Developing a Five-Dimensional Construct of Pre-Service Teachers' Conceptions of Assessment

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Research on teachers' and pre-service teachers' conceptions of assessment (CoA) has so far focused on assessment purposes and uses. However, recent decades have seen significant changes in assessment approaches that require a deeper examination of the nature and aspects of assessment concepts. The current study is a continuation of a previous qualitative study that analyzed the COA of 94 Israeli pre-service teachers before and after an assessment course. In this study, we examined these data extensively to identify and formulate key dimensions of assessment conception. Qualitative analysis of the rich datasets, including metaphors, indicates the diversity and complexity of the assessment concept. Five dimensions of conceptions were identified: (1) complexity of the assessment process, (2) emotional attitude toward assessment, (3) assessment uses and purposes, (4) teacher-student relationship in the assessment context, and (5) criticism of the educational system. The findings expand previous conceptualizations of assessment concepts and may develop a broad model and instruments for measuring CoA. This implication is significant in this era of paradigmatic shifting in the assessment field.

Keywords: conceptions of assessment, student assessment, pre-service teachers, dimensions, metaphors

INTRODUCTION

Teachers' beliefs are individual mental constructs that are value-laden and subjectively true, resulting from significant social experiences (Skott, 2015). Teachers' assessment beliefs affect how teachers implement, interpret, and respond to evaluative practices (Brown & Gao, 2015; Moiinvaziri, 2015). Recent research has highlighted the fundamental relationships among conceptions of assessment (CoA), approaches to assessment (DeLuca, Coombs, & LaPointe-McEwan, 2019), assessment practices (Azis, 2015), and improvement of learning and teaching (Opre, 2015). Teachers' CoA is vital because it directs how their assessments are realized in their classrooms (Monteiro et al., 2021), which can influence their assessment practices (Barnes et al., 2017). Although the study of teachers' CoA is a critical issue in assessment research (Opre, 2015), it is still in its infancy and unsatisfactory (Lutovac & Flores, 2022; Opre, 2015).

Reform movements have shifted from teachers' overreliance on standardized tests to increasing formative appraisals of learning qualities. The paradigmatic changes in students' assessments rely on the changes that have taken place in teaching and learning approaches. Shepard (2000) indicated that traditional paradigms of social efficiency curricula, behaviorist learning theory, and scientific measurement are related to a summative testing orientation, whereas a social constructivist paradigm is related to a formative assessment orientation. However, she argued that previous paradigms shape teachers' actions, so newer CoA may be contrary to prevailing beliefs and reflect reluctance to adopt progressive assessment approaches. Furthermore, various ingrained views and beliefs in the school system regarding the intersection between teaching, learning, and assessment may direct or influence teachers' assessment orientations.

The transition between educational approaches and the assimilation of perceptual and practical changes may take decades. The current era is mainly characterized by the lack of uniformity and a wide range of perceptions concerning teaching, learning, and assessment concepts. Research regarding teachers' and pre-service teachers' CoA is still limited and focuses on its uses and purposes (DeLuca, Willis, et al., 2019). The present study explores existing assessment conceptions based on data from a preliminary study that focused on the training effect by examining the differences in conceptions at the beginning and end of an assessment course (Author et al., 2022). While examining the conceptions and underlying dimensions, this study intensifies conceptual aspects and expands the observation of the complexity of the assessment concepts.

Theoretical Framework

Approaches and Conceptions of Assessment

Over the last three decades, several scholars have dealt with teachers' conceptions of the nature and purposes of classroom assessment (e.g., Azis, 2015; Brown, 2006; Remesal, 2011; Willis et al., 2013; Wolf et al., 1991). Wolf et al. (1991) distinguished between two opposite poles in a continuum: the *testing culture* and *assessment culture*. Within a testing culture, which measures and ranks student achievement, teachers focus on instrument construction and production of relative student rankings. In contrast, within an assessment culture, which values long-term student development and considers the instructional practices necessary to support students' learning, teachers consider the alignment between assessment, pedagogy, curriculum, and learning. Teachers' approaches to either testing or an assessment culture impact their beliefs about intelligence, the teacher-learner relationship, and the purposes of different assessment tools (DeLuca, Coombs, & LaPointe-McEwan, 2019; Wolf et al., 1991).

