DeSeCo SYMPOSIUM - DISCUSSION PAPER

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Table of Contents

Introduction

Societies all over the world are facing rapid social and technological changes. While increasing uniformity through economic and cultural globalization is one characteristic of today's world, another is the growing diversity, competition, and liberalization both within and among different societies. Governments and societies seek economic growth – but are also increasingly concerned about its impact on the natural and social environments (OECD, 2001). Large-scale value changes, instability of hitherto accepted norms, substantial global inequality of opportunities, social exclusion, poverty in all its forms and environmental threats are some of the most significant challenges. It is in this context of an interdependent, complex, and conflict-prone world that education is becoming increasingly crucial as an investment and an important asset for both individuals and societies. Sustainable economic development, social welfare, cohesion and justice, as well as personal well-being, are closely bound to human and social capital.

As has been recognized for some years, curriculum-based and subject-related competencies and basic skills do not capture the full range of relevant outcomes needed for a successful life and a well-functioning society. Beyond reading, writing, and computing, what competencies and skills are relevant in order for an individual to lead a successful and responsible life, and for a modern society to meet current and future challenges? What are the normative, theoretical and conceptual foundations for defining and selecting a set of "key" competencies?

Such questions were the starting point for an international and interdisciplinary endeavor, which began in late 1997 under the auspices of the OECD and is led by the Swiss Federal Statistical Office (SFSO). This study, entitled *Definition and Selection of Competencies: Theoretical and Conceptual Foundations* (hereafter referred to as DeSeCo)[1], was launched to provide theoretical and conceptual inputs and eventually a solid foundation for the continued development of future statistical indicators of human competencies and a reference point for interpreting empirical results about the outcomes of education. DeSeCo's mission is to contribute to broadening indicators by including competencies that are not directly related to economic productivity and competitiveness, such as participation in civic society and personal fulfillment, and by exploring competencies which may be encouraged by means other than formal schooling.

Based on theoretical and conceptual work on competencies, we have developed a number of propositions and statements about competencies and related topics. We put them forth here for consideration in the interest of finding common ground that we believe can, in the long run, advance the quality and breadth of indicators of individual human competencies.

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[1] www.deseco.admin.ch; in particular DeSeCo Background Paper

Moving towards a conceptual framework

This discussion paper is a contribution to DeSeCo's 2nd international symposium on key competencies. The program so far has included an analysis of competence-related projects in the OECD context, a terminological clarification of the notion of *competence*, a number of multidisciplinary expert opinions on key competencies, and the 1st DeSeCo international symposium held in Neuchâtel, Switzerland in 1999.

The first symposium focused on one of the project's major activities. Five scholars from different disciplines were asked to prepare papers which would identify key competencies for life in modern, democratic societies from the theoretical perspective of their own work and academic discipline, and which would place these key competencies in the context of their concept of "competence" and normative assumptions about society and individuals. Four of the scholars proposed sets of key competencies (Canto-Sperber & Dupuy, 2001; Haste: Murnane & Levy, 2001; Perrenoud, 2001). One rejected the idea, arguing that it cannot be valid to identify key competencies in isolation, independent of a particular social context and specific practices (Goody, 2001). The symposium offered the opportunity of intense discussion of the concepts and issues in a group of about 60 experts and academics.

A second major activity, the country contribution process (CCP), broadened the canvas. During 2001, all OECD countries were invited to participate by submitting information in relation to how key competencies are defined and selected in their countries. Twelve countries participated in this activity (CCP Reports, 2001), which is a crucial input to the process of identifying which competencies might be considered "key" across the industrialised world. Additional expert papers were commissioned from D. Keating, B. Fratczak-Rudnicka & J. Torney-Purta, and T. Oates.

The next step in the process is the second international symposium, which is aimed at working towards a consensus on key competencies among a wide range of countries, stakeholders and interest groups. During the DeSeCo program, we have developed a possible conceptual framework for the definition and selection of the competencies needed for effective participation in modern democratic society, and it is outlined here for the purposes of discussion and further refinement. The framework draws on the expert contributions and the country papers. The aim is not to try and do justice to the extraordinary richness and diversity which is to be found in these papers, but to draw out the common strands as a way of moving towards a consensus which identifies key competencies for the twenty-first century.

Although the DeSeCo approach is ground-breaking in its efforts to develop an overarching framework, we found when looking at the various assessment frameworks prepared over the last few years (notably by PISA, ALL, and the IEA Civic Education Study) that shared thinking among the various stakeholders has already borne fruit in considerable progress in relation to the conceptual underpinning of competence assessments (Salganik, 2001).

