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THE EFFECTS OF CONTINUOUS TRAINING ON TEACHERS' ASSESSMENT LITERACY

OS EFEITOS DA FORMAÇÃOS CONTÍNUA NA LITERACIA EM AVALIAÇÃO DOS PROFESSORES

LOS EFECTOS DE LA FORMACIÓN CONTINUA EN LA COMPETENCIA EN EVALUACIÓN DE LOS PROFESORES

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ABSTRACT

The present study aimed to analyse the impact of continuous assessment training on teachers' literacy, particularly regarding the frequently observed gaps in initial education. Assessment is an essential skill for educators, but many report feeling unprepared to tackle the challenges of this complex and multifaceted task. A total of 253 teachers teaching in the Pedagogical Zone of Lisbon and the Setúbal Peninsula (Portugal) participated in the study, responding to the Assessment Literacy Questionnaire (QALA), an instrument that assesses various aspects of assessment competence, including understanding educational objectives, appropriate selection of assessment methods and instruments, as well as the interpretation and use of obtained results to enhance student learning. The findings emphasize the importance of continuous assessment training. Teachers who attended specific assessment courses showed significantly better results compared to those who did not, demonstrating greater confidence and competence in conducting formative and summative assessments. These results support the need to invest in professional development programs focusing on empowering teachers in assessment. Educational institutions and policymakers should prioritize offering specific courses and workshops to enhance teachers' assessment skills, addressing the identified gaps in initial education.

Palavras-chave:
avaliação, literacia em avaliação, formação contínua de professores, professores do ensino básico e secundário.

RESUMO

O presente estudo teve como objetivo analisar o impacto da formação contínua em avaliação na literacia dos professores, especialmente em relação às lacunas frequentemente observadas na formação inicial. A avaliação é uma competência essencial para os docentes, mas muitos relatam sentir-se despreparados para enfrentar os desafios dessa tarefa complexa e multifacetada. Participaram 253 professores a lecionar na Zona Pedagógica de Lisboa e na Península de Setúbal (Portugal) os quais responderam

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ao Questionário de Aferição da Literacia em Avaliação (QALA), um instrumento que avalia diversos aspetos da competência em avaliação, incluindo o entendimento dos objetivos educacionais, a escolha adequada de métodos e instrumentos de avaliação, bem como a interpretação e utilização dos resultados obtidos para melhorar a aprendizagem dos alunos. Os resultados obtidos destacam a importância da formação contínua em avaliação. Professores que frequentaram cursos específicos em avaliação apresentaram resultados significativamente superiores aos professores que não frequentaram tais formações, demonstrando maior confiança e competência na realização de avaliações formativas e sumativas. Estes resultados corroboram a necessidade de investir em programas de desenvolvimento profissional que foquem na capacitação dos professores em avaliação. Instituições educacionais e formuladores de políticas necessitam de priorizar a oferta de cursos e workshops específicos para aprimorar as habilidades de avaliação dos docentes, preenchendo as lacunas identificadas na formação inicial.

RESUMEN

Palabras clave:
evaluación, competencia en evaluación, formación continua de profesores, profesores de educación primaria y secundaria.

El presente estudio tuvo como objetivo analizar el impacto de la formación continua en evaluación en la competencia de los profesores, especialmente en relación a las deficiencias frecuentemente observadas en la formación inicial. La evaluación es una habilidad esencial para los docentes, pero muchos informan sentirse despreparados para enfrentar los desafíos de esta tarea compleja y multifacética. Participaron 253 profesores que enseñan en la Zona Pedagógica de Lisboa y la Península de Setúbal (Portugal), quienes respondieron al Cuestionario de Evaluación de Alfabetización en Evaluación (QALA), un instrumento que evalúa varios aspectos de la competencia en evaluación, incluyendo la comprensión de los objetivos educativos, la elección adecuada de métodos e instrumentos de evaluación, así como la interpretación y utilización de los resultados obtenidos para mejorar el aprendizaje de los alumnos. Los resultados destacan la importancia de la formación continua en evaluación. Los profesores que asistieron a cursos específicos en evaluación obtuvieron resultados significativamente superiores a los profesores que no participaron en tales formaciones, demostrando mayor confianza y competencia en la realización de evaluaciones formativas y sumativas. Estos resultados respaldan la necesidad de invertir en programas de desarrollo profesional que se centren en la capacitación de los profesores en evaluación. Las instituciones educativas y los formuladores de políticas deben priorizar la oferta de cursos y talleres específicos para mejorar las habilidades de evaluación de los docentes, abordando las deficiencias identificadas en la formación inicial.

