Learning to Learn Assessment: The KC-ARCA Model

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Introduction

The present paper outlines a research-training process carried out with a sample of primary and lower secondary school teachers aimed at assessing the key competence of citizenship learning to learn. For this purpose, an assessment model was developed called KC-ARCA Model (Key Competences - Assessment, Rubrics, Certification of Achievement Model) which was tested in an exploratory way within the schools involved in the research.

1. Theoretical framework: from the development to the assessment of competences

In recent decades, the construct of competences has been one of the most innovative issues within the framework of the scholastic curriculum. These changes have had an impact not only on curricular design, but also on learning assessment (Viganò et al. 2011). Therefore, it is necessary to use a variety of assessment tools able to detect not only thanks to a solid knowledge base but also the ability to apply it in real problematic situations. The aim should be to construct tools capable of detecting transversal skills such as problem analysis and problem solving, learning to learn and reflecting on one's own experiences, exploiting the past ones to be able to experiment in new fields of action (Lucisano, Corsini, 2015).

Referring to the studies related to the issue, the theoretical model that inspired this research is 'Authentic Assessment' which aims at developing multidimensional methods of assessment able to overcome the rigidness sometimes attributed to the testing assessment (McClelland, 1994). In this case, the task of assessment is really intended to provide information on the processes that generate learning and how the knowledge acquired is put into practice through effective behaviours inside and outside the school. Authentic assessment focuses on how the student builds up his/her own personal learning operating actively in different situations, rather than on standardization of the results. In so doing, it can also promote a new way of thinking of the assessment processes inside the school, referring to direct forms of performance assessment: authentic assessment doesn't assume any predictive or projective function, but evaluates the action produced directly in the field. Learning is seen as a product of contextualized knowledge accordingly, transferable in similar situations of use (*near transfer*). In this case it is useful to refer to the so-called «authentic tasks» or «reality tasks» (Wiggins, 1990).

An authentic task requires the use of internal capabilities and knowledge, skills and competences that students have learned at school or in other non-formal/informal educational contexts. Authentic assessment is therefore founded on the belief that academic achievements are not given by the accumulation of

knowledge base, but are based on the ability to generalize, modeling, identifying relationships, transfer the acquired knowledge in real contexts.

2. The in-field research

2.1 Research context

Over the last few decades within the Italian school system, the issue of competences has been supported by several regulatory measures. An important contribution was provided by the National Guidelines for curriculum (MIUR, 2012), as well as by decree no. 139 of 22 August 2007 which clearly indicated the key competences of citizenship to be developed in the course of compulsory education, recalling those provided for by the European Recommendation on key competences for lifelong learning of 2006, as updated in 2018. The KC-ARCA Model was designed to respond to the need of schools to plan shared assessment tools that can evaluate a complex competence such as learning to learn.

2.2 Research methodology: objectives, questions, phases, instruments

The research objectives were to choose and/or build assessment tools to learn how to learn competences that are valid and reliable within the sample schools; to contribute to the professional development of teachers regarding the assessment of competences. The research question was how to develop a methodological model that can support teachers in the assessment of learning to learn, so that it can be recognized in subsequent grades of schooling.

The research sample was represented by 7 schools in the province of Arezzo that established a network following a grant from the Regional Scholastic Office of Tuscany to carry out experiments for innovation and improvement of teaching. The research was attended by 52 teachers (29 from the primary school and 23 from the lower secondary school),

The research was conducted through the following steps:
1. setting up of the research-training group: 7 teachers in charge (1 per school), 3 researchers from the University of Florence and 1 delegate from USR Tuscany;
2. definition of the research design: sharing of the research methodology and of the tools to be used (rubrics and authentic tasks);
3. setting up of work groups aimed at constructing rubrics and authentic tasks on the competence of learning to learn;
4. peer review of the designed instruments;
5. socialization and dissemination of the evaluation tools designed within the schools involved in the training research project.