As is clear from the process so far, there is no "true" model that we can hope to discover spontaneously. Defining and selecting a valuable and legitimate set of key competencies is ultimately the result of a process of analysis, discussion and – eventually – consensus that will occur in the realm of policy and politics in which researchers work in close partnership with other interest groups.

At the very least, any such framework needs to be tested against social reality, through consideration of existing evidence and perhaps through the collection of new evidence.

Consolidating an integrated and coherent frame of reference that is comprehensive in an interdisciplinary perspective and at the same time useful to researchers, policymakers and practitioners will entail a continuing effort to combine theoretical and empirical approaches as well as continued collaboration between the academic community and the world of policy and practice.

Consolidation of the Concept of Competence

It has to be recognized that in social science there is no single use of the concept of *competence* or *key competence*, and no broadly accepted definition or unifying theory. At this stage in development of this new field, multiple and varied definitions still exist. Meanings vary widely, depending largely on the perspective and ideological viewpoints involved and on the underlying objectives associated with the use of the term, both in scientific discussion and in the policy realm. Thus a pragmatic conceptual approach seems appropriate. In line with Weinert's concluding remarks (Weinert, 2001), DeSeCo proposes to adopt the following definitional criteria.

What is a competence?

> **A competence is the ability to meet a complex demand successfully or carry out a complex activity or task.**

We propose a demand-oriented (external[2]) definition, ie competencies as abilities to provide external results. This functional approach has the advantage of placing complex demands facing actual individuals at the forefront of the concept. The concept of competence is used to refer to the necessary or desirable prerequisites required to fulfill the demands of a particular professional position, of a social role, or a personal project. Using this definition, the structure of competencies derives from the structure of the demands encountered in the context of work and in everyday life (Weinert, 2001). The focus is on what the individual achieves in results, in an action, or in a way of behaving.

> **Each competence essentially exists on a continuum.** Competencies are conceived as ranging in scale from low through average to high. It is not a matter of determining whether an individual possesses or does not possess a particular competence. The scale may or may not be combined with relative thresholds that establish whether or not an individual possesses a sufficient level of competence for a particular purpose.

Components of competence

> **It is the demand, task, or activity which defines the internal structure of a competence, including the interrelated attitudes, values, knowledge and skills that together make effective action possible. Competencies cannot be reduced to their cognitive components.**

The demand-oriented definition adopted by DeSeCo needs to be complemented by the conceptualization of competencies as internal structures to the individual, as Witt and Lehman (2001) have argued: "Without the functional approach no consideration of relevance is possible for competencies; without research on internal structures, no barriers can be provided against the temptations and traps of mere "ability-to" expressions".

Which mental prerequisites does an individual need to meet a particular demand? What are the internal mental structures the activation of which is assumed to yield certain results? (see

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[2] See for the discussion of this issue, Witt and Lehman, 2001; Weinert, 2001.

for instance Canto-Sperber & Dupuy, 2001). A competence includes cognitive, emotional, motivational, social and behavioral components (see for instance the conceptualization of civic competence, Fratczak-Rudnicka & Torney-Purta, 2001). This is consistent with the *action competence model* described by Weinert combining components that together represent a complex control system and result in a person taking action. (Weinert, 2001)

PISA and ALL

PISA's inclusion of the *students' approaches to learning* and *beliefs in their own abilities, motivation and engagement* and other aspects of *student attitudes* as important outcomes of education and inputs to further competence development is consistent with the view that competence includes both cognitive and non-cognitive components. Another example is provided by the ALL conceptualization of numeracy. In ALL, "*numerate behavior*…requires activation of a range of enabling knowledge, behaviors, and processes including mathematical problem-solving skills, literacy skills, and beliefs and attitudes" (Gal, Tout, van Groenstijn, Schmidt, and Manley, 1999).

Observing competencies

Competencies are manifested (or observable) in actions the individual takes in particular contexts and situations.

Competencies may be thought of as capacities or dispositions embedded in the individual. However, they do not exist internally, independent of action. Instead, they are manifested by action (which implies intentions, reasons and goals). This conceptualization reflects a holistic approach, to the extent that it integrates and relates demands, attributes (including ethics and values), and context as essential elements of a competent performance. However, one can only infer competencies from the performance of complex and demanding actions. Performance can be measured or systematically observed, from which an underlying competence may be inferred (Weinert, 2001; Oates, 2001).