Introduction

The process of assessing students has always been considered one of the most important responsibilities of teachers, as well as one of the tasks where the most time is spent (Mertler, 2003; Ramesal, 2011). It is therefore the possession of knowledge and skills in evaluation that are fundamental elements that should be possessed by all teachers. In very general terms, the set of knowledge and skills in evaluation is called evaluation literacy.

The concept of evaluation literacy was first presented by Richard Stiggins (1991) as in-depth knowledge of evaluation-related issues. According to Stiggins, educators/teachers with high levels of assessment literacy know what to assess, why to assess, how to assess, the problems related to assessment and how to prevent these problems from occurring (Stiggins, 1995). Brown (2008), in turn, considers assessment literacy to be the ability to design, select, interpret and make appropriate use of the information resulting from the assessment process, so as to enable appropriate educational decisions to be made.

Research into this area of evaluation has revealed two important and equally worrying aspects. On the one hand, it shows that teachers are inadequately prepared to assess student learning (DeLuca & Klinger, 2010; Koh, 2011; Xu & Brown, 2016) and, on the other hand, that teachers, regardless of their teaching experience, show a considerable lack of confidence in assessing students adequately and accurately (Koh, 2011; Yamtim & Wongwanich, 2014; Volante & Fazio, 2007). This is due to a clear gap in assessment content in initial teacher training, as well as a lack of assessment studies that allow teachers to deepen their knowledge in this area (DeLuca, Chavez, Bellara & Cao, 2013). These aspects help to explain why a large proportion of teachers have shown a significant weakness in developing and applying diversified forms of assessment, as well as an inability to interpret the data resulting from the application of assessment instruments (Koh, 2011). Mertler (2003) also suggests that in initial training, trainee teachers rarely attend programs that teach them, for example, the role of assessment in the teaching and learning process or approaches that have significant impacts on learning. This idea is reinforced by Xu and Brown (2016) when they point out that many initial teacher training programs only offer an introductory course on assessment-related issues or, in some cases, do not offer such a course at all. The main consequence of these gaps is the use of bad practices in assessment, leading teachers, in many cases, to assess their students in a similar way to how they were assessed as students (McGee & Colby, 2014).

However, as already mentioned, the task of assessment is one of the main responsibilities of teachers, as it is a fundamental process for verifying and improving student learning (Hailaya, Alagumalai & Ben, 2014, McGee & Colby, 2014). Assessment literacy is therefore one of the main characteristics that all teachers should develop, even before they start their teaching career, i.e. from their initial training. Newfields (2006) highlights three reasons why evaluation literacy is so important. The first concerns the universalization of evaluation in the school context, i.e. evaluation is present in the vast majority of school systems worldwide. This factor means that teachers all over the world spend a great deal of their time on activities directly or indirectly linked to assessment. Secondly, Newfields (2006) highlights the need to understand the educational literature on assessment issues. Greater familiarity with the concepts and statistical processes inherent in assessment makes it easier for teachers to keep up to date in these areas, and they are better able to introduce new methods that improve student learning and, consequently, assessment. Finally, the author points out that a teacher with high levels of

assessment literacy is able to communicate school results more effectively to students (feedback).

