

*Planning and Evaluation Skills: A Search with the Teachers of Italian Schools*

R.Tammaro, A. D'Alessio, I. Cicatelli, M. Calenda

University of Salerno, Italia

0511

The Asian Conference on Education 2013

Official Conference Proceedings 2013

Abstract

This contribution proposes a reflection on the centrality of the construct of competence, which, especially in the last twenty years, has taken a decisive role in educational contexts. The implications of this innovation are important from the point of view of planning and evaluation of training interventions. The work attempts to reconcile the theoretical aspects and those teaching practices that require an adaptation of the methodological choices underlying the processes of teaching and learning. "In redefining the formative school task" and that this centrality is demonstrated by the growing attention, recognized both nationally and internationally, to the theme of key skills for active citizenship "(Carroll, 2010, p. 16). The second part presents an experience aimed at training teachers and aims to lead and assist teachers in the various education degrees to acquire, enhance and develop knowledge and skills related to the construction of valid and reliable assessment tools, with reference both to knowledge and skills.

**Keywords:** competence, evaluation, verification tests, authentic task

## Introduction

In recent years there has been a sort of Copernican revolution in relation to the idea of teaching/learning: from geocentric vision ", which assumed as cornerstone the" logic of teaching "(i.e. logical and chronological structure of cultural contents), it is passed to a heliocentric" vision ", which takes as a cornerstone the" logic " of learning (that is how the person who learns and cultural contents meet) (Castoldi, 2007). The revolution's reflexes can be recognized both in the evolution of learning conceptions, and in the development of teaching strategies, both in terms and in the functions assigned to the evaluation. The professional culture of teachers reacted in different ways to this revolution.

In particular, it highlights an increasingly troubling gap between the cultural awareness of teachers-who have assimilated more or less convinced the key concepts of a constructivist approach to learning, teaching methodology, a key training and evaluation guidance – and operating practices, often remained substantially unchanged and untouched. The construct that better collects the various meanings involved in a constructive, social-cultural, situated learning perspective, is "competence" as it has come in developing pedagogical language.

The concept of competence is very used in the psychological, sociological, linguistic and pedagogical fields to describe the ability to behaviour in a particular scope. Even in the professional sector have been made different interpretations of the powers which lay an emphasis on professional quality of an individual in terms of knowledge, skills, abilities, professional and personal qualities Quaglino (1990); now on the relevance related to situations and effectiveness with regard to the issues to be faced, as stated by S. Meghnagi (1992).

The concept of competence, in particular, is as a cornerstone of the school training model in relation to the key moments of the training event, i.e. in relation to teaching, learning and assessment. In relation to this concept has developed, over the last two decades, a debate that produced a multiplicity of approaches and interpretive horizons with important repercussions in the school educational practice.

We can say, recovering some clarifications of Coggi (Coggi, Notti, 2002) that the expertise:

- does not mean only the possession of knowledge and techniques, or management capacity of the same even if it supposed them;
- involves knowing how to integrate knowledge and knowing how to implement within the framework of the action concerning a family of problematic situations;
- involves the mobilization of knowledge and know-how; the core of the concept lies in the mobilization of these resources and not in the resources themselves;
- it is individual characteristic that builds from attitudes (through training and experience) about a certain scope of problems.

Castoldi says that we can consider the matter from three directories:

1) from the simple to the complex when you enable an integration of student-owned assets "that involves the activation of knowledge, skills and personal dispositions relating to both the cognitive level, and strong-willed and socio emotive one" (Castoldi, 2009, p. 19).

2) from outside to inside puts focus on student's internal components. Each subject sets in motion its own internal resources to accomplish a task respecting his personality. Last but not least, the size

3) from the abstract to the set that includes the use of ability to deal with specific tasks.

After Pelleray (2010) the competence can be understood considering it as the ability to cope with one or more tasks using their affective, volitional and cognitive potential resources. Mason (1996, 1997), on the other hand, invites us to consider the cognitive, motivational and meta cognitive components as "allies" against the backdrop of a constructivist perspective. Therefore, considered the differences between knowledge, skills and competence, where knowledge refers to the results of the assimilation of information and can be divided into theoretical and/or factual; for skill refers to the ability to apply the knowledge in order to solve problems; finally to skills refers to the use of knowledge, skills, capacity for personal, social and/or methodological work, in work or study and professional development and/or personal ". (Castoldi M.,2009, p. 19).

