



How Do Italian Teacher Trainees Conceive Assessment?

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Nowadays, educational research points how teaching-learning quality is interwoven with teachers' conceptions of teaching, learning, curriculum, and assessment. Given this assumption, the present papers reports a study aimed to analyse teacher trainees' conceptions of assessment. On the backdrop of review of main international studies on teachers' assessment conceptions, this paper focuses on the Italian teacher trainees' conceptions of assessment. Data from 409 teacher trainees on Conceptions Of Assessment (COA) inventory were analysed in a MANOVA design. Differences and similarities between the current results and the COA model are highlighted: even though the Italian teacher trainees generally agreed with the assessment as a lever to improve teaching and learning, it is evident that they conceive assessment as misaligned from the accountability system. The implications of results for assessment education and training are also discussed.

Keywords: assessment, teachers' conceptions, teacher trainees, teacher education, educational research

INTRODUCTION

Political, socio-economic, and cultural changes, over the last twenty years, have led to a new «attention to the quality of education systems around the world and in particular to teacher quality» (Cochran-Smith, 2016: 96). If, on the one hand, teaching and teacher education have been recognized as a crucial elements that affect students' achievements and school improvement processes (Teddie & Reynolds, 2000; Scheerens, 1992; Townsend & Bates, 2007), on the other hand, educational research pointed the need to understand not only how teachers learn and develop professional competencies but also how design and implement formative paths really effective and responsive to teachers' learning needs (Darling-Hammond & Bransford, 2005). Thus, it is important to consider the relationship between the teaching quality within an educational system and what conceptions teachers have of teaching itself, of learning, curriculum, and assessment (Brown, 2004). This last point represents a pivotal element for teacher education in terms of educational policy and practice. Prior research indicates that teachers' conceptions impact teaching actions and that teachers' conceptions influence also teachers' reactions to institutional and policy changes within an educational system.

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Therefore, exploring teachers' conceptions can be useful to understand what are implications and challenges for teacher education and teacher professional development. In this perspective, for example, the research focus on teacher trainees' conceptions is relevant in order to understand if, and how, teacher education programs influence their conceptions and their practices.

Given these assumptions, the present paper reports in the following a study aimed to analyse teacher trainees' conceptions of assessment in Italy. Moreover, this study intended to shift research attention on reasons why teachers' assessment practices are difficult to be changed (Daniel et al., 2014). Despite the implementation of several reforms in this school context over the last 15 years, and despite the long knowledge that teachers' conceptions influence the way they teach and the way they assess students, there has been little research examining such opportunities and challenges for teacher education.

BACKGROUND

Why Teachers' Conceptions Matter

Conception is generally defined as all that a teacher thinks about the rationale of education and about the aim of teaching practice. Furthermore, conceptions, as cognitive structures, include beliefs, meanings, concepts, and preferences. However, there are also other elements to be considered such as personal, social, educational, and contextual background: all these aspects can impact teaching practice.

Conceptions work as a framework through which teachers can see, analyse, and interpret their action within a learning context (Calderhead, 1996; Marton, 1981). Conceptions can have a strong effect on how teachers teach and what students learn. Moreover, conceptions can influence teachers' reactions to institutional changes and policy innovation in the school system: the focus on teachers' conceptions, in this vein, is useful to understand what are the implications and the challenges for teacher education. As a consequence, within the teacher education field great attention has been deserved to teachers' conceptions.

Prior Research on Teachers' Conceptions

Different studies have tried to analyse teaching practice focusing on conceptions teachers have of:

- Learning (Entwistle, 1997; Marton & Saljö, 1976);
- Teaching (Trigwell & Prosser, 1997; Kember, 1997; Gow & Kember, 1993; Pratt, 1992; Samuelowicz & Bain, 1992);
- Curriculum (Cheung, 2000; Eisner & Vallance, 1974);
- Self-efficacy (Tschannen-Moran et al., 1998; Guskey & Passaro, 1994; Bandura, 1989);

- Personal epistemology (Schraw et al., 2002; Wood & Kardash, 2002; Schommer, 1990);
- Assessment (Brown, 2004; Stamp, 1987).