Gottheiner and Siegel (2012) highlight another aspect that gives a better understanding of the importance of evaluation literacy. The authors state that the use of diversified assessment tools should be one of the main characteristics of an assessment literate teacher. Thus, teachers with such characteristics are able to adopt and develop instruments that are more appropriate and in line with the educational objectives to be assessed (Gottheiner & Siegel, 2012, p. 534), making it fairer and more reliable. Malone (2013) also points out that strong and properly implemented assessment provides teachers, students and all stakeholders with important information about student performance and the extent to which educational goals are or are not being met. Thus, assessment can and should be integrated with teaching, forming a relationship in which it informs and improves teaching and vice versa. However, this reciprocal relationship cannot flourish when teachers do not have sufficient training to carry out all the actions involved in good assessment. Consequently, a low level of assessment literacy jeopardizes both student assessment and the entire teaching and learning process. The better teachers master the notions and processes that lead to decision-making when it comes to student assessment, the better the choices they will make for their students. Popham (2018) even points out that, from the outset, a teacher's success increases the higher their assessment literacy, as they avoid typical mistakes that are usually made by teachers with low levels of assessment literacy. The typical errors referred to by Popham (2018) usually fall into the following categories: a) use of inappropriate assessment tools; b) incorrect use of appropriate assessment tools; c) non-use of formative assessment tools.

The use of inappropriate assessment tools is one of the most serious mistakes made by teachers with low levels of assessment literacy. Popham (2018) points out that a common mistake is the use of standardized tests to assess student learning, since, according to the author, there is no evidence that such tests are appropriate for such an important assessment task. The second error identified by Popham occurs when assessment instruments developed for a particular purpose are used for other purposes. Although there is nothing to stop a teacher from finding new uses for an assessment tool, it is necessary to ensure that the tool is suitable for its intended purpose, otherwise the information gathered could be biased. An illustrative example of this type of error could be the application of a test to a student with special educational needs that does not take into account their characteristics and difficulties. Although the test may be correct and appropriate for most students, it may not be for the student in question. The third category of error is closely related to formative assessment. While it is recognized that formative assessment is the one that most contributes to the development of student learning, when it is not applied, or is used incorrectly, it does not produce the effects it should. Teachers with high levels of assessment literacy know the value and usefulness of formative assessment and therefore make better decisions about which tools to use to develop student learning. On the other hand, teachers with low levels of assessment literacy tend not to use this type of assessment, or to use it incorrectly (Koh. 2011; Yamtim & Wongwanich, 2013).

Considering, on the one hand, the importance that assessment literacy has in the whole teaching and learning process and, on the other, the shortcomings shown by teachers in this area (due to initial training that in many cases neglects this area) many feel the need to deepen their knowledge and develop skills in assessment by attending, for example, continuous training courses.

In this context, continuing education is considered to be all deliberate and organized forms of professional development for teachers, whether through lectures,

seminars, courses, workshops or other proposals (Santos & Silva, 2009). However, it should be borne in mind that ongoing training is not just something that happens occasionally, nor is it an instrument designed to make up for the shortcomings of poor initial training, but should always be an integral part of the teacher's professional practice (Laranjeira, Abreu, Nogueira & Soligo, 1999). According to Libâneo (1998), the continuous training of teachers should lead them to reflective action. Only in this way will teachers be able to reformulate their practice, rethinking the positive and negative points that occur during the course of teaching activities. In other words, in-service training should enable teachers to develop their skills and abilities with the aim of reorienting their current practices as a result of the introduction of new teaching methodologies, the diversification of working contexts, changes in management procedures or expectations or as a result of a change in roles in the school (Logan & Sachs, 1988).

The purpose of this article is to analyze the impact that continuous training in assessment has, on the one hand, on teachers' perceptions of their knowledge and skills in assessment and, on the other, on their levels of assessment literacy. The results show that attending continuous training courses in assessment significantly improves both teachers' perceptions of their knowledge and skills in assessment and their levels of assessment literacy.