It is persistently highlighted the need to know what together with the need to know how to transfer expertise from one context to another. In fact, the emphasis may be placed, depending on definitions, on different aspects: the knowledge, skills, emotional intelligence, on the link with the context, on transferability in different contexts of the skills acquired. In more purely educational context, the concept of competence is traced to the educational model of active schools advised to pay central and privileged attention to the student, to emphasize the practical activities, to develop strategies of thought, ability to mobilize their knowledge and skills in different situations.

The competence consists of several elements: knowledge, metaknowledge, metacognitive adjustments, these elements are organized into operating schemes aimed at effectively solving a range of problems or problematic situations; according to the definition provided by Gillet competence is a system of procedural and conceptual knowledge, contextual, organized, even through metacognition, operational schemes (or networks or tops) aimed at identifying and resolving a family of problems with effective action. (Coggi, Notti, 2002, p. 121)

This definition covers the basics elements and is also shared by other authors: the competence includes knowledge in relation to each other and also with the metaknowledge network to build response patterns that are activated in the resolution of family problems. Thanks to the experience and the exercise, these patterns are used over time with greater expertise, speed and security of the parties and constitute what sociologists with Bourdieu called habitus: the schema collection available at a given time of life that allows you to create any number of practices that can be adapted to different situations.

The definition of Allal (1989, 1991) includes in addition to cognitive aspects of human behavior, even those social and affective, sensomotor ones, providing a comprehensive framework in its entirety. Competence is thus defined as an integrated and functional network composed of cognitive, social, affective, sensomotor behaviors which can be mobilized to cope with a family of problematic situations based on acquisition ways of interaction and cultural instruments. The cognitive components consist of declarative knowledge (knowledge), procedural knowledge (knowing how to do) and contextual knowledge; the affective components include attitudes and motivation; the social components refer to the field of interaction and consultation and finally the motor and sensory components are those related to the coordination of gestures.

The Council of Europe (2006) delved into the issue of competences, and to identify the eight key competences for lifelong learning "of which everyone needs for personal development, active citizenship, social inclusion and employment": communication in the mother tongue, communication in foreign languages, mathematical competence and basic competences in science and technology, digital competence, learning to learn social and civic competences, sense of initiative and entrepreneurship, cultural awareness and expression.

By the time various organizations and research institutes both nationally and internationally are questioning on what are the key skills to possess in order to promote the inclusion of people in society to cultural, economic and business. Mario Castoldi asserts that the construct of competence is central in the redefinition of the educational task of the school "and that this centrality is demonstrated by the growing attention, recognized both nationally and internationally, to the theme of key skills for active citizenship" (Castoldi, 2010, p. 16).

In 1993 the World Health Organization with the document entitled Life Skills education in school attempts to provide a response to the needs of various countries, committed to combating and preventing various forms of deviance and social hardship which increasingly live the younger generations. In a subsequent document, the expression is replaced with life skills psychosocial skills, identified a set of personal, interpersonal, cognitive, social, affective, universal skills. The World Health Organization recognizes ten skills, anticipating, with a response that considers compelling both the size of personal identity, since those social relations, the identification of core competencies. Meanwhile, in Europe the main orientation is to move towards an investment in human capital that is not limited to formation of school type, but it is actually a hard training to lifelong learning, in order to cope with the emerging challenges of full employment and a permanent educational project as Delors says (1994).

He begins to make his way the concept of competence, called for overcoming a static conception of knowledge, in favor of a new vision in which through the knowledge subjects can adapt to changing social and living conditions.

In 1997 the OECD promotes a project called DeSeCo aiming to reach a conceptual synthesis on what are the key skills necessary for adulthood, including providing more timely reference on which to conduct international surveys of skills assessment. The reference values of this project consists of the principles of democracy and sustainable development, recognizing both the importance of realizing the potential of

individuals, acting mutually respecting each other and cooperating to create a fairer society. Key competences defined in DeSeCo are based on three fundamental criteria, in virtue of which we can say that they:

- contribute to results of great value at the individual level and in terms of social life in all its length and proper functioning of the company;
- play a functional role in the fulfilment of important and complex demands and challenges in a variety of contexts;
- are important for all individuals.