Since a competence is a multi-faceted amalgam of cognitive and non-cognitive components that makes it possible to meet a demand, it is important not to restrict attention to the cognitive components of competence. Comparative measurements of individual action competencies require that suitable metrics be constructed to measure relevant cognitive and non-cognitive components. Any concept of action competence constructed from these different components must then be validated with appropriate success criteria (Weinert, 2001).

The societal dimension

The structure, development, and assessment of competencies are influenced by the social and cultural context in which individuals live. The relationship between the individual and society is a dialectic and dynamic one.

The topic of human competencies is not the exclusive domain of traditional educational research. It should be situated at the forefront of research across the social sciences, as it addresses issues which are fundamental to human action and to society's institutions.

The actions of individuals are shaped by society and, in turn, affect society. Competencies only make sense if the societal component is taken into account by addressing both large scale structures (such as the labor market, the education system, the government and legal structure) and processes taking place at the individual level. Thus while the internal structure of

competencies (knowledge, skills, attitudes behavioral intentions and their interrelation) are important parameters of the definition, so too are the structures of the social, economic and political environment – particularly as they have their part to play in actually constructing the demands which both define competencies and require them to be demonstrated by individuals.

> **Civic competence and socio-economic structure**
> The IEA Civic Education Study provides an illuminating example of explicitly taking into account the environment in which the individual operates when conceptualizing competencies and their development. For example, different political systems embrace different definitions of citizenship and define the requirements of good citizenship in different ways. The study was developed to allow for national differences in ideas about democracy and citizenship (for example different concepts of democracy: participatory versus representative democracy, direct versus indirect, mass versus elite, communitarian liberal versus republican). (Fratczak-Rudnicka & Torney-Purta, 2001)

Identifying sets of key competencies

During the course of DeSeCo, we have considered many different sets of key competencies offered by different participating countries (CCP Reports, 2001) and by different sectors within those countries. DeSeCo was set up as a policy-driven, research-oriented project, which originated in a governmental context in response to policy needs. Defining and selecting the competencies which are crucial for a successful life inevitably results in explicitly valuing some over others. These may be viewed as "key" competencies – but identifying them is a complex task. In attempting to do so, DeSeCo has drawn on multidisciplinary viewpoints, interdisciplinary collaboration, inputs from policy-makers and practitioners and from different national stakeholders. The answers obviously vary a great deal depending on different viewpoints or premises, the value system explicitly or implicitly referred to, the scientific methodologies applied, the purpose, the field or area in which competencies are to be applied, and the nature of the selection process in different national contexts. Many valuable lessons, however, can be learned from the various considerations (Rychen, 2001; Gilomen, 2001).

Commonalities across sets of key competencies

> **Various sets of competencies that are considered more important than others for participation in different fields of life have been identified during the country contribution process. Similar competencies with almost identical content are held in common and emphasized as being particularly important.**

In spite of national differences, various sets of key competencies (not necessarily using that term) have been identified as the result of various national efforts to set school curricula or workplace competencies. Often competence lists are developed through discussions within the government bodies and from consultation exercises with educators and employers, some of which lack theoretical underpinning and/or empirical validation (see Oates, 2001).

A review of the country reports, as well as comments from policy-makers, educators and representatives from the economic sector, show commonalities in many of the competence domains. As stated in the CCP summary report (Trier, 2001), countries tend to report convergence rather than divergence between the economic sector and education in the discourse on key competencies. Similar key competencies with almost identical content are emphasized – even if they are worded differently. There are some competencies considered particularly important that are common in different contexts. The most frequently mentioned

key competencies or categories are social competencies (including cooperation), literacies, learning competencies, personal competencies including self-management, and competencies related to democratic and ecological action.

The limits to formal consensus

Although there are many commonalities among the lists proposed in the reports, a synthesis of the various lists does not yield a coherent, logical system.

There are many commonalities and interrelationships among the lists. However, none of the discipline-oriented and country contributions follow strict formal, definitional constraints for the concept of key competence (Rychen, 2001; Trier, 2001). Many of the country sets (and some of the scholars' sets also) include items that are found at different conceptual levels or situated at different levels of generality or follow different criteria of categorization. Often, competence lists are only based on a notion of extraction of common components from existing frameworks (Oates, 2001).

The lists often include skills of a very different order and kind. Some competencies are defined in terms of an external task and others as internal dispositions without clear distinction. Specific items of particular concern and value (such as the environment or information technology) are included along with more general items such as problem-solving and critical thinking. Thus, there is no coherent, logical system that can be inferred from a synthesis of the various lists and a definitive list cannot be inferred from comparing the lists.

Some suggestions related to frequently mentioned (components of) competencies

Communication skills in the sense of mastering the language should be seen as an integral component of almost any complex demand-oriented competence. Communications skills are basic skills that include reading, writing, speaking and listening.