In the following years, different terms were coined as a part of the paradigm shift in assessment approaches, from *summative* to *formative assessment*, from *traditional* to *alternative assessment*, and from *assessment of learning* (AoL) to *assessment for learning* (AfL). Unlike early approaches, the progressive assessment approaches are linked to the cognitive learning theory (Birenbaum, 1996), with a modern view of intelligence emphasizing the multi-dimensional nature of this construct (Gardner, 2006). The current view of intelligence stresses the non-fixed nature of intelligence and that

thinking involves a cognitive and meta-cognitive component. Furthermore, the mental processes may depend upon the social and cultural context in which they occur and are shaped as the learner interacts with the environment (Birenbaum, 1996).

The characteristics of different assessment approaches are important for understanding various assessment conceptions. According to Birenbaum (1996), the traditional assessment approaches consider instruction and assessment separate activities. The test, which is the main measurement tool, is usually of the paper and pencil type, with choice format items, and under time constraints and stressful conditions. The item/tasks are often synthetic (i.e., unrelated to the student's life experience), assessing the lower-order thinking skills of memorizing and recalling. Evaluation is merely the product, providing no significant feedback to the learners with no regard to the process. The results report as a single total score, and the criteria for test performance evaluation or the scoring process are mostly not shared with the students.

In contrast, alternative assessment approaches strongly emphasized integrating assessment and instructions, and "The position of the learner, … changes from that of a passive, powerless, often oppressed subject who is mystified by the process, to an active participant who shares responsibility… practices self-evaluation, reflection, and collaboration, and conduct a continuous dialogue with the teacher" (Birenbaum, 1996, p. 7). The alternative assessment tasks involve investigating various tools (e.g., research assignments, performance assignments, portfolios, and concept maps) that emphasize how students construct their knowledge by highlighting their strengths and weaknesses (Ören et al., 2014). Those assignments are often interesting, meaningful, authentic, challenging, engaging, and used in a real-life context. In addition, they allow assessing students' ability to reason and analyze, apply their knowledge to novel situations, demonstrate their understanding of the connections between concepts, and communicate their understanding in multiple ways (Ahmad et al., 2020). The students participate in the assessment process (such as developing assessment criteria and standards) and perform self- or peer assessment (Dayal & Lingam, 2015). The reporting shifts from a single score to a detailed performance profile through an assessment rubric, providing a more genuine picture of student learning. This kind of assessment encourages self-regulated learning, involving students as meta-cognitive, motivational, and behaviorally active agents in their learning (Heritage, 2018; Leenknecht et al., 2021). Typically, alternative assessment assignments last longer (to assess the process) than the allotment and time pressure of the standardized tests (Birenbaum, 1996).

Since the early 2000s, several quantitative studies on practicing teachers' CoA purposes were conducted by Gavin Brown and colleagues in multiple locations and languages and at different levels of instructional contexts (primary, secondary, senior secondary, and teacher education) (Brown et al., 2019). A similar study was also conducted in Israel in Hebrew (Levy-Vered & Nasser-Abu Alhija, 2015).

Brown's most common and central model (2006) identifies four major conceptualizations dimensions of assessment purposes: (1) *The improvement conception* supports and optimizes the student's learning process and improves teacher instruction. The assessment process is inextricably embedded within the educational process, and

conducted by various formal and informal tools; (2) *The student accountability conception*, where the students are responsible for their learning and obtain the necessary qualification to access different educational levels; (3) *The school accountability conception*, where assessment publicly demonstrates schools' effectiveness and related consequences; and (4) *The irrelevant conception* represents an "anti-purpose," where associated items reflect a negative perspective of assessment as something that either interferes with teaching and learning, ignored, or provides little useful information.