Some studies showed how teachers' conceptions influence what teachers teach and how they teach. Cheung and Wong (2002) pointed that teachers' conceptions about curriculum become particularly evident in assessment. Dahlin et al. (2001) proved how teachers' conceptions about assessment are generally polarized (e.g., summative and formative dimensions). Dwyer and Villegas (1993), instead, reported a more complex scenario for teachers' conceptions of assessment differentiated on four integrative domains: teaching for student learning; creating an environment for student learning; teacher professionalism, and the organization of content knowledge for student learning. Betoret and Artiga (2004) developed a four-way model of teachers' conceptions that is based on two different areas: the first teacher-centred versus student-centred, and the second one, process-centred versus product-centred.

Current studies are trying to understand if teachers' conceptions of assessment can be analysed in the life context of the classroom (Klenowski, 2016; Graham, 2005), how teachers develop these conceptions (Barnes et al., 2015; Fives & Buehl, 2012), and what kind of factors influence them (Gebriel & Eid, 2017; Barnes et al., 2015; Kennedy, 2016; Daniel et al., 2014). While some studies unfold that variables such as numbers of years in education, numbers of years of professional experience, and socio-economic status do not affect teacher' conceptions of assessment, Vandeya and Killen (2007) pointed that teachers' conceptions can be affected by several factors like the education system, the subject matter, the teachers' beliefs in students' abilities, the perception of the community expectations. A very complex research object is now presenting, because conceptions about assessment are so complex, hierarchical, multidimensional, and interrelated (Brown, 2004).

The present study looks at teacher trainees' conceptions of assessment in the Italian school context. More specifically, participants in this study are students enrolled in a teacher education path for the secondary school grade (middle and high school). This one-year path is for graduate and post-graduate students with a different subject matter specialization (e.g., Maths, Physics, History, etc.) and with little experience in the school.

The Study

Given the importance teachers' conceptions have both for teaching practice and teacher education, the present study focuses on teacher trainees' conceptions of assessment. Due to the relevant changes in the Italian school system over the last 15 years (e.g. the implementation of the large-scale assessment program on the students' achievement in Italian and Math, or the implementation of the national school system evaluation) the analysis of teachers' conceptions of assessment represents an interesting element in order to design effective and responsive teacher education paths. While educational research and educational policy suggest the implementation of new assessment

practices, in Italy, the resistances teachers have respect to institutional innovations represent an urgent problem in terms of the improvement of the national school system. The focus on teacher trainees' conceptions allows addressing the reasons why, despite institutional reforms and despite the implementation of new training education paths, teachers' assessment practices tend to be traditional, misaligned with national curriculum requirements, not responsive to accountability requirements, and not really effective. More specifically the focus on teacher trainees rather than on experienced teachers intends to shed light on conceptions teachers have before they enter definitively in the school system.

In order to analyse what conceptions the Italian teacher trainees have the Brown's model of teachers' conception on assessment has been used. This model (2009; 2006; 2004) is the result of a large-scale research realized through the administration of Conceptions on Assessment inventory (COA). COA is made of 53 statements to which assign an agreement value ranging from 1 to 6. The study was aimed to describe the four teachers' conceptions about assessment (Brown, 2004):

- *Improvement*. Often pointed as formative assessment or assessment for learning. Assessment is aimed to support teaching-learning process and to foster a meaningful and effective students' learning (24 items);
- *School accountability*. Assessment is functional to prove efficacy of teachers and students. Specific standards are required for this assessment and consequences are provided for those do not respect standards. There are two different aims: fostering educational quality and promoting school improvement (5 items);
- *Student accountability*. It is aimed to account students' learning through marks and performance criteria shared with families and other stakeholders (8 items);
- *Irrelevant*. This conception is related to the perception of external assessment as inappropriate, irrelevant, and inaccurate to pursue students' learning improvement. This trend becomes evident, for example, when external evaluations are considered to have negative effects on curriculum, on teachers, and even on students and teachers (13 items).