Method

Participants

A total of 253 primary and secondary school teachers teaching in the Lisbon and Setúbal peninsula (Portugal) took part in this study. As can be seen in Table 1, the vast majority of participants were female (79.45%). Regarding the subject area of the participating teachers, it can be seen that Languages is the most represented (27.21%), followed by Primary School teachers (22.07%), Mathematics and Experimental Sciences teachers (21.03%), Social Sciences and Humanities (15.17%) and, lastly, Expressions (14.48%). More than half of the participants teach in the 3rd Cycle of Basic and Secondary Education (51.02%), followed by 2nd Cycle teachers (27.21%) and 1st Cycle teachers (21.77%). In terms of teaching experience, the majority have between 7 and 25 years of service (52.96%), followed by participants with between 26 and 35 years (28.46%) and more than 35 years (10.67%). Finally, it should be noted that the vast majority of teachers (73.12%) admitted to having attended continuous training courses in assessment.

Table 1
General participant data

Variables		*N*	*%*
Sex	Female	201	79.45
	Male	52	20.55
Subject area	1st Cycle of Basic Education	64	22.07
	Mathematics and Experimental Sciences	61	21.03
	Social Sciences and Humanities	44	15.17
	Languages	79	27.24
	Expressions	42	14.48
Level of Education	1st Cycle of Basic Education	64	21.77
	2nd Cycle of Basic Education	80	27.21
	3rd Cycle of Basic and Secondary Education	150	51.02
Teaching experience (years)	6 or less	20	7.91
	7-25	134	52.96
	26-35	72	28.46
	More than 35	27	10.67
Continuous training in evaluation	Yes	185	73.12
	No	68	36.88

Instrument

To analyze teachers' perceptions of their knowledge and skills in assessment, the Questionnaire for Assessing Assessment Literacy (QALA) developed by Almeida (2021) was used. The QALA consists of four parts. The first corresponds to collecting general information from the respondents. The second part aims to collect information on teachers' perceptions of their knowledge and skills in assessment. It consists of 20 *Likert*-type items with a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The third part is made up of 40 dichotomous items (True/False) and aims to gather information on teachers' knowledge of classroom assessment. The fourth part is made up of 20 multiple-choice items and aims to collect information on the teachers' knowledge of evaluation in relation to 5 hypothetical scenarios.

The items in the second, third and fourth parts are organized around four domains of evaluation literacy, inspired by the proposal by Abell and Siegel (2011):

- *Knowledge of the objectives and functions of evaluation*: The aim is to verify knowledge of the objectives and functions of assessment in general and of diagnostic, formative and summative assessment in particular. This dimension also includes knowledge of the differences between criterial and normative evaluation;
- *Knowledge of the curriculum and what is important to learn and assess*: In this area, it is important to check teachers' knowledge of the different types of curriculum, the curriculum documents in force in Portugal (Essential Learning and the Profile of the Student Leaving Compulsory Education), the legislation in force in the field of assessment in primary and secondary education, knowledge of domains of cognitive complexity such as Bloom's Taxonomy, proposed by Bloom (1956), Marzano's taxonomy, proposed by Marzano (2000), and Depth-of-Knowledge, proposed by Webb (1997), as well as knowledge of tools to help build assessment instruments;

- *Knowledge of the construction and use of different assessment tools*: In particular, diagnostic, formative and summative assessment tools. It is also important to check the teachers' knowledge in constructing different assessment items and the inclusion of students in the assessment process;
- *Knowledge of how to interpret and use the information gathered in the evaluation process*: This dimension seeks to verify teachers' knowledge and skills in calculating measures of location and dispersion, as well as some psychometric properties of assessment instruments. It was also considered relevant to assess knowledge and skills in the construction of assessment recording instruments and the use of feedback in the classroom.

The QALA showed good psychometric qualities, measured using the *Rasch* model, and good levels of internal consistency in Parts 2 and 3, with *Cronbach* 's alpha values of 0.94 and 0.74 respectively (Almeida, 2023). Part 4 presented *Cronbach* 's alpha values of 0.59, which, although a modest value, according to some authors is acceptable, satisfactory and sufficient (Taber, 2017).