CoA relates to knowledge and beliefs that impact assessment practices (Takele & Melese, 2022). Teachers who perceive the assessment process as used for improving learning and teaching (the improvement conception) will favor the formative assessment methods, and teachers who have a conception of having students who take responsibility for their learning (the student accountability conception) will favor formal, summative assessment methods (Opre, 2015).

However, Brown and other researchers witnessed the complexity of CoA and demonstrated the limitations of the functions conception of assessment based on strict dichotomous distinctions, such as summative assessment versus formative assessment (Takele & Melese, 2022). For instance, a teacher can understand the role of assessment as being to improve student learning and school accountability and as irrelevant (or any variation of these beliefs) (Bernes et al., 2017).

Brown's model of CoA (Brown, 2006) has been subsequently confirmed in several studies but not in others (Brown et al., 2019), demonstrating the complex nature of these conceptions. Barnes et al. (2017) expanded Brown's model by adding two new conceptions: assessment develops students into better people and is used to control students and teachers. Deluca, Coombs, and LaPointe-McEwan (2019) recently examined variables that include not only teachers' CoA purposes but their approach toward assessment processes, assessment fairness, and measurement theory. The researchers argued that understanding the drivers of teachers' approaches to assessment enables more responsive teacher education and promotes more effective classroom assessment practices in schools that benefit student learning.

Additional studies have delved less into the understanding of the assessment concept itself (or its dimensions) but have specifically explored conceptions of various related aspects, such as choices of assessment tasks (Izci & Caliskan, 2017), attitude toward testing (Alt, 2018), conceptions toward formative assessment (Khodabakhshzadeh et al., 2018), emotional aspects concerning assessment (Chen & Brown, 2018), conceptions toward failure (Lutovac & Flores, 2022), and ethical implications of dilemmatic assessment decisions (Gao et al., 2021).

The Uniqueness of Pre-Service Teachers' Assessment Conceptions

Pre-service teachers in Israel are students trained at higher education institutions to become professional teachers with little or no classroom teaching experience. Their assessment conceptions are special because they derive and rely on their experiences as learners in the past, however, they may change during the process of their teaching

training (Hill & Eyers, 2016). This change is more noticeable following participation in the "student assessment" course as a part of the training program (Levy-Vered & Nasser-Abu Alhija, 2018). This course usually encloses decisive elements such as knowledge about assessment approaches, assessment procedures, and tools (either traditional or alternative), aligning assessment methods to teaching goals, interpretation of data, and ways to communicate the results. Several studies have indicated that pre-service teachers' conceptions shift through the course (or practicum) from summative to formative conceptions (Levy-Vered et al., 2022; Smith et al., 2014). Furthermore, positive or negative observation experiences largely influence pre-service teachers' initial conceptions and account for their teaching practice (Boyd et al., 2013; Moodie, 2016; Xu & He, 2019).

Pre-service teachers' CoA are dynamic and vary across different cultural contexts (Brown & Remesal, 2012) and policy contexts (e.g., China vs. Egypt) (Chen & Brown, 2013; Gebril & Brown, 2014). Thus, the differences in pre-service teachers' CoA can be attributed to different cultural norms, assessment policy priorities, cognitive and affective traits, and assessment courses offered (Brown & Remesal, 2012; Deluca & Braund, 2019; Xu & He, 2019).

As mentioned, the uniqueness of assessment conceptions of the pre-service teachers' population stems from the transition from a student's to a teacher's point of view and from the knowledge and skills they acquire during the training process, possibly changing and shaping conceptions. The training allows them to look at the assessment concept from new perspectives, from a deep understanding and familiarity with various assessment approaches and tools, and reflectively observe the change in their CoA. They, therefore, have a wide and rich range of conceptions across the sequences of different aspects.

Research Purpose and Questions

Research on teachers and pre-service teachers' CoA has so far focused on assessment purposes and uses, while recent decades have seen significant changes in assessment approaches that require a deeper examination of the nature and aspects of assessment concepts. The current study aimed to identify key dimensions in assessment conceptions from a qualitative perspective of pre-service teachers. Subsequently, the following research question was stipulated:
What dimensions form the construct of pre-service teachers' CoA?