The main four conceptions include different factors and sub-factors (Fig. 1):

- *Improvement*, assessment is functional to improve teaching and students' learning; it supplies data and information for teachers' decision-making. This factor includes first-order factors: *describe*, *student learning*, *teaching*, and *valid*;
- *School accountability*, assessment allows to certify teachers' work and efficacy within the school system;
- *Student accountability*, assessment is functional to certify students' learning.
- *Irrelevance*, assessment is perceived as irrelevant or even dangerous for teachers' practice and students' learning. This factor includes the following dimensions: *bad*, *ignore* and *inaccurate*.

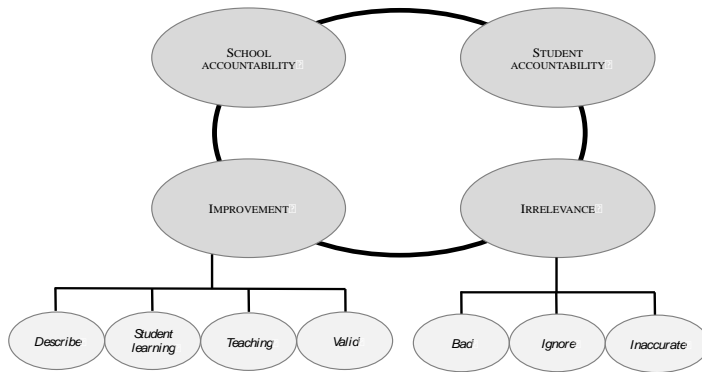


Figure 1
Conceptions of Assessment Model

Three versions of the inventory exist and several studies (Brown et al., 2019) have been realized in other countries such as in Queensland (Brown et al., 2011), USA (Calveric, 2010), Turkey (Vardar, 2010), Hong-Kong (Brown et al., 2009), and China (Li & Hui, 2007). For this study the last version (COA_III) has been used.

METHOD

During the study a convenience sample of teacher trainees has been used. The COA_III questionnaire has been administrated to 417 teacher trainees at the end of Didactics modules of postgraduate certificate in two rounds of education courses. 409 valid questionnaires have been collected. Descriptive analyses (i.e. means, standard deviations, reliability estimates) were calculated to determine teacher trainees' conceptions of assessment. A Multivariate Analysis of Variance (MANOVA test) has been also performed to examine if socio-demographic variables (e.g. years of experience or school grade) impact the four main factors of the COA_III model (and the conceptions of assessment that teacher trainees have).

FINDINGS

Data analysis shows that respondents have an average age between 31 and 50 years. Remarkable is the gender bias: 82.6% of respondents are women. The 82.9% (N. 339) of teacher trainees have never attended educational or training courses on educational assessment and school evaluation; the 10.5% (N. 43) of them affirm that attended courses were about assessment and evaluation (Tab. 1).

Table 1
Participants' Demographic Description

Variable	N
Age	
20-30	4
31-40	246
41-50	142
51-60	17
Gender	
Male	71
Female	338
Teaching experience in years	
0-1	308
1-2	96
2+	5
Educational paths or training courses on educational assessment	
Yes	43
No	339
Missing	27

Gathered data for this study are not sufficient to support a Confirmatory Factor Analysis (CFA). However, main components have been calculated and values for each conception have been compared. In the Table 2 are reported mean scores of factors, first-order factors, and values of index of reliability (Cronbach's α). Alphas within the range of .39-.89 with an average value of .86 were good, indicating that the items had sufficiently robust reliabilities. The sub-dimensions *valid* within the *Improvement* first-order factors is the only with a not good reliability. The teacher trainees of this study most frequently endorsed the *Improvement* conception of assessment (M= 3.8, Sd= .63) followed by *Student Accountability* (M= 3.4; Sd= .74), *School Accountability* (M=3.4; Sd= .95) and gave least frequency to *Irrelevance* (M= 3.2; Sd= .51).

On the whole the Italian version of COA_III presents a good reliability and its items could be meaningfully used in further analysis.