One of the activities that most involved the research group before the definition of the survey design was to identify a shared definition of the competence of learning to learn. We started from the analysis of some studies developed within two main research paradigms: a) the cognitive psychology paradigm which considers the mechanisms used to assimilate the knowledge base, and b) the social cultural paradigm which is focused on the process of learning embedded in social context (Stringer et al., 2010). In these perspectives, learning to learn refers to the ability to access, gain, process and assimilate new knowledge and skills, followed by the ability to critically reflect on the purposes and aims of learning. For other authors it is a complex mix of dispositions, experiences, social relations, values, attitudes and beliefs that coalesce to shape the nature of an individual's engagement with any particular learning opportunity of individual students (Deakin Crick, Broadfoot, Claxton, 2004). Learning to

learn has to be seen also as 'the ability and willingness to adapt to novel tasks, activating one's commitment to thinking and the perspective of hope by means of maintaining one's cognitive and affective self-regulation in and of learning action' (Hautamäki et al., 2002: 39). Therefore, learning to learn involves a set of principles and skills which can help learners learn more effectively and so become learners for life. The belief that learning is learnable represents the core principle.

These studies were then compared with the provisions of the reference legislation and with the Recommendation of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning (2006/962/EC) and Decree no. 139, August 22, 2007.

In view of the breadth of the processes underlying a complex competence and referring to McCormick's studies (2006), the research group decided to break down the competence of learning to learn in specific indicators easier to be considered in the construction of specific rubrics and authentic tasks. For the first circle of education the competence has been made to coincide with the ability to: 1. self-evaluation; 2. identification and selection of information; 3. use of information and acquisition of a study method; and 4. organization of school-work.

3. Research products and results

Having established a shared definition of the competence of learning to learn, vertical work groups, made up of teachers of primary and lower secondary school have been set up for each indicator, so as to proceed to the construction of the instruments to evaluate it (rubrics and authentic tasks).

In a second step in order to share the tools and verify their reliability both internally and transversely to the various working groups, peer review groups were set up with the task of revising the products fostering the triangulation of points of contact between teacher and researchers.

3.1. Setting up assessment rubrics

The assessment rubrics were designed to highlight the progression of the indicator considered in the different classes of primary and lower secondary schools (Danielson, Hansen, 1999). Table 1 shows an example of competence descriptors for primary and lower secondary school classes referring to the indicator: 'Self-assessment'.

3.2. Planning authentic tasks

According to Authentic Assessment theories it is necessary to consider the construction of specific reality tasks for the assessment of competences. A reality task: 1. Is based on real tasks and not on evidence which have a predictive value; 2. requires judgment and innovation, as it leads to the solution of problems that may have more than one right answer or multiple ways of solving the problems; 3. asks the student to participate in the construction of knowledge, identifying, recognizing and processing the main structures of the subjects; 4. requires the effective use of a *repertoire* of knowledge and functional skills to deal with complex tasks; not just to show the amount and extent of knowledge, skills and competences acquired, but to highlight the plasticity, integration, connectivity of knowledge among them and the surrounding reality; 5. gives the opportunity to select, repeat, test pattern of action, check resources, get feedback and improve performance by increasing levels of *mastery* (Wiggins, 1990).

TABLE. 1. *Assessment rubric of 'Self-assessment' in primary and lower secondary school*

	1st Class	2nd Class	3rd Class	4th Class	5th Class
Competence descriptors	The pupil can ask for help If guided, the pupil recognizes the outcome of his work at a global level	The pupil recognizes and communicates the difficulties encountered If guided, the pupil uses error recognition and self-correction strategies	The pupil recognizes and communicates the difficulties encountered, talking about his own work The pupil in a mostly autonomous way uses (sometimes asking for help) error recognition and self-correction strategies The pupil identifies new learning	The pupil recognizes and communicates the difficulties encountered, talking about his own work The pupil in a mostly autonomous way uses error recognition and self-correction strategies The pupil identifies new learning	The pupil motivates his/her own work The pupil uses autonomously error recognition and self-correction strategies The pupil identifies new learning and can use it in new context The pupil identifies, by describing them, the main strengths and weaknesses of the task performed, proposing possible procedural and executive alternatives