Cultural Context

The assessment constitutes a complex notion in the Israeli educational context owing to the tension between accountability requirements (compliance with national and international tests) and the need for diversification and renewal of assessment methods. External assessment is conducted continuously and determines, to a large extent, educational policy and internal assessment practices (Inbar-Lourie & Shohamy, 2021). OECD TALIS (2020) research demonstrates that Israeli teachers are perturbed the most by the responsibility for their student's achievements (61% compared with 44% in the other OECD countries) and the heavy load of tests and assignments in the system (49% compared with the OECD mean of 41%).

Despite the Ministry of Education's efforts, the "testing culture" remains dominant in schools (Inbar-Lourie & Levi, 2020). Adopting alternative assessment methods usually depends on individual initiatives or services provided by private organizations. Recently, institutions for teacher preparation have implemented a compulsory course focusing on student assessment, lasting one semester (28 hours).

METHOD

The current study is based on the findings of a previous study (Levy-Vered et al., 2022), which adopted a qualitative phenomenological research design to examine pre-service teachers' CoA (thoughts and metaphors). Phenomenological studies reveal and interpret personal conceptions or perspectives regarding a certain phenomenon (Teherani et al., 2015). Additionally, the study employed metaphors to express conceptions, since metaphors are a significant means of revealing pre-service teachers' COA (Gök et al., 2012). Metaphors act as a bridge, allowing learners to draw parallels between new concepts and their prior knowledge.

Sample

The research data as the previous research (Levy-Vered et al., 2022) was collected from 106 pre-service teachers in a teacher education program at a large Israeli university, at the end of a one-semester course on student assessment. However, 12 incomplete, undecipherable, or deviating forms were excluded. The final research sample included 94 students (77.7% women, 22.3% men), all of them had either a first or a second degree in their respective teaching disciplines.

Instrument & Analysis

A short questionnaire was used to collect data on student assessment conceptions. It included relevant background information (gender, teaching track, and teaching experience) and four open-ended questions on assessment conceptions. The participants' CoA was examined using content analysis, defined as a systematic, repeatable technique in which some words of a text are summarized with smaller content categories based on certain rules-based encodings (Lester et al., 2020). The unit of analysis was an expression (a word or a sentence). The analysis was conducted in five stages: preliminary coding of participants' conceptions, category formation and re-analysis, assuring reliability, category accuracy and frequency counting, and developing conceptual categories and dimensions. The computed inter-rater reliability (IRR) was at 94%, serving as an assurance for reliability. The researchers classified 307 expressions into 19 categories and validated the category names according to the final data analysis. The set categories were combined into nine conceptual categories and five dimensions. At the end of the categorical analysis, the number of expressions in each basic category, conceptual category, and dimension was counted. The previous study on which this article is based provides a detailed description of the instrument and analysis sections (Levy-Vered et al., 2022).

FINDINGS

Table 1 indicates five dimensions of CoA that emerged from the categorical analysis. The "Complexity of assessment" was the dominant dimension in participants'

conceptions (31.3%), followed by "Emotional attitude toward assessment" (26.4%), "Assessment uses and purposes" (25.7%), "Teacher-student relationship in the assessment context" (8.8%), and "Criticism of the educational system" (7.8%). The five dimensions were created from several expressions ($24 \leq f \leq 96$), indicating that the teachers expressed diverse aspects of the assessment notion.

The findings follow the present base on the relative frequencies (%) from the total expressions belonging to each dimension. However, the focus is on the qualitative findings as the purpose is to present the variety and diversity of existing conceptions.

Table 1
Frequencies of CoA's dimensions

Dimensions	Frequencies ($N = 307$ expressions)	
	f	%
Complexity of assessment notion	96	31.3
Emotional attitude toward assessment	81	26.4
Assessment uses and purposes	79	25.7
Teacher-student relationship in the assessment context	27	8.8
Criticism of the educational system	24	7.8
Total	307	100.0

Dimension 1: Complexity of Assessment Notion

The seven categories that refer to the complexity of assessment notion include three categories that reflect assessment as a narrow and simple domain and four categories that reflect assessment as a complex domain, as presented in Table 2.