Values and value orientations can be considered as a general foundation or component of competence. In fact, value orientation is a fundamental component of action and behavior.

Motivation is crucial component for meeting any goal or demand, and therefore must be considered as a constituent part of any demand-oriented competency and not as a particular competence in itself.

Critical thinking and other cognitive components concern the internal mental structure implied by demand-oriented competencies.

Important domain-specific competencies relevant to particular social issues or particular jobs are in some case included along with general/transversal/overarching competencies. From a conceptual viewpoint a distinction may be useful, although practically a distinction may be irrelevant.

Personal qualities such as honesty, integrity, responsibility, loyalty that contribute to effective action can be viewed as components of competence.

Personal attributes such as a strong positive self-concept that allows the individual to act confidently may be more usefully viewed as an outcome of the acquisition of a reasonable level of other competencies – such as the ability to successfully operate in groups (Ridgeway, 2001).

Factors that influence the definition and selection of key competencies

> **Defining and selecting key competencies draws not only on scholarship but also on national cultures, power relations, political decisions, and practical considerations. Regardless of how key competencies are identified, ethical choices and value judgments are an integral part of the process.**

The lists of competencies put forward by participating countries reflect political and consensus processes – this is likely to be true of any list conceived in a policy environment – and the scholars' lists reflect the disciplinary lens of each scholar. In the realm of policy-making, key competencies usually are defined and selected in the context of a particular purpose (for example, improving education standards, educational outcomes as an economic asset, empowerment of the individual and so on).

In both the scholarly and political realm, the underlying vision of the world, including conceptions of what a successful life and a well-functioning society imply, affects the conceptualization and construction of key competencies. Haste (2001) observes that the sets of critical competencies and competence domains are influenced by values about what is desirable and instrumental for the common good, and by deficits that are perceived as in need of remedy.

The selection of key or critical competencies to be acquired or developed, and which of those should be assessed and measured, is influenced by value orientations and goals – whether at the level of the individual or of the society. This means that normative considerations have to be taken into account as an integral part of the conception of competencies. For instance, the "good citizen" or "democratic citizen" is something of an ideal type whose characteristics vary with the definition of democracy. Citizens of different countries may need different competencies in order to fulfil the role of a citizen, to be "good" citizens of those states (Fratczak-Rudnicka & Torney-Purta, 2001).

Weinert emphasizes that regardless of the extent to which scientists and practitioners agree on formal criteria for defining key competencies, considerable disagreement remains about which competencies should be classified as *key*. What is key and what is not key is a function of culture, values and context. When defining and selecting key competencies, it makes a difference if one starts from a normative-philosophical and socially critical frame of reference or if the definition and selection of concepts is based more on findings from observations of social practice and trends. "If one wants to go beyond an individual's adaptation level to the world of today with its limited possibilities of further development, and change the world by providing people with the appropriate competencies, it is necessary to choose a normative starting point, and not an empirical one, when defining key competencies" (Weinert, 2001).

Towards a frame of reference for defining and selecting key competencies

Discussion of key competencies is a broad topic. Defining and selecting key competencies affects both the individual – in his or her role as a worker (employer or employee), citizen, family member, and group member – and society as whole. It concerns issues such as the acquisition of mental prerequisites, the use of competency with regard to the role and position of the individual in the social hierarchy, the influence of socio-economic and cultural factors, and the meaning and impact of competencies.

A number of common considerations and arguments transcend the heterogeneity of the multiple approaches and comments considered during the study (see reference list), which seem promising in an interdisciplinary perspective for constructing key competencies and a common frame of reference.

We learned from the DeSeCo activities that there is no one right answer to the concept of competence or to which competencies are determined to be key ones, and that the process of determination is likely to be lengthy. But based on the scholarly work, we have identified common elements and concepts among the different inputs that appear to be fundamental and thus useful for defining and selecting key competencies. What follows is a layout of some general principles and some meaningful concepts for consideration.

Underlying vision: the common starting point

> **Basic principles of human rights and the social objectives of sustainable human, social and economic development form a reference point for the definition and selection of key competencies. It is both a political and ethical imperative that key competencies support behavior that is consistent with these values.**

The process of defining and selecting key competencies necessary for individuals to lead an overall successful life and for society to face the challenges of the present and near future raises many questions: What type of society do we imagine and desire, or, on the other hand, believe to be undesirable? What constitutes a successful life? What social and economic developments are we referring to? Are these discussions about transforming the existing social order or rather, preserving it? What value system (hierarchy of values) is predominant in different contexts?