The competencies identified are nine, grouped into three categories: use of tools in an interactive way, interact into heterogeneous groups act autonomously. With this background, the Council and the European Parliament approve the December 18, 2006 the recommendation that contains the European reference framework for key competences for lifelong learning. The framework outlines eight skills that everyone needs for personal development, active citizenship, social inclusion and employment. In particular, social and civic competences as defined include personal skills, interpersonal and intercultural and cover all forms of behavior that enable people to participate effectively and constructively in social life and work, in particular to live in increasingly different societies, and to resolve conflict where necessary. Civic competence equips individuals to fully participate in civic life thanks to the knowledge of the socio-political concepts and structures and a commitment to active and democratic participation. Rychen, about the significance of key competences says: "With the myriad of social differences between individuals conceivable within and/or between countries, is there a common ground on which to define a set of core competencies (or universally applicable)? Is it justifiable for the basic premise that you cannot build and even justify a limited number of common key skills? Several contributions to DeSeCo have produced an important reply: diversity does not preclude the establishment of a common vision, sharing of ideals and the recognition of processes and global challenges (Rychen, 2007, pp. 103-104).

Within the debate about competence and evaluation Maccario (2012) highlights for competency assessment the need of a new and articulated approach that can rely on the use of complex tests for the evaluation of competences that invokes an integration of learning on the move, with an attention to true even of basic learnings that compose it. Obviously everything is based on the realization that the need to evaluate in depth and to use multiple tools, depends not only on nature and composite structure of competence, but also in view of the primary task of the school to encourage personal growth and preparing to deal with tasks and problems related to real life as well as shared by Gérard (2009), Joannert (2006), Tardif (2006), Durand, Roch (2006), Rey, Carette, Defrance, Kahan (2003).

In the practice of school contexts, therefore, there has been a progressive shift of focus from knowledge/skill acquired in the acquisition of skills related to mobilization and integration to tackle complex tasks both internal and external to schools. Wiggins (1998) synthesizing this position asserts that "it is not to ascertain what the students know, but what they can do with what they know". Educational contexts, training schools and in general, are seeing the advent of the new millennium to a progressive enhancement of the concept of competence, which raised quite a few problem areas

for those working in educational institutions, both in terms of design and evaluation of skills. First and foremost are the teachers who face new educational needs in order to promote the full acquisition of job, social and cultural skills of future generations, placing at the centre of reflection also their training needs to meet social expectations in relation to this new task.

The "human resources", if placed in the right place and according to policy, can fit into a high productivity and progression. They may be considered a real estate to be used in a strategic way. The "worker", in our case the "teacher" is, first and foremost, a human action. The action set in motion by the teacher is indeed aimed to solve a problem, to achieve a goal or for the performance of a standard request, but is also marked by purely human characters, that characterize the dynamism expressed. The employee may be considered according to different dimensions: cognitive, motivational, the strong-willed or willing and the affective-emotional dimension.

"The intention to act, to commit their energies in one direction, results from the interaction between the system itself (conceptual and operational skills; reasons, values and beliefs; value mission towards oneself, of others and of the context of professional activity etc.) and the perception of action or specific situation of professional task to be addressed and its features "(Pellerey, Orio, 2001, p. 15) more specifically, with regard to the teaching profession, it is basically undisputed educational function of evaluation and dynamic interweaving between evaluation and teaching/learning processes to the extent that it should not be considered only as a mechanism of external control connected to the learning process, rather than it can be regarded as an information tool to support the student and knowledge and understanding the teacher is required to implement to achieve the educational action, always aimed at promoting learning and growth of students. In relation to that expressed so far, real and operative situations arises, urgently, for teachers the problem of how to build tools to evaluate what pupils do.

