, we are planning to publish a synthesis of the outcomes of this Symposium in the form of a strategy paper with recommendations to the OECD (OECD, 2002) as well as a final report of the project (Rychen & Salganik, Eds., 2003).

Over a longer time frame, we would like to see the development of an organizational structure that facilitates sustained research in this domain. Topics for further investigation might include, for instance, integrating existing conceptual frameworks; developing the conceptual linkages between individual and social demands, key competencies, and desired outcomes (i.e., quality of life and of society); the specification of key competencies at different

stages of life and in different cultural and social contexts; and the relation between individual and collective competence. In recognition of the potential value of cooperation with other international organizations – such as the EU, ILO, UNDP, UNESCO, and World Bank – we suggest exploring the benefits of partnerships with these and other organizations. Finally, we hope that DeSeCo's conceptual work will provide a solid basis for the development of a coherent long-term assessment strategy and of future policy-relevant indicators in the area of education and learning outcomes.

4 References

Gilomen, H. (2003). Desired Outcomes: A Successful Life and Well-Functioning Society. In D.S. Rychen & L.H. Salganik (Eds.), *Key Competencies for a Successful Life and Well-Functioning Society*. Göttingen, Germany: Hogrefe & Huber.

Rychen, D.S., & Salganik, L.H. (Eds.). (2001). *Defining and Selecting Key Competencies*. Göttingen, Germany: Hogrefe & Huber.

Organisation for Economic Co-operation and Development. (2002). *Definition and Selection of Competencies (DeSeCo): Theoretical and Conceptual Foundations: Strategy Paper.* Retrieved June 11, 2003, from http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_strategy_paper_final.pdf

Rychen, D.S., & Salganik, L.H. (2003). *Key Competencies for a Successful Life and a Well-Functioning Society*. Göttingen, Germany: Hogrefe & Huber.

Salganik, L.H, Rychen, D.S., Moser, U., & Konstant, J. (1999). *Projects on Competencies in the OECD Context: Analysis of Theoretical and Conceptual Foundations*. Neuchâtel: Swiss Federal Statistical Office.

Weinert, F.E. (2001). Concept of Competence: A Conceptual Clarification. In D.S. Rychen & L.H. Salganik (Eds.), *Defining and Selecting Key Competencies* (pp. 45–66). Göttingen, Germany: Hogrefe & Huber.

In February 2002, the OECD program *Definition and Selection of Competencies: Theoretical and Conceptual Foundations (DeSeCo)* held a second international symposium in Geneva, Switzerland to provide an opportunity for participants from a wide range of countries and interests to debate, explore, and reflect on the work of the DeSeCo Project and issues surrounding key competencies. Attendees discussed competencies in and across important social fields, international and cross-cultural similarities and differences, lifelong learning and the development of key competencies, and assessment strategies.

This volume is a collection of symposium contributions, which served as a source for a strategy paper prepared for the OECD during the first half of 2002 and for the Project's final report, entitled *Key Competencies for a Successful Life and Well-Functioning Society*, published by Hogrefe & Huber in 2003.

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