Table 2
Mean Values and Factors Reliability

Components	N. items	Mean	Sd	Cronbach α
Improvement	24	3.8	.63	.86
Teaching	6	4.4	.78	.79
Learning	7	3.8	.80	.84
Describe	6	3.4	.72	.69
Valid	5	3.3	.54	.39
Irrelevance	13	3.2	.51	.81
Bad	5	2.4	.78	.67
Ignore	5	3.0	.75	.83
Inaccurate	3	3.8	.83	.61
School Accountability	5	3.4	.95	.89
Student Accountability	8	3.6	.74	.62
Total – COA_III	50	3.5	.44	.86

Teacher trainees involved in this study agree with *Improvement* conception of assessment: they consider assessment as functional to the improvement of teaching and learning processes (*describe*= 53.9%; *student learning*= 63.6%; *teaching*= 79.3; *valid*= 50.7%). Respondents don't consider assessment as *Irrelevant*. More specifically, if on the one hand, assessment is not considered as dangerous (*ignore*= 73.6%; *bad*= 76.1%), on the other hand, respondents consider their assessment practice as extremely inaccurate (70.4%): this last aspect is interesting to be considered on the backdrop of the growing demand for assessment literate teachers in the school. For *School Accountability* and *Student Accountability* factors respondents demonstrate a substantial agreement (even though for the first-order factor the percentage is not meaningful).

Table 3
Means of Agreement/Disagreement Percentages for First-Order Factors

		Disagreement	Agreement
Improvement	Assessment describe the learning process (Describe)	44.7%	53.9%
	Assessment improve student learning (Student learning)	35.3%	63.6%
	Assessment improve the teaching process (Teaching)	19.9%	79.3%
	Assessment is valid (Valid)	48.2%	50.7%
Irrelevance	Assessment is bad (Bad)	76.1%	22.5%
	Assessment is ignored (Ignore)	73.6%	25.5%
	Assessment is inaccurate (Inaccurate)	28.1%	70.4%
School Accountability	Assessment allows the accountability of teachers and the school	46.7%	52.3%
Student Accountability	Assessment makes students measurable	39.2%	60.1%

Multivariate analysis of variance (MANOVA) with main effects for the years of experience in school, the educational or training paths on educational assessment, and the school grade was used to test whether teacher trainees' characteristics caused any statistically significant mean difference for the four factors of assessment conceptions model.

The sex variable, as specified above, was not considered due to the relevant gender bias (82.6% of respondents are women).

The interaction between teacher trainees' years of experience in school and the four factors of the assessment model (Tab. 4) has a low level of correlation ($F_{1621.59} = 1.017$, $p = .040$ Wilks' Lambda = .758). These values demonstrate a low and not significant difference between the four factors: the years of experience of teacher trainees, in other words, do not influence the conceptions they have of assessment. The participants involved in this study, generally, have not a long experience in school (Tab. 1); however, it is surprising how conceptions of teacher trainees with no experience in school are similar to those of them with 2 or more years of experience at school.

Table 4
Teachers' Years of Experience - COA Model Factors MANOVA Test

Multivariate Tests ^a				
	Effect	Value	F	Sig.
Intercept	Pillai's Trace	.954	1621.59 ^b	.000
	Wilks' Lambda	.046	1621.59 ^b	.000
	Hotelling's Trace	20.92	1621.59 ^b	.000
	Roy's Largest Root	20.92	1621.59 ^b	.000
Years exp.	Pillai's Trace	.267	1.017	.440
	Wilks' Lambda	.758	1.014	.446
	Hotelling's Trace	.289	1.012	.452
	Roy's Largest Root	.114	1.624 ^c	.040

a. Design: Intercept + Teacher_educ

b. Exact statistic

c. Computed using alpha =

The MANOVA tests with teachers' education/training courses on educational assessment (Tab. 5) revealed no statistically significant correlations. In this case the Wilks' Lambda value is very high (.978): past or previous teacher education paths on educational assessment have had no impact on teacher trainees conceptions of assessment. These data, linking to other studies (DeLuca & Johnson, 2017; DeLuca & Bellara, 2013; Guskey et al. 2014) confirm how scant is the effect of formal teacher education on teacher trainees, especially in the field of educational assessment.