## **The Research**

On the heels of these considerations, it has been carried out a formative experience that sees as protagonists the USR – regional school office in Campania (Italy) in collaboration with the DISUFF – Department of Human, Philosophy and Education sciences at the University of Salerno in implementing the project called Teacher Training on design and construction of verification tests for the evaluation of skills, which took place from May 2012 to May 2013 in ten Schools Polo in Campania: Torre del Greco - VI Circolo, Quarto - II Circolo, Pollena Trocchia - IPSAER Tognazzi, Napoli - IPSCT Isabella D'Este, Napoli - Liceo classico Umberto I, Nocera Inferiore - III Circolo, Battipaglia - I CD, Benevento - ISIS Galilei Vetrone, Aversa - ISIS Jommelli, Avella - IC Guerriero. The purpose of the research carried out was to conduct and assist the teachers of the various school grades to acquire, enhance and develop knowledge and skills related to the construction of valid and reliable assessment tools, with reference both to knowledge and skills.

The interventions were divided into frontal lectures, tutorials and best practices-analysis (presentation, discussion and analysis of national and international good practices).

To this end, the path pursued the following objectives:

- to acquire basic techniques for the measurement of learning;
- to improve the use of evaluation tools, reducing the risk of subjectivity and increasing the number of items available for the evaluation;
- to Know the competency assessment models;
- to carry out tests aimed at assessing skills in various disciplines.

The moments of the investigation and verification must be distinguished from the assessment of competencies. Investigation and verification concerning the detection of learnings from knowledge and skills and are performed through tools such as consolidated systematic observation, questioning, testing, written, authentic test. The assessment makes possible to interpret all data collected, understanding the sense taken together and in relations between them and thus to express a judgement founded about the degree of mastery of the person with regard to competence.

Actually achieved competency can be tested only in authentic situations (see. G. Wiggins, 1998). In the tests will be offered to students homework problems that lead to reliable results, that is supported by effective and probative feedback demonstration. You must bring real problems "opened" to multiple interpretations, enabling more solution strategies and invite students to assess their action, reflecting on strategies adopted.

In those circumstances, the route was divided into five modules:

1. evaluation of learning;
2. learning objectives in National Guidelines and the Guidelines for the secondary schools of first and second grade;
3. the concept of expertise: designing and evaluating for skills;
4. profit tests: structured and semi structured;
5. authentic assessment and build tasks for the evaluation of skills.

In the first module were addressed issues relating to the fundamental problems of education, education, theories of learning, the introduction to the assessment and evaluation of learning. It was also dealt with the process of reform of the Italian Educational System. As regards the theories of training were addressed the main theories of both teaching and learning with particular reference to the distinction between constructivist and objectivist conception. Within the objectivist conception, were considered the contributions of behaviorists Watson, Skinner, Pavlov, Thordike and cognitive Neisser and Tolman. In reference to the constructivist conception, dominant in the current scenary, we consolidate conceptions of Piaget, Bruner and

Vigotskij. In the second form the attention has been focused on building specific learning goals and educational objectives. To define and build an objective, in terms of induced behavioral and performance, it is essential to be able to lay down the criteria that make possible to collect significant information, define the level of learning achieved through comparison of the results achieved and planned objectives, between observed and expected behaviors. The third module is based on the discussion of the concept of competence, in particular from the epistemological point of view, from its spread in the general context of education and main problems connected to its use in the teaching/learning relationship. Were analyzed, in addition, the main models of competence and their classifications with regard to the Community legislation in force.

In the fourth module has been deepened the methods and tools for measurement and evaluation of knowledge, skills and competences from both a theoretical and practical laboratory exercises dedicated to the processing of testing tools in the various disciplines for teachers belonging to each order and degree. During the lectures were discussed, in particular, profit tests with closed and open response stimulus (semi structured) and those with closed stimulus and response (objective or structured), bearing in mind the reference model of the OECD-PISA test. The fifth module has been provided the basic elements of statistics in relation to the coding, processing and analysis of data. The working groups exercised when calculating measures of central tendency and dispersion indices of (mean, median, mode, standard deviation, etc.). In the same module has been presented, discussed and analyzed the materials relating to national and international good practices concerning the skills assessment.

The route was divided into fifteen meetings including five lectures and ten laboratory exercises. Laboratory exercises have seen teachers involved in:

1. construction of objectives;
2. construction of profit objective tests;
3. construction of profit semi structured tests;
4. construction of tests for authentic assessment, real performance tasks;

the laboratory activities have led to the production of a large number of elaborate, here we provide some.