	1st Class	2nd Class	3rd Class
Competence descriptors	The student explains his own work The student recognizes his own weaknesses and, if guided, knows how to use his own strengths The student autonomously uses strategies to recognize errors	The student explains and analyses his own work autonomously The student recognizes his own weaknesses and, if guided, knows how to use his own strengths to face a task autonomously The student autonomously uses error recognition and self-correction strategies The student chooses the most effective learning strategies	The student motivates his work in a knowledgeable way The student is aware of his weaknesses and can use strategies to deal with difficulties The student autonomously and consciously uses error recognition and self-correction strategies The student chooses the most effective learning strategies The student identifies new learning and knows how to apply it in new contexts

An authentic task designed for the assessment of the indicator 'Self-assessment' is exemplified below (Table 2).

TABLE. 2. *Authentic task - indicator 'Self-assessment' in primary and lower secondary school*

Competence	Learning to learn
Indicator	Self-assessment
Authentic task typology	Self-assessment questionnaire or cognitive biography related to the realization of an individual and / or collective task
Recipients	5th grade primary school class – 1st grade lower secondary class
Activities	Compilation of a questionnaire or construction of a cognitive biography *'Answer the following questions. When requested, indicate how satisfied you are with your job (not satisfies, not very satisfied, quite satisfied, very much satisfied, delighted with)* *Was the task you have just realized difficult/easy? Explain the reason why* *Did you encounter any difficulties during the realization of the task?* *If yes, what were they?* *How did you solve them?* *Did you need to ask for help?* *Were the aids provided useful?* *What were the mistakes you made?* *Were you able to correct them? If yes, how?* *How and what would you improve on the final product?* *What do you like most about the work you have done? What least?* *What did you learn anew?* *How could you reuse what you've learned?* *What did you like most about working on the task that was proposed to you? What less?* *How did you feel during the entire performance of the task (at the beginning, during, at the end)?* *(in case of group work) Did you collaborate easily in solving the task?* *How did you set up the work at the beginning of the task? ... and how did you finish it?* *What choices did you make during the task?* *Were there any reasons for dispute among you?* *If yes, how did you overcome them (or were they not exceeded)* *Would you like to be engaged in a similar task again?'*
Products	questionnaire / cognitive biography and analysis of the answers

3.3. Research group internal validation of the products

Once the planning of the assessment rubrics and of the authentic tasks was completed, the reliability and the degree of sharing among the participants in the research-training course was verified.

The following aspects were considered: clarity and progression of the descriptors of the assessment rubrics; the ability of the rubrics to discriminate qualitatively different behaviours with reference to the criteria of complexity, accuracy, extent, transferability of the expected actions; validity and consistency of the descriptors of the rubrics with the types of authentic tasks proposed; sustainability and viability of the designed authentic tasks. To this end, a process of triangulation relating to the products and to the teachers' and researchers' point of views has been set up through peer review (Sluijsmans et al., 2004).

Conclusions

Despite the limits linked to the narrowness of the reference sample, the KC-ARCA model has represented a pilot project capable of stimulating the teachers to build new assessment tools and a more aware use of the rubrics and authentic tasks.

The added value of the research-training experience linked to the KC-ARCA model lies precisely in having broadened the range of teachers' assessment skills, looking beyond the fence of knowledge and disciplinary skills, to project itself towards more inaccessible and little known paths such as those related to the development of transversal skills and learning to learn.

The limits of the present research depend not only on the narrowness of the sample, but also on the external validity and the generalizability of the results that instruments such as those examined here are able to provide (Grange, 2017), but which are important since they may become heuristic devices able to widen the knowledge on the ways of competences construction and on how to evaluate their acquisition starting from the school context.

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