Procedures

Due to the pandemic situation resulting from COVID-19, with the specific recommendations regarding social distancing and avoiding crowds, it was not possible to collect data in person from teachers. As an alternative, an online version of the QALA (Questionnaire for Measuring Assessment Literacy) was developed and then sent to the heads of various educational institutions, both in the public and private sectors, covering the Lisbon Pedagogical Zone and the Setúbal Peninsula, as long as they offered at least one of the study cycles considered in this research.

In order to minimize the possible effects of social desirability bias, the anonymity of the respondents was ensured and no information was requested that could identify them. In addition, participants were informed that their answers would be grouped by subject area, rather than by recruitment group, further reinforcing the anonymity of the data collected.

Adopting an online data collection approach had several advantages. In addition to complying with the necessary health and safety guidelines during the pandemic, it has facilitated the wider participation of a diverse range of educators, involving various educational institutions. By eliminating the need for physical presence, this method allowed teachers from remote areas to contribute to the study, ensuring a more complete and representative sample.

The response to the online version of the QALA was encouraging, with a significant number of teachers providing valuable information about their assessment literacy. The willingness of educators to take part in this study, even in such challenging circumstances, demonstrates their commitment to professional development and their dedication to improving their assessment practices.

In conclusion, the adoption of an online data collection approach was a pragmatic response to the pandemic situation, allowing for a comprehensive study despite the challenges posed by the circumstances. The use of technology enabled greater participation and guaranteed the anonymity of respondents, reinforcing the integrity of the data collected. The cooperation of teachers in sharing their experiences and perspectives through this new data collection method exemplifies the resilience and adaptability of the educational community in times of crisis.

Statistical Analysis

The data obtained was analyzed using descriptive and inferential statistics, thus providing a complete analysis. The descriptive analysis used measures of central tendency, such as mean, mode and median, as well as measures of dispersion, including standard deviation, minimum and maximum.

As for the inferential analysis of the data, we opted to use a set of non-parametric techniques. The decision to use non-parametric methods was motivated by the fact that the assumption of normality of distribution was not met, as evidenced by the *Kolmogorov-Smirnov* test. As such, the *Mann-Whitney U-test* for two independent samples was used in the inferential analysis, allowing significant comparisons to be made between groups. The significance level adopted for the inferential analysis was 5%, thus guaranteeing a rigorous approach to interpreting the results. In addition, the statistical tool used to conduct these analyses was the JASP program (Linux version), developed by the University of Amsterdam, which is renowned for its efficiency and precision.

The combination of descriptive and inferential statistics enabled a comprehensive and in-depth understanding of the data collected. The measures of central tendency provided information on the central values of the data, while the measures of dispersion highlighted the variability of the results. On the other hand, inferential analysis made it possible to compare different groups, revealing important patterns and relationships between the variables studied.

The use of non-parametric techniques in the inferential analysis gave the study robustness and reliability, even when faced with non-normal distributions. In this way, by ensuring the accuracy of the results obtained, the research provided valuable insights into understanding the phenomena under analysis.

Results

The results obtained in Part 2 of the QALA, which deals with perceptions of knowledge and skills in evaluation, have been systematized in Table 2. When analyzing the data, it is clear that teachers who have attended continuous training courses in assessment have substantially higher values compared to those who have not attended such courses. This trend can be seen both in each of the domains considered and in the overall results.

By applying the *Mann-Whitney* test, the results of which are shown in the last column of the table, it was found that both for the total set of domains and for 3 of the 4 specific domains, the differences between teachers with continuous training in assessment and teachers without such training are statistically significant for the variable under analysis. The only exception was in domain 3, which deals with knowledge about the use of different assessment tools. However, it is important to note that the p-value for domain 3 was very close to the established level of statistical significance (p=0.054).

These results are very relevant, as they reinforce the importance of continuous training in assessment for the development of teachers' skills in this crucial area of teaching practice. The results clearly indicate that participation in specific assessment courses has a positive impact on teachers' perceptions of their knowledge and abilities to assess student learning.