Table 5
Teachers' Education on Assessment - COA Model Factors MANOVA Test

Multivariate Tests ^a				
	Effect	Value	F	Sig.
Intercept	Pillai's Trace	.976	3801 ^b	.000
	Wilks' Lambda	.024	3801 ^b	.000
	Hotelling's Trace	40.33	3801 ^b	.000
	Roy's Largest Root	40.33	3801 ^b	.000
Teacher educ.	Pillai's Trace	.022	2.09 ^b	.080
	Wilks' Lambda	.978	2.09 ^b	.080
	Hotelling's Trace	.022	2.09 ^b	.080
	Roy's Largest Root	.022	2.09 ^b	.080

a. Design: Intercept + Teacher_educ

b. Exact statistic

c. Computed using alpha =

Only the variable of school grade reaches a sufficient correlation with the four conceptions of assessment. All test realized prove a perfect correlation ($p = .000$).

Table 6
Teachers' School System Grade - COA Model Factors MANOVA Test
Multivariate Tests^a

	Effect	Value	F	Sig.
Intercept	Pillai's Trace	.951	1488 ^b	.000
	Wilks' Lambda	.049	1488 ^b	.000
	Hotelling's Trace	19.45	1488 ^b	.000
	Roy's Largest Root	19.45	1488 ^b	.000
School grade	Pillai's Trace	.141	2.83	.000
	Wilks' Lambda	.863	2.88	.000
	Hotelling's Trace	.153	2.91	.000
	Roy's Largest Root	.105	8.11 ^c	.000

Given this last MANOVA a one-way ANOVA has been performed to explore the four conceptions of assessment from the perspectives of the school grade.

Table 7
Teachers' School Grade - COA Model Factors ANOVA Test

		Sum of Squares	Df	Mean Square	F	Sig.
Improvement	Between Groups	5.347	4	1.337	4.966	.001
	Within Groups	83.174	309	.269		
	Total	88.522	313			
Irrelevance	Between Groups	.419	4	.105	.275	.894
	Within Groups	117.755	309	.381		
	Total	118.174	313			
School_Accountability	Between Groups	1.950	4	.488	.552	.698
	Within Groups	272.930	309	.883		
	Total	274.881	313			
Student_Accountability	Between Groups	4.022	4	1.006	1.778	.133
	Within Groups	174.785	309	.566		
	Total	178.808	313			

There was non-significant difference for the scores on data and non-significant correlations. Only *Improvement* factor appears to be somewhat significantly correlated with the school grade ($F = 4.966, p < 0.5$). The F values for *Irrelevance* and *School Accountability* conceptions are not relevant in terms of school grade. A difference can be highlighted for *Student Accountability*, however, the p value shows a significant difference between groups ($p > 0.5$).

The one-way ANOVA indicates not so consistent differences in terms of teacher trainees school grade. These results suggest that participants involved in this study have similar conceptions of assessment irrespective of the different school grade (e.g. middle or high school). Moreover, *Improvement* is the conception more relevant compared to the other three conceptions of assessment that correlates with the school grade variable: a possible explanation is that teacher trainees have a low level of knowledge for the more technical

aspects of assessment (e.g. those related to *School Assessment*): they tend to not consider assessment in terms of the national educational system and to focus their attention only on the teaching-learning process within the classroom. Further research is needed in order to understand if, and how, teacher trainees' conceptions of assessment can be different in relation to the school grade.

The insignificant differences between variables of teacher trainees' experience, training paths on educational assessment, and school grade in most of the items indicate how these aspects do not impact conceptions of assessment. These results indicate that teacher trainees' conceptions are flattened and no differentiated.

DISCUSSION

This study sheds light on the Italian teacher trainees' conceptions of assessment. The picture that comes out from gathered data, however, is not particularly encouraging.