Successful life and democratic society are not objective facts or realities grounded in empirical and non-controversial evidence; rather, they are subject to value judgments and dependent on context. That said, a number of international texts and conventions related to human rights and human development constitute a solid basis for describing life and society as they should be. Thus, the principles postulated in major international human rights documents can serve as a starting point for the discourse on key competencies (Delors & Draxler, 2001). And consistent with any major moral theory, a good and successful life includes close relationships with other people, an understanding of oneself and one's world, autonomous interaction with one's physical and social environment, and a sense of accomplishment and enjoyment (Canto-Sperber & Dupuy, 2001). This broad and rich conception of a successful life is complementary with approaches that consider key competencies predominantly from the perspective of economic productivity and competitiveness (Murnane & Levy, 2001; Ritchie, 2001). However, any normative comprehension remains prescriptive, and its translation into social practice will be subject to controversies and conflict (see in particular Carson, 2001).

Key competencies for what?

The desired outcomes of key competencies are a successful life and a well-functioning society. Key competencies should be linked conceptually to these outcomes.

Key competencies are not ends in themselves, but are – in the logic of the human capital approach – resources that contribute to economic and social development (Murnane & Levy, 2001; OECD, 2001). Thus, there will be a multiplicity of outcomes from competencies. One way to validate such competencies is through their relationships to important dependent variables; that is, do competencies make additional contributions to the prediction of important outcomes, such as economic utility, social cohesion or life satisfaction? (Keating, 2001). The crucial question then is whether and to what extent the various selected or identified competencies can contribute to improving the quality of life.

The conceptual link between competencies and desired outcomes has been established in human capital theory. The scope of DeSeCo is to consider the topic beyond economic outcomes for individuals to the sum total of human activity. It seems promising as a future step to link the question of key competencies conceptually to the notion of quality of life and human well-being. The notions of a "successful life" and a "well-functioning society" can be described in terms of quality of life and quality of society.

The conceptual link between the various key competencies and desired outcomes (ie an overall successful life) has to be established. There is perhaps an analogy here with economics (see Murnane & Levy, 2001) in that the task must be analysed, related to competence, and its link to economic success and other outcomes must be explained. For this exercise, it would be informative to further explore and learn from current quality of life research, which conceptualizes and attempts to measure quality of life along several continuous dimensions on the personal and individual level. These dimensions include, for example:
- satisfaction of elementary personal needs (including resources or opportunities to satisfy needs)
- formation of close relationships with others
- accomplishment and enjoyment
- access to economic resources, employment
- political participation
- access to intellectual resources, information and knowledge

In addition, in our conception, the focus should not be exclusively on the contribution of key competencies to the success of individual lives. The exploration of their relevance at the societal level is important in light of broader societal objectives. Analogous to the concept of quality of life, the notion of the *quality of society* or *well-being* provides a complementary perspective. The following dimensions constitute some of the many features that may reflect a society's quality (value principles):

- peace and security
- economic performance and wealth
- social cohesion
- equity
- human rights
- bio-diversity/ environmental protection

In this sense, a successful life means, for instance, not only occupying a position or making choices that are rewarding strictly on the personal material level (such as a good income or material comforts) but also non-material personal satisfaction and – from the societal point-of-view – contributing to the overall quality of society (for example, ecology-minded behavior or attention to sustainable development).

Key competencies for whom?

Key competencies are relevant and important for all. This is consistent with the general commitment of OECD countries to expanding opportunities for individuals and strengthening social institutions.

It makes a difference if one focuses on competencies necessary or desirable for the whole population or for certain groups. "No doubt rare skills are needed in order to be a world leader, manage organizations, or occupy exceptional positions" (Perrenoud (2001)**.** The focus of DeSeCo has rather been in the words of Perrenoud on "the ordinary actors, the woman or man in the street, doing their best to survive and live as well as possible."

All the OECD member countries are generally committed to expanding opportunities for individuals in various spheres of life, improving overall living conditions in society, and to investing in the development of competencies for all as a means to these ends. In line with the goals of equity and equal opportunity that are so prominently voiced at the discourse level**,** DeSeCo has focused on competencies of individuals[3], in particular on competencies that must be available and attainable to all or most adults living in modern democratic societies. Consequently, the distribution of key competencies constitutes a core issue when educational reforms and lifelong learning strategies are discussed, formulated, and realized.

Transversality - a possible characteristic of key competencies

Key competencies are transversal across different spheres of life or social fields, the functioning of which share certain characteristics and mechanisms.