The teachers who undertook ongoing training in assessment showed a greater awareness of their competencies and skills in this area, which reflected positively on their educational practice. This more solid knowledge of assessment allows them to approach assessment tasks in the classroom more effectively and confidently, resulting in significant benefits for the teaching and learning process.

Table 2

Results obtained in Part 2 of the QALA - Perceptions of evaluation knowledge and skills

	With ongoing training in evaluation (N=185)		**No ongoing training in evaluation** (N=68)		***p-value***
	Average (Max.=5)	**DP**	**Average (Max.=5)**	**DP**	
Domain 1: Knowledge of the objectives and functions of evaluation	4.09	.62	3.87	.54	**.005**
Domain 2: Knowledge of the curriculum and what is important to learn and assess	3.88	.62	3.64	.44	**.001**
Domain 3: Knowledge of the use of different assessment tools	4.32	.57	4.17	.51	.054
Domain 4: Knowledge of how to interpret and use the information gathered in the evaluation process	3.79	.73	3.54	.67	**.010**
Overall results	4.02	.55	3.80	.44	**.001**

Table 3 systematizes the results obtained in Part 3 of the QALA, i.e. knowledge of evaluation. Two aspects stand out from the analysis of the results. On the one hand, there is a clear gap in teachers' knowledge of various aspects of assessment. It should be noted that the domain with the highest hit rate was Domain 2 (Knowledge about the curriculum and what is important to learn and assess), with around 67.5%, achieved by teachers with continuous training in assessment. The domain with the lowest rate of correct answers was Domain 4 (Knowledge of how to interpret and use the information gathered in the assessment process), with around 37.2%, achieved by teachers without continuous training in assessment. On the other hand, it is clear that, as was the case in Part 2 of the QALA, teachers with ongoing training in assessment have substantially higher results than teachers without this type of training. In Domain 1 (Knowledge of the objectives and functions of assessment), the difference between these two groups of teachers is practically non-existent (only 0.27 percentage points), and the differences between these two groups are not statistically significant, as verified by the *Mann-Whitney* test.

In domain 2 (Knowledge about the curriculum and what is important to learn and assess), teachers with continuous training in assessment obtained an average hit rate of around 67.5%. On the other hand, teachers without in-service training achieved an average hit rate of around 61.5%, which represents a difference of 6 percentage points. The *Mann-Whitney* test shows that the differences in the results achieved by these two groups of teachers are statistically significant (p=0.008).

In domain 3 (Knowledge of the use of diversified assessment instruments), teachers with continuous training in assessment achieved an average hit rate of around 61%, while teachers without continuous training achieved an average hit rate close to 54.3%, which represents a difference of around 6.7 percentage points between the two groups. The *Mann-Whitney* test shows that the differences in the results achieved by these two groups of teachers are statistically significant (p=0.017).

Domain 4 (Knowledge of how to interpret and use the information gathered in the assessment process) is the one with the most modest results, both in the group of teachers with ongoing training in assessment (average of 45.19% correct) and without this type of training (average of 37.21% correct). The difference between the two groups is around 8 percentage points, making it the area where the differences are most significant. This was

confirmed by the *Mann-Whitney* test, which found that the difference between the two groups was statistically significant (p=0.001).

Given the differences in each of the domains considered, Part 3 of the QALA (Knowledge of Assessment) also shows that teachers with ongoing training in assessment have more satisfactory results than teachers without this type of training. Even so, the weaknesses in the field of knowledge under evaluation are notable given the low results achieved.