Table 2
Conceptual categories, categories, and frequencies of the first dimension (complexity of assessment notion)

Conceptual categories	Categories	Frequencies ($N=307$ expressions)	
		f	**%**
Assessment as a narrow and simple domain	A scanty/simple/monotonous/one-dimensional process	28	29.2
	Traditional tests as the central method for assessment	19	19.8
	Emphasis on assessment outcomes	2	2.1
Assessment as a complex domain	A diverse/complex/multi-dimensional process	13	13.5
	Existence of various alternatives to the traditional test	19	19.8
	Emphasis on assessing both process and outcomes	9	9.4
	Assessment provides a resolution for the diversity between learners	6	6.2
Total		96	100%

The respondents' references regarding assessment as a simple domain mirror narrow, rigid perceptions along with a minimized and opaque conceptual understanding of assessment. It is reflected in the use of expressions such as "an amorphous concept," "a technical tool," "lacks inspiration," "examines only low cognitive processing," "one-

sided process…,” and adjectives such as “vague,” “intangible,” “inflexible,” “monotonous,” and “static.” The perceived meager and limited assessment nature was conveyed via metaphors as: cold, alien, old-fashioned, outdated reality, “an old man with a bowl hat, a worn-out grey jacket…,” “driving slowly on a fast motorway….” The teacher is perceived as a merely technical agent, and to create a test, one needs “to understand which buttons to push, which data to insert, and a test is ultimately produced.” The low complexity of the domain was also conveyed regarding traditional tests as the main and often singular detached assessment tool for determining students’ achievements, where only the grade counts (“the commitment is to the final product, which is the grade … the process is perceived as irrelevant”).

On the four categories that reflect the complexity embedded in the assessment, the respondents’ references portray a wide and multifaceted domain. The field of assessment is described as “a flexible and versatile area,” and “open to abundant possibilities.” The intricate nature of assessment was associated with the expertise teachers require to conduct valid assessment procedures.

As part of their conception of assessment as a complex area of expertise, students emphasized the viable alternatives offered by introducing images demonstrating choice: “… eyeglasses chosen from a wide array of ,” and “a multi-lane junction, with multi-directional possibilities for both entrance and exit.” Additionally, they reflected the need for observing and evaluating the learning process (rather than just the product) and catering to student diversity: “Just as we treat plants with devoted differential attention, we also need to educate, teach, and assess our students, to cover them with a shield of warmth, protection, education, and meaningful learning.”

Dimension 2: Emotional Attitude Toward Assessment

The five categories that refer to the emotional attitude toward assessment include two categories that reflect a negative emotional attitude and three that reflect a positive emotional attitude toward assessment, as presented in Table 3.

Table 3
Conceptual categories, categories, and frequencies of the second dimension (emotional attitude toward assessment)

Conceptual categories	Categories	Frequencies (N=307 expressions)	
		f	%
Negative emotional attitude toward assessment	Negative emotions that arise related to assessment	17	21.0
	A feeling of the learner as passive in the assessment process	4	4.9
Positive emotional attitude toward assessment	Positive feelings toward various assessment tools (alternative assessment)	40	49.4
	A feeling of the learner as active in the assessment process	14	17.3
	A feeling of the ability to assess	6	7.4
Total		81	100%

The pre-service teachers' negative feelings toward assessment were associated with images and metaphors that reflect fear, menace, and weakness: "monster, pit, black hole …" and "like a guillotine or death sentence for both the teacher and the student …." Vulnerability and unfairness in assessment-related activities were also present: "torture," "discrimination and deprivation," and "like salt water that is both murky and salty." Negative feelings were also expressed in the learner's passive positioning in the assessment process.