Individuals participate in many different spheres of activity. There is no doubt that in order to function well – as an employer or employee, as a consumer, as a citizen, as a student, as a family member – different domain-specific competencies are required or are desirable. Within DeSeCo we have been particularly interested in those competencies that are critical across

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[3] Defining competencies at the individual level does not question the relevance of group and institutional competencies focusing on the question of which competencies must be available to all members of a group or an institution and which competencies can be complementarily available. This approach, however, has not been a a main focus in the DeSeCo study.

various relevant domains or fields and that allow individuals to navigate different spheres of life (such as the workplace, personal life, the health field, the political domain). We refer to this characteristic of key competencies as transversality[4] across social fields. Effective participation, performance, action and interaction in multiple social fields or a wide range of settings implies an understanding of the specific challenges and functioning of different social fields (Perrenoud, 2001).

A resemblance between the problems and demands encountered in any one sphere versus another and the solutions applied do not mean that the cognitive and non-cognitive mechanisms in play are identical. Observing actors/individuals who pass from one social field to another may show an element of transfer.

Transfer and Adaptability

Transfer, which is frequently raised as an issue in discussions of key competencies, can be described in terms of an observable function: the benefit obtained from having had previous experience in acquiring new skills. The focus is therefore not on the mechanisms of transfer but on its detection once transfer has occurred. With reference to Piaget's model of effective performance, it means that benefit can be obtained from adapting an old skill to a new situation. Our existing skills and strategies do not always correspond exactly to the demands of a situation. Effective performance implies modification of strategy or skills. Transfer and learning involve conflict. This conflict centers on the disparity between our existing skills and the demands of new situations. Effective performance is a function of dialectical interaction between 1. the existing skills and strategies of the individual and 2. the features of the new situation that faces him or her. Thus, the concept of transfer is better thought of as a process of adapting existing skills in order to perform in a new, unfamiliar context – rather than as a process of transfer of existing skills (Oates, 2001).

Coping with complexity

The demands of modern life call for an active and reflective approach to life. Many or most of the key competencies needed for a successful life imply the overall development of critical thinking and reflective practice.

Many scholars and other experts agree that coping with many complex societal demands in today's world implies a reflective perspective on the part of the individual (see in particular competencies for the good life and the good society, Canto-Sperber & Dupuy, 2001; competencies for autonomy, Perrenoud, 2001). Some important *mental conditions* identified by Canto-Sperber & Dupuy (2001), as being necessary to cope with complexity and relevant to the "good life" are:

- Recognizing and analyzing patterns, establishing analogies between past experience and new ones
- Discriminating between relevant and irrelevant features
- Choosing appropriate means in order to reach given ends, appreciating various possibilities offered, making judgments and applying them

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[4] Dunon, 2001 points out that the distinction between transversality and multifunctionality is not very clear, and suggests replacing transversality by transferability. Assuming that it is not possible to be transversal without being multifunctional (e.g.. meeting "efficiently the daily requirements for participating in different aspects of social life as well as to continue to work each day on various aspects of personal development" or "meeting many different important complex demands" (Weinert, 2001), we no longer distinguish between multifunctionality and transversality as in previous documents produced by DeSeCo.

- Making sense of what happens in life to oneself and others, seeing and describing the world and one's real and desirable place in it.

Kegan (2001) finds that key competencies proposed by scholars for DeSeCo (Rychen & Salganik, 2001) are often associated with the type of thinking and activities 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. Coping with the demands and challenges of contemporary life requires not only abstract thinking and self-reflection, but an active and reflective posture. This active and reflective approach is based on an evolutionary model of human development in which individuals can incorporate higher levels of complexity into their thinking and actions (Kegan, 2001).

It is important to emphasize that an active and reflective approach to life is not first and foremost a cognitive or intellectual question, but one that concerns complex action systems encompassing appropriate motivation, ethical, social and behavioral components along with cognitive and intellectual components (Canto-Sperber & Dupuy, 2001).

An conceptual tool for organizing and mapping key competencies

Three constructs – acting autonomously, using tools interactively, joining and functioning in socially heterogeneous groups – may offer a conceptual tool for organizing and describing many of the competencies referred to in the various lists of key competencies.

Based on analysis of the various expert contributions and consultations, we have identified three broad categories of key competencies related to complex demands of modern life: acting autonomously, using tools interactively, joining and functioning in socially heterogeneous groups. The three constructs are located at a very general level of abstraction, and should be thought of either as generic (in the sense that they do not provide specifics) or as ideal types. They are applicable to a wide variety of contexts and domains, and are considered relevant for an effective and successful interaction with the complexity of the physical, social and cultural environment that surrounds us. They encompass many of the features identified in the discipline-oriented expert reports as relevant, and are linked to theoretical and conceptual models. Thus, they represent meaningful categories for the organization and conceptualization of key competencies.