Table 3

Results obtained in Part 3 of the QALA - Evaluation Knowledge

	With ongoing training in evaluation (N=185)		**No ongoing training in evaluation** (N=68)		***p-value***
	%	**DP**	**%**	**DP**	
Domain 1: Knowledge of the objectives and functions of evaluation	66.59	14.63	66.32	13.48	.856
Domain 2: Knowledge of the curriculum and what is important to learn and assess	67.46	18.84	61.47	16.51	**.008**
Domain 3: Knowledge of the use of different assessment tools	60.97	19.81	54.26	18.15	**.017**
Domain 4: Knowledge of how to interpret and use the information gathered in the evaluation process	45.19	18.18	37.21	15.63	**.001**
Overall results	60.05	13.34	54.82	10.77	**.001**

Table 4 summarizes the results achieved in Part 4 of the QALA, which deals with Scenarios in an evaluation context. Unlike what was observed in Parts 2 and 3, in this section of the QALA there is no special emphasis on teachers with ongoing training in assessment, when compared to teachers who have not attended such training. Surprisingly, teachers without continuous training in assessment obtained better results in two specific domains - Knowledge about the curriculum and what is important to learn and assess (Domain 2) and Knowledge about using diverse assessment tools (Domain 3) - as well as performing better overall in Part 4.

The results obtained and the *Mann-Whitney* test applied to this part of the QALA suggest that there is no particular relationship between the results achieved and attendance at, or lack of, in-service training courses in assessment. In fact, no domain was identified with a statistically significant *p-value*, which indicates that continuous training in assessment does not seem to be directly associated with the results obtained in that specific section of the questionnaire. This finding may raise pertinent questions about the factors that influence teachers' performance in assessment scenarios, in addition to ongoing training. Other contextual factors, teachers' professional experience or even the pedagogical approaches adopted can play a relevant role in this context.

It is essential to interpret these results with caution and consider the complexity of the interactions between different variables that can affect teacher performance in assessment scenarios. This diversity of factors may require further investigation and complementary studies to better understand the dynamics behind these apparently contradictory results.

Table 4

Results obtained in Part 4 of the QALA - Scenarios in an evaluation context

	With ongoing training in evaluation (N=185)		**No ongoing training in evaluation** (N=68)		***p-value***
	%	**DP**	**%**	**DP**	
Domain 1: Knowledge of the objectives and functions of evaluation	63.36	21.36	62.06	22.70	.798
Domain 2: Knowledge of the curriculum and what is important to learn and assess	62.82	18.67	65.00	17.06	.373
Domain 3: Knowledge of the use of different assessment tools	66.82	20.51	70.3	19.08	.296
Domain 4: Knowledge of how to interpret and use the information gathered in the evaluation process	45.94	19.82	42.06	18.00	.125
Overall results	59.73	13.62	59.85	12.73	.921

Discussion and Conclusions

Initial training is the first step in building a teacher's professionalism, but it has been shown that it is clearly insufficient to prepare teachers for all the tasks they will have to face throughout their careers. One of the areas that has been notably neglected in initial training is school assessment. However, it is common knowledge that a large proportion of classroom time is devoted to tasks directly or indirectly related to assessment, whether formative or summative.

The deficiencies found in initial training mean that teachers have relatively low levels of assessment literacy, which is worrying given the importance of the task of assessment throughout the teaching and learning process. As a result, many teachers opt for ongoing training, particularly in the area of pedagogical assessment, in order to overcome the weaknesses they feel.

In this article, the main objective was to compare, on the one hand, the perceptions that teachers with and without continuous training in assessment had in relation to their knowledge of assessment and, on the other hand, to measure their levels of assessment literacy. Based on the comparison between the two groups analyzed, we sought to establish a relationship between teachers' levels of assessment literacy and whether or not they had attended continuous training courses in assessment.

Two fundamental conclusions were drawn from the results. The results seem to show that teachers who had attended continuous training courses in assessment had a better perception of their knowledge and abilities to assess students' learning. In addition, teachers with ongoing training in assessment showed higher levels of assessment literacy when compared to teachers who had not attended such training. Thus, the positive effects of continuous training on assessment literacy levels are clear, thus making up for the weaknesses found in initial teacher training.