The four conceptions of assessment indicated by the model of Brown in this study were indistinct. This is the first main relevant difference showed by the results: while research literature in this field has addressed how teachers' conceptions are hierarchical, complex, multidimensional, teacher trainees involved in the study demonstrated to have flattened and undifferentiated conceptions of assessment. More specifically there is no difference between teachers who have attended a course on educational assessment and those who have never attended one. Teacher education and/or teacher training (as showed by MANOVA tests in this study) do not affect what teacher trainees think about assessment. This is a relevant aspect to be considered in terms of educational policy and educational practice for teachers: it is likely that teacher education has had no impact on teachers' conceptions of assessment: teacher education or teacher training paths do not modify their conceptions. While sharing practices and modelling expert teachers can have a stronger effect on teachers' conceptions than teacher education or teacher professional development paths (Kahm 2000; Pajares, 1992), these formal paths sometimes are not really meaningful, useful, and transferable in the context of a classroom. Teachers generally tend to consider assessment as something that is functional to improve teaching and learning processes. The idea that assessment is something related only to the context of the classroom is evident also in the representation of assessment as a descriptive practice and with a qualitative methodological design. Teacher trainees do not consider the technical aspects related to assessment and to assessment literacy (e.g. how to gather valid and robust data, how to assign marks and grades, how to use a test). As Daniels et al. (2014) pointed teacher trainees, generally, «have not yet begun to view assessment as a broad and multifaceted concept» (153). They tend to focus on potential purposes and functions of assessment in terms of immediate practice in the classroom. In this vein, it is not surprising that they perceive the other “assessment forms” (e.g., school and student assessment) as something that is far from the idea of teacher and the model of teaching practice and that, for this reason, appears more challenging for them in terms of professional practice.

Secondly, *School Accountability* and *Student Accountability* dimensions are not in line with Brown's previous results. As pointed by other studies (Barnes et al., 2015; Daniels

et al., 2014) generally, *Improvement* factors and sub-factors were rated most highly and negative factors lowest. Present results confirm this, in part, only for the *Improvement* factor. Teacher trainees consider assessment as a way to certify their work and school performances but this idea is more perceived in terms of mandatory practice: for them the real sense of assessment practice pertains to students' level of achievement. A gap between *improvement* and *accountability* is evident: if, on the one hand, assessment is perceived as a chance to support and improve teaching and learning processes, on the other one, it is well-rooted the idea that assessment is only a way to measure and account students' performances and their levels of achievement. This difference emerges also with the years of experience variable. A possible explanation of this polarization is that because teacher trainees are still students and tend to experience assessment in more simplistic way.

The present results confirm what has been proven by previous studies: age, sex, teacher education, and years of service of teachers do not affect the Brown's model of COA_III. Even though Brown's studies have not founded differences in relation to the socio-economic background of schools, the findings of this study suggest a correlation between the four main factors and the school grades. Further research, however, in this field is needed to understand what conceptions teachers (and teacher trainees) have of assessment and how these conceptions impact the alignment of assessment practices within a nations school system.

LIMITATIONS

One limitation pertains to this study. The sample is not representative of all the Italian school system. Variables such as the school grade are limited to the use of a convenience sample. However, despite its limitations this study allows to shed light on the impact of teacher conceptions in the assessment domain and to carefully consider how to invest in teacher education policies and practices: it is a necessary step to change teachers' assessment culture and practices in the Italian school system.

CONCLUSIONS

What teachers think of assessment has been often considered as a neglected aspect in teacher professionalism. The findings of this study, in line with previous research literature, confirm how teachers' conceptions exert a crucial role, especially when teachers are in transition with institutional changes. Further research is urgent: «teachers are a key factor in turning assessment information and processes into improved learning. Thus it is important to understand what teachers think about assessment and how to make use of it» (Brown et al., 2009: 348). Assessment, as teaching practice, is a complex research object: different variables and elements have to be considered. However, scant are studies aimed to help teachers to understand criticalities in their job and to improve their practice (Ponte, 2002; Wallace, 1998).

Teachers' conceptions can influence teaching practice and teachers' reactions to institutional and policy reforms: a research focus on teachers' conceptions of assessment is relevant to lead the diffusion of an assessment culture within the Italian school system.

Teacher education paths should be based not only on technical-practical assessment aspects (e.g., knowledge, skills, resources, and tools) but should be focused also on how teachers conceive assessment in order to help them «become aware of their conception of assessment and how these might influence assessment decision they make as practising teachers» (Daniels et al., 2014: 155)

This study confirms that there is an urgent need to invest in teachers' judgment, training it up through educational and professional programs focusing sharply on assessment and through internal and external moderation networks.

As Remesal pointed conceptions of assessment «provide a convenient reference for the critical review of teacher education programs. These results must be taken into account, if we aim at the development of teachers' assessment competencies towards the implementation of assessment practices, likely to improve educational processes in its full extent and complexity» (2011: 480).

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