Conversely, in three categories, the participants refer to positive feelings toward the assessment and its possibilities. Using metaphorical references, the respondents expressed feelings of enjoyment and appreciation at constructing worthwhile, meaningful assessment schemes: Assessment is "like new play-dough, it is hard and not easy to mold and work with, but gentleness and determination will enable loving and devoted hand-design of beautiful creations" and "an instrument which enables an intellectual dialogue with the learner, and a window of opportunity for original thinking." Positive feelings were also expressed in the context of active learners in the assessment process: "… personal monitoring to create new knowledge." The positive self-efficacy was expressed regarding confidence in developing new skills and their capacity to assess students in the future: "… I am learning to be a better teacher…" and "Resilience to deep water that now I can swim in…."

Dimension 3: Assessment Uses and Purposes

The four categories that refer to assessment uses and purposes include two categories that reflect assessment for summative purposes (AoL) and the other two that reflect assessment for formative purposes (AfL), as presented in Table 4.

Table 4
Conceptual categories, categories, and frequencies of the third dimension (assessment uses and purposes)

Conceptual categories	Categories	Frequencies (*N*=307 expressions)	
		f	%
Assessment for summative purposes (AoL)	Assessment for sorting and certification purposes	8	10.1
	Assessment for determining students' abilities and achievements	8	10.1
Assessment for formative purposes (AfL)	Assessment for promoting learning and teaching	47	59.5
	Assessment for providing ongoing professional information (validated and reliable)	16	20.3
Total		79	100%

Summative assessment conceptions characterized some respondents' beliefs when the reference made to assessment was used only for sorting out different levels and the division into groups, categorization, and determining the entrance level of accreditation. The metaphors used were "taking the car to pass the annual test" and "a crossword puzzle… to assess learners."

Expressions attributable to formative assessment were focused mostly on assessment for advancing and promoting both learning and instruction: "Student assessment is not a weapon in the teacher's hands, … but rather serve as a promoting and empowering tool," "assessment is the engine for efficient learning." Additional comments emphasized the guidance that assessment can provide for individual students: "… should be personal, matched to each one according to progress…" and "the marking of trails that guides the students and enables them to see if they are on the right track." In addition, the responses point to the teacher's importance as assessor and assessment as meaningful and empowering, "like a basketball coach who sums up the players' progress, … stressing which domains to focus on for the sake of improvement." The second category of formative assessment refers to collecting and supplying continuous expert information and maintaining high professional standards, like "utilizing and updating a database" and "a very professional concept, with quantifiable characteristics and parameters."

Dimension 4: Teacher-Student Relationships in the Assessment Context

The two categories that refer to the teacher-student relationships in the assessment context include a category reflecting a hierarchical relationship and a non-hierarchical relationship, as presented in Table 5.

Table 5
Conceptual categories, categories, and frequencies of the fourth dimension (teacher-student relationship in the assessment context)

Conceptual categories	Categories	Frequencies (*N*=307 expressions)	
		f	%
Hierarchical relationship	Hierarchical relationship (teacher over student)	12	44.4
Non-hierarchical relationship	Supportive and dialogic relationship	15	55.6
Total		27	100%

The expressions of respondents in this category indicate conservative, hierarchical, and fixed relationships: "I, the teacher, administer the test, and you, the students submit it to me." These assumptions and worldviews were illustrated with metaphors drawn from other common hierarchical structures, including the military, judicial system, and bureaucratic frameworks. For example, "the teacher is a commander and the student a soldier under his command… a hierarchical system of governance" and "evaluating prisoners." Teachers were also likened to competition judges "who provide ranking and a score." The teacher is presented as having almost supernatural powers of control and an aggressive attitude.

Contrarily, many conceptions comprised expressions that convey a more equally balanced teacher-student relationship whereby the teacher is depicted as supportive and attentive, providing feedback for improvement and empowerment and conducting a dialogue with the learners throughout the learning assessment process: "Assessment is the gate or door to communication," "The teacher needs to be sensitive, attentive, and patient toward the student and try and locate where the mistakes and errors arise to help

the student fix them and improve," and "A bi-directional cyclic process performed simultaneously by the teacher, the student, and the class peers."