### **Some examples of test for the evaluation of competences in the school.**

Test n° 1

Test theme: archipelagos

Recipients: students of the fourth year of a liceo scientifico

Purposes: from National Ministerial Directions for high school courses "... in terms of methodology, the initial approach of phenomenological and mainly descriptive type you can navigate to an approach that puts the focus on the laws, on models, on



formalization on the relationship between the various factors of the same phenomenon and between different phenomena. Upon completion of this course the student will have therefore acquired the following skills: to make logical connections, to recognize and establish relationships, to categorize, ... "



In the picture we can see an archipelago of our peninsula : this is the archipelago of islands.... An archipelago is a group of islands that can be more or less far apart, sometimes so far as not to be visible to the naked eye between them!

Mario is in Alimara, one of the main islands of the archipelago that also includes Belterra and Collaria. The island of Belterra is famous for its lighthouse 50 meters high and it is from the island of Collaria 10 km. Mario decides to take a trip with his boat to Collaria but does not know how far Alimara is and thus cannot calculate the time of the crossing. He calls Guido, the lighthouse keeper of Belterra. The information Guido has got are the distance of Belterra from Alimara (5 km) and the angle that Belterra shapes with the Alimara and Collaria ( $60^\circ$ ). Mario is not discouraged because he knows how to find the required distance with information received!

Question 1: calculate the distance between Alimara and the nearest Collaria a decametre. Explicit solution procedure.

Question 2: calculate the angle under which the lighthouse of Belterra is seen by Alimara in radians. Explicit solution procedure.

Question 3: express in sexagesimal notation an angle equal to  $33.52^\circ$ . Explicit solution procedure.

Correct Answers:

Question 1: [applies the law of cosines or cosine: 8.66 km]

Question 2: [apply the second law of right triangles:  $\text{tg}\alpha = 0.01$ ]

Question 3: [ $72^\circ 33' 30''$ ]

Test n° 2

Theme: environment greenhouse

Recipients: students of the second year of a secondary education institution.

Purpose: the National Ministerial Guidance for high school courses "... in terms of methodology, the initial approach of phenomenological and mainly descriptive type you can navigate to an approach that puts the focus on the laws, on models, formalizing, on relations between the different factors of the same phenomenon and between different phenomena. Upon completion of this course the student will have therefore acquired the following skills: to make logical connections, recognize and establish relationships, categorize, ...".

Specific objective of learning: Learn about weather phenomena and Earth's climates

The gases identified as directly responsible for the greenhouse gases are carbon dioxide, methane, chlorofluorocarbons, nitrogen dioxide, ozone.

1. What is the less relevant to the greenhouse effect quantitatively?

a) carbon dioxide b) ozone c) nitrogen dioxide d) chlorofluorocarbons. What is the direct consequence of the increase of greenhouse gases in the atmosphere?

t) the temperature rise b) variations of the hydrological system c) melting glaciers d) Onset of diseases

3. Greenhouse gas emissions produced by human activities are growing at a rate of 0.5 -0.7% per annum. If the trend of growth will not be limited, by 2100 the concentration in the atmosphere of greenhouse gases could reach 700 ppm.

Determines their average concentration measured in the year 2000. Motivates the answer.

4. from the graphic the energy sector appears to have greater importance in the production of greenhouse gases. In your opinion what is the reason?

### **Conclusions**

On the basis of this experience we can say that school context today is the need to work to continue to spread a culture of evaluation in which the main idea is planning and assessing for competence. The establishment of the constructivist school paradigm requires adapting educational practices, specifically educational action, setting the design around the complex system that revolves around competency acquisition processes in its different levels.

Conceptual changes that have been referred to show that verification tests for competency assessment form, in particular, the operational turnaround and thought, as well as the task with which the Italian and European school held, is called to respond in order to acquire the fundamental elements of a methodology that allows to reach an assessment not only of the presence of a skill but also his level.