Although the constructs are interrelated, each has a specific focus, is conceptually distinct, and can be thought of as the conceptual basis for a cluster of competencies. They can be conceived of as providing a conceptual infrastructure for identifying interconnections among the sets of key competencies reported by the countries, the proposals of the scholars, and the approach to competencies on existing international assessments. In this view, they can also guide future discussions, as additional key competencies are identified for different purposes and in different contexts.

The competencies subsumed under these broad constructs are some of the (demand-oriented and transversal) competencies seen by many stakeholders as necessary and relevant for individuals to lead a successful life and to cope with the demands of modern life across various fields.

Acting autonomously

The focus of this category is on relative autonomy and identity.

Acting autonomously relates to the complex setting up of projects in personal life, in the family, at the workplace, in political and civic life. It means that individuals can act and operate effectively in and on the world ie assert their own rights and interests, actively interact with their physical and social environment, form and conduct projects, and develop strategies to attain goals. The reflective exercise of autonomy requires awareness and an understanding of one's environment – how it functions and how one fits into it. Autonomous action, developed through knowledge and understanding of social dynamics, is needed to avoid being dominated and exploited. Many of these aspects are particularly well developed in Perrenoud's contribution (2001).

Acting autonomously[5] requires competencies which enable individuals to build up a relative individual autonomy as a citizen, a worker, a family member, a consumer and so on, and a personal identity (sense of self). Some possible key competencies which are particularly important in this category are:
- identifying, evaluating and defending one's resources, rights, limits and needs
- forming and conducting projects
- developing strategies (including learning strategies)
- analyzing situations, systems, relationships, and force fields.

Many of the components and elements subsumed under headings such as self-competence or self-management – as well as what has been listed under political or civic competence – are relevant for building a relative autonomy and personal identity.

Using tools interactively

The focus in this category is on interaction through physical and socio-cultural tools.

Using tools implies not only having tools and being able to use them effectively, but also understanding how they affect the way one interacts with the environment. In reference to the "tool user" model proposed by Haste (2001), "tool" is used in the broadest sense of the term. It encompasses instruments that are relevant to meeting many important everyday and professional demands of modern society. It includes language, information and knowledge. "Tool" is a prosthesis for the human body and mind (Haste, 2001). Being able to use tools does not strictly refer only to having the technical skills required to use a computer and its software, for example, but to be aware of the new forms of interaction that can be established through the technology, and to be able to adapt accordingly.

Using tools interactively encompasses all the competencies which enable an individual to interact with the environment effectively (for example, through knowledge, information or information technology). Some possible key competencies in this category are:
- using technology to accomplish goals
- gathering, analyzing and using knowledge and information
- literacy
- numeracy

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[5] Autonomy is not a universal value; it is indissociable from modernity, democracy, and individualism. In modern democratic society, the value system promotes autonomy as an aspiration and basis for individual identity. Further, autonomy is always restricted/limited. It must be recognized that individuals are socially embedded. Autonomy exists in the context of duties and obligations to the community and a sense of connection to others (Haste, 2001).

> **Reading literacy**
> PISA's definition of literacy – understanding understanding, using, and reflecting on written texts in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society" – emphasizes the active and initiative role of the reader in understanding or using information (OECD, 1999). The words "reflecting on" embody the notion that reading is interactive: readers draw on their own thoughts and experiences in engaging with a text. Further, the definition recognizes a wide range of situations in which reading literacy plays a role, including fulfillment of well-defined and more loosely defined personal aspirations, and participating in society through social, cultural, and political engagement.

Joining and functioning in socially heterogeneous groups

Here the focus is on the individual's interactions with others. It is a necessity to define our relation to others.

The capacity to join and function effectively in socially heterogeneous groups is crucial in light of the demands and challenges of contemporary democratic societies. Ridgeway (2001) focuses much of her attention on this competence, which she considers universal. Joining and functioning in socially heterogeneous groups consists of a number of components. An important element is being able to perceive and understand the distinctive position of the other. Other components include negotiating conflicting interests in order to find mutually acceptable solutions, operating democratically in groups, constructing negotiated orders over and above cultural differences, and the will to develop joint strategies. This competence requires balancing commitment to the group and its norms with the capacity for autonomous action.