Dimension 5: Criticism of the Misuse of Assessment in the Educational System

The fifth dimension was characterized by the concept that assessment use damages the educational system, which was present in 24 of the analyzed expressions. In this dimension, negative comments were made regarding the educational system as a result of the misuse of assessment. For example, focusing on producing grades ("A grades factory," "... determine a student's value based on the grade received"), the learner as an object ("The student is a product examined according to what he looks like and not according to his internal abilities"), and the rigid, static, meaningless, and superficial assessment used, which is based on necessity and not on constructive thought or vision. The assessment of students' performances in the educational system is likened to "a mother duck followed by a line of ducklings aligned in a column. The mother has no idea where she is headed, leading her offspring to disaster." The pre-service teachers are also referred to the harmful effects of assessment on individual learners ("bad assessment can bring about low self-efficacy" and "extinguish curiosity").

DISCUSSION

The present study introduces the concept of CoA through qualitative analysis of answers to open, direct, and intuitive questions. This method received a wide range of conceptions and divided them into five meaningful dimensions. The order of the five dimensions reflects the intensity regarding their frequency in the study findings. The findings expand previous CoA models (which focused primarily on the dimension of assessment uses and purposes), especially adding emotional dimensions. This extension is supported by the theory of planned behavior (Ajzen, 2005) that demonstrates attitudes toward a phenomenon comprise both affective and cognitive components. Furthermore, similar to previous studies (Barnes et al., 2017; Xu & He, 2019), the participants in the present study simultaneously expressed multiple conceptions, even conflicting ones, regarding the assessment notion.

The distinction in the first dimension, between a low and high degree of assessment complexity, can reflect the distinction between the traditional paradigm that focused on assessment using standard and uniform tests, mainly evaluating low thinking levels. Contrarily, the more complex alternative paradigm includes various tools assessing different levels of thinking and types of intelligence and evaluating the work process. Beyond the use of the test versus the use of various alternative tools, the advanced approaches to assessment address several actions involved in the assessment process, making it complex, continual, and multi-dimensional. For example, five key strategies in the formative assessment process: 1. Clarifying and sharing learning intentions and criteria for success; 2. Engineering effective classroom discussions, questions, and tasks that elicit evidence of learning; 3. Providing feedback that moves learners forward; 4. Activating students as instructional resources for one another; and 5. Activating students as the owners of their own learning (Andersson & Palm, 2017). Even though the perceptual dimension is significant with implications for practice, studies have hardly dealt with this as a central aspect of teachers' assessment conception. The teacher's

perception of the degree of assessment process complexity will likely be guided by various considerations for selecting and using appropriate assessment tools.

Regarding the second dimension, the emotional perspective of pre-service teachers combines both feelings as valued learners (in the past and present) and as novice teachers who experience their role as assessors. Many studies have been conducted in the context of students' test anxiety, but few focus on the students' or teachers' perception of the assessment process, their feelings before, during, and after the assessment event, and the emotional impact of different assessment methods.

Similar to the present study findings, Chen and Brown (2018), in their recent study, argued that attitudes toward assessment should include both cognitive and emotional beliefs. According to Pekrun (2019), achievement emotions are feelings directly linked to achievement activities or outcomes. Achievement emotions have both valence (i.e., positive and negative) and effect (i.e., activating or deactivating efforts to raise achievement). Positive activating feelings include enjoyment, hope, and pride; negative activating feelings include anger, anxiety, shame, and confusion. Positive deactivating feelings include relief, and negative deactivating feelings include boredom and helplessness. Most of these emotions were found in this present study in participants' expressions toward the assessment concept.

As Steinberg (2008) noted in the context of teachers, formative assessment is a form of teaching that is interwoven with assessment as well as providing continuous feedback to students that effectively transforms pleasurable and difficult emotions as part of the continuous flow of cognitive interaction. Although the growing recognition of the emotional components in the learning process prevails, like social-emotional learning (Mahoney et al., 2018), the research on teachers' feelings toward assessment and a possible relationship between the feelings and the assessment approach is still limited (Brown et al., 2018).