## References

- [1] Allal L. (1991), *Vers une pratique de l'évaluation formative. Matériel de formation continue des enseignants*, Bruxelles.
- [2] Allal L., Bain D., Perrenoud P. (éd. Par) (1989), *Évaluation formative dans un enseignement différencié*, Lang, Berne.
- [3] Baldassarre V.A. (2004), *Progettare la formazione*, Carocci, Roma.
- [4] Brockmann M. (2007), *Qualifications, learning outcomes and competences: a review of European divergences in vocational education and training (VET)*, WQorking paper. Disponibile sul sito. [www.kcl.ac.uk/content/1/c6/01/57/15/literature\\_review.pdf](http://www.kcl.ac.uk/content/1/c6/01/57/15/literature_review.pdf)
- [5] Castoldi M. (2010), *Didattica generale*, Mondadori, Milano, p. 104.
- [6] Castoldi M., (2009), *Valutare le competenze*, Carocci, Roma, p. 16.
- [7] Coggi C., Notti A. M. (2002), *Docimologia*, Pensa Multimedia, Lecce. p. 118.
- [8] Deci E. L. , Moller A.C. (2007), *The concept of competence*. in J. Elliot e C.S. Dweck (a cura di), *Hanbook of Motivation and Competence*, New York: Guilford, pp.579-597.
- [9] Delors J. (1994), *Crescita, competitività, occupazione*, Il Saggiatore, Milano.
- [10] Durand M. J., Roch C. (2006), *L'évaluation des apprentissages de la planification de la demarche à la communication des resultants*, Hurtubise, Montréal.
- [11] Gerard F.M. (2009), *Évaluer des competences. Guide pratique*, Bruxelles: De Boeck.
- [12] Jonnaert P. (2006), *Dis-moi ce que tu évalues et je te dirai ce que tu as voulu enseigner: où sont les connaissances et les compétences des étudiants*. In Raucant B., Vander Borgh C. (sous la direction de), *Être enseignant. Magister? Metteur en scène?* (pp. 274-286), Bruxelles: De Boeck – Université.
- [13] Maccario D. (2012), *A scuola di competenze. verso un nuovo modello didattico*, SEI, Torino.
- [14] Mason L. (1996), *Valutare a scuola. Prodotti processi e contesti dell'apprendimento*, Cleup, Padova.
- [15] Mason L. (1997), *Valutare a scuola*, Cleup, Padova.
- [16] Meghnagi S. (1992) , *Conoscenza e competenza*, Loescher, Torino.
- [17] Minichiello G. (2003), *Elementi di didattica generale*, Edisud, Salerno.

- [18] Pellerey M. (2002), *Processi di transfer delle competenze e formazione professionale*. in ISFOL, *Le dimensioni metacurricolari dell'agire formativo*, (a cura di C. Montedoro), Milano, F. Angeli, 2002, 113-153.
- [19] Pellerey M. (2004), *Le competenze individuali e il portfolio*, La Nuova Italia, Firenze.
- [20] Pellerey M. (2010), *Competenze. Conoscenze, abilità, atteggiamenti.*, Tecnodid, Napoli.
- [21] Pellerey M., Orio F. (2001), *QPCC- Il Questionario di percezione delle proprie competenze e convinzioni*, Edizioni Lavoro, Roma, p.15.
- [22] Perrenoud P. (2002), *Dieci nuove competenze per insegnare*, Anicia, Roma.
- [23] Quaglino G. P. (1990) , *Competenza*, in *Appunti sul comportamento organizzativo*, Tirrenia, Torino.
- [24] Raccomandazione del Parlamento europeo e del Consiglio del 18 dicembre 2006 relativa a competenze chiave per l'apprendimento permanente (2006/962/CE).
- [25] Rey B., Carette V., Defrance A., Kahan S. (2003), *Les compétences à l'école. Apprentissage et evaluation*, Bruxelles: De Boeck – Université.
- [26] Rychen D. S. – Salganik L. H. (a cura di) (2007), *Agire le competenze chiave*, Angeli, Milano, pp. 103-107.
- [27] Tardif J. (2006), *L'évaluation des competences. Documenter le parcours de développement*, Montréal: Chenelière Education.
- [28] Wiggins G. (1998), *Educative assessment: Designing assessments to inform and improve student performance*. San Francisco: Jossey-Bass.