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 competencies such as:
- relating well to others
- managing and resolving conflict
- acting in synergy
- cooperating, working in groups
- guiding and supporting others
- participating in a collective

Meeting broad, complex demands related to a successful life and well-functioning society requires a *constellation of key competencies* rather than a number of particular competencies. Thus, the challenge is not only to investigate the interplay between different components of particular competencies (such as the cognitive element, or motivation) but also the interplay among various competencies that together constitute the resources that allow individuals to meet the demands of life.

Depending on the *social and cultural context*, different constellations of key competencies are relevant or necessary to meet the demands of modern life in a successful way.

As a possible way of using these three constructs to illuminate the concept of key competencies, it may be useful to conceptualize a *three-dimensional space* defined by acting autonomously, using tools interactively, and joining and functioning in socially heterogeneous groups. Specific social and cultural contexts could then be located in the space – depending

on the importance given to each of the three constructs within that context. Depending on the hierarchy of values within a given context and at a given time, it is likely that a different weight will be attributed to each of the three dimensions in conceptualizing key competencies that reflect what is understood, accepted, desired and aimed at as a successful life and as a well-functioning society.

If particular contexts – whether entire countries with their unique socio-political characteristics, or different social fields or economic sectors within them – are located within this space according to the weight they accord to each of the three constructs, it is likely that they will "occupy" different areas within the space. In this way, the relative importance of different sets of key competencies, which both reflect and embody a range of values and aspirations, would be thrown into relief and a comparison across different cultures (whether national cultures or institutional cultures) would be made possible. The aim of this form of comparison would not be to make judgments on the legitimacy or otherwise of a particular culture's conception of key competencies, but rather to act as an illuminative technique, making possible a deeper understanding of the interaction between context and construct.

Broadening the range of competencies on cross-national assessments

> **Broadening the range of competencies includes a continuing consensus process for mapping and organizing competencies, using the frame of reference which includes the three constructs: acting autonomously; functioning in socially heterogeneous groups; and using tools interactively. These activities can lead to the development of assessment frameworks, instruments, and eventually a pilot study.**

To ensure successful utilization of the contributions of DeSeCo to the conceptual and theoretical basis of competencies, work on broadening the range of competencies in assessments should continue through an ongoing consensus process, partnership between researchers and policymakers, and continued collaboration between existing networks with similar interests (such as ALL and PISA). During the next five to ten years, activities might include:
- Using the constructs acting autonomously, functioning in socially heterogeneous groups, and using tools interactively to inform mapping and organizing of competencies. Through further defining their characteristics and interactions, the boundaries of each competency need to be clarified for the purposes of valid assessment.
- The development of an assessment framework for selected competencies reflecting each of the three constructs. Varying methods for assessment should be evaluated as the framework is developed.
- Selection of pertinent segments of the competence assessment frameworks that are of sufficient interest and importance and are measurable. Policymakers will have to reach consensus on the value of measuring some key competencies or components of competencies and not others, and researchers will need to provide guidance on the feasibility of developing valid and reliable measures of new constructs. Further development of new assessment approaches that go beyond paper and pencil tests, such as use of information technology and portfolios, should be encouraged (Oates, 2001).
- Generation of a large-scale assessment based framework and consensus process, a pilot study, and report of findings.

Consolidation of an overarching framework

The consolidation of an overarching framework for defining, selecting and assessing key competencies calls for a holistic and ongoing effort. Combining a "top-down" and "bottom-up" approach is essential.

Multiple factors have varying impacts on how key competencies are constructed, developed, transmitted, and assessed in relevant social fields. It is crucial to take into account both the factors that have an impact on society and the processes that affect individuals. The framework we propose is designed to incorporate the dynamic and dialectic interrelations at the individual and societal levels and to elucidate the many-layered and multidimensional reference point of key competencies. The key competencies are relevant at both the individual and the societal level.

As this discussion paper demonstrates, the concept of key competence is highly complex, and the implications for policy, assessment and development are far-reaching. The consolidation of an overarching framework initiated by DeSeCo calls for an ongoing work program, with researchers, policymakers, academics, and experts in the participating countries collaborating in the continued conceptualization of the notion of key competence and in developing the definitional parameters (the concepts of successful life and the quality of society, socio-economic and cultural factors). Further comparative research is necessary based on the observation of social practices in different spheres of life – and much of the all-important contextual information will be elicited from the participating countries, actively reflecting on their own socio-political cultures. Throughout the process, research results, at the theoretical and at the empirical level, need to feed into the framework. Both strands of work, the theoretical and empirical, remain equally important, thus combining a "top-down" and "bottom-up" approach – so that the conceptual activity and the real-life experience never lose touch with each other.

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