The third dimension focuses on conceptions of the purposes and uses of assessment. This finding supports previous CoA models emphasizing the centrality of the uses and purposes component in teachers' and pre-service teachers' assessment conceptions (Barnes et al., 2017; Brown, 2006). The participants' conceptions were classified under the summative or formative assessment categories. The summative assessment concept can be paralleled to the two dimensions of accountability proposed by Brown (accountability of school and student), while the formative assessment concept to the improvement dimension. The fourth dimension in Brown's model refers to the irrelevance of assessment and is classified in the current study under other dimensions, such as emotional (negative) aspects of assessment and criticism of the educational system's misuse of assessment.

Furthermore, the classification in the present study into two main assessment purposes is in line with Azis's (2015) approach, which proposed that CoA can be distributed on a continuum. At one end of the continuum is formative assessment (AfL) or the pedagogical pole (Remesal, 2011), when assessment promotes students' learning and provides teachers and students with the information needed to modify teaching and

learning strategies. At the other end is summative assessment (AoL) or the societal pole (Remesal, 2011), which focuses on high-stakes accountability, ranking, grading, and certification. Between these poles, there are mixed conceptions of the purposes of assessment.

The CoA may be influenced by the teacher's perception of the teaching and learning processes (Takele & Melese, 2022). Teachers who viewed teaching and learning as knowledge transmission considered assessment as a method to test students' abilities to reproduce information, while teachers who saw those processes as facilitating critical thinking viewed assessment as an integral part of the learning process.

The fourth dimension was the perception of relations patterns between teachers and students in the assessment context. Two patterns of relationships were observed in the perceptions of the research participants: a hierarchical system in which the teacher is above the student and a dialogical system in which the teacher supports the student. These patterns are also reflected in perceptions of the learning and teaching processes, especially related to the role of the teacher. Alongside the traditional approaches that see the role of the teacher as to "convey" knowledge to students, the modern approaches see it as a facilitator, mediator, and helping students to build, develop, and create knowledge (Birenbaum, 1996). Steinberg (2008) offers a way to look at the relationship between the type of assessment and the pattern of relations that develops between the teacher and the student during assessment activities. She claims that summative assessment works on the assumption that students are responsible for their results, especially their failures, so that teachers have no negative feelings toward the situation or the student. The teachers maintain an emotional distance between them—the assessors—and the students—the assessed. In contrast, formative assessment is based on teachers' shared responsibility for student progress, which means they must engage with students' misunderstandings and find ways to overcome them (Steinberg, 2008). This situation reduces the degree of hierarchy and leads to a more collaborative and dialogical process.

The last dimension refers to the participants' criticism of assessment misuse in the educational system. The resentment reflected in the research participants' perception owing to the assessment processes dictated by the education system may reflect the tension between addressing the needs of the system (standardization) and students. For example, there is a strong tension between what teachers feel is best for students versus what is deemed necessary for school accountability (Hui et al., 2017). This dimension may be significantly influenced by the assessment policies and the manner of their enforcement.

CONCLUSIONS AND SUGGESTIONS

Pre-service teachers' CoA represents what they understand, know, believe, think, or feel about assessment and can influence their assessment practices. Despite the crucial importance of these conceptions, there is little research in this field, and the dimensions underlying those conceptions have not been wide examined. Owing to paradigmatic changes in approaches to learning, teaching, and assessment, an understanding of teachers' CoA construct is necessary. The current study's findings present a broad

model comprising five dimensions of CoA: the complexity of assessment, emotional attitude toward assessment, assessment uses and purposes, teacher-student relationship in the assessment context, and criticism of the educational system.

This study may help to base a broader model of CoA and develop valid tools (quantitative and qualitative) to provide additional infrastructure for further research. The literature shows that a change in conceptions also brings a practical change in the assessment field. Therefore, examining and shaping conceptions will serve the educational approaches that the education systems are trying to promote and the teacher training institutions are trying to shape.

The study limitations include the location, the specific university from which the sample was taken, and the limited sample (i.e., pre-service teachers only). Further studies should examine these dimensions in other academic institutions, both in other countries and among teachers after training. Such a longitudinal study could provide a significant understanding regarding the development of CoA and the stage when the CoA meets the field, requirements, and educational policy in the school where they will work.

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