The results of this study highlight the importance of considering evaluation as a central element in pedagogical practices and underline the need to promote and encourage the participation of teachers in specific courses and workshops on evaluation. These initiatives can be implemented by both educational institutions and those

responsible for education policy, with the aim of ensuring that teachers are prepared to face the challenges of classroom assessment.

In short, continuous training in assessment represents an effective tool for raising teachers' literacy levels in this critical area. By strengthening their evaluation skills, these professionals have the opportunity to improve their practices, providing a more enriching and effective educational environment. Promoting a culture of continuous professional development is fundamental to ensuring educational progress and, at the same time, meeting the needs of educators in their professional growth.

References

Abell, S., & Siegel, M. (2011). Assessment Literacy: What science teachers need to know and be able to do. In D. Corrigan et al. (Eds.), *The Professional Knowledge Base of Science Teaching*. Springer. https://doi.org/10.1007/978-90-481-3927-9_12

Almeida, L. (2023). Qualidades Psicométricas do Questionário de Aferição da Literacia em Avaliação. *Revista Portuguesa de Educação*, *36*(1), e23007. http://doi.org/10.21814/rpe.24079

Almeida, L. (2021). *Literacia em Avaliação de Professores: Desenvolvimento e Aplicação do Questionário de Aferição da Literacia em Avaliação*, [Tese de Doutoramento, Universidade Lusófona de Humanidades e Tecnologias].

Bloom, B. (1956). *Taxonomy of Educational Objectives*. Book I: Cognitive Domain. David Mckay.

Brown, G. (2008). Assessment literacy training and teachers' conceptions of assessment. In C.M. Rubic-Davis and C. Rawlinson (Eds.), *Challenging Thinking about Teaching and Learning*. Nova Science Publishers.

DeLuca, C., & Klinger, D. (2010). Assessment literacy development: identifying gap in teacher candidates' learning. *Assessment in Education: Principles, Policy and Practice*, *17* (4), 419-438. https://doi.org/10.1080/0969594X.2010.516643

DeLuca, C., Chavez, T., Bellara, A., & Cao, C. (2013). Pedagogies for preservice assessment education: Supporting teacher candidates' assessment literacy development. *The Teacher Educator*, *48* (2), 128-142. https://doi.org/10.1080/08878730.2012.760024

Gottheiner, D., & Siegel, M. (2012). Experienced Middle School Science Teachers' Assessment Literacy: Investigating Knowledge of students conceptions in Genetics and ways to shape instruction. *Journal of Science Teacher Education*, *23*, 531-557. https://doi.org/10.1007/s10972-012-9278-z

Hailaya, W., Alagumalai, S., & Ben. F. (2014). Examining the utility of Assessment Literacy Inventory and its portability to education systems in the Asia Pacific region. *Australian Journal of Education*, *58* (297), 297-317. https://doi.org/10.1177/0004944114542984

Koh, K. (2011). Improving teachers' assessment literacy through professional development. *Teaching Education*, *22* (3), 255-276. https://doi.org/10.1080/10476210.2011.593164

Laranjeira, M. I., Abreu, A. N., Nogueira, N. & Soligo, R. (1999). Referências para Formação de Professores. In Bicudo, M. A. V. & Silva, Junior C. A. (Orgs.). *Formação do Educador e Avaliação Educacional: Formação Inicial e Contínua*. Unesp.

Libâneo, J. (1998). *Adeus Professor, Adeus Professora? novas exigências educacionais e profissões docente*. Cortez.

Logan, L., & Sachs, J. (1988). Inservice Education in Queensland: Some Lessons. South Pacific *Journal of Teacher Education*, *16* (1), 63-69. https://doi.org/10.1080/0311213880160105

Malone, M. (2013). The essentials of assessment literacy: Contrasts between testers and users. *Language Testing*, *30* (3), 329-344. https://doi.org/10.1177/0265532213480129

Marzano, R. J. (2000). *Designing a new taxonomy of educational objectives*. Corwin.

McGee, J., & Colby, S. (2014). Impact of an assessment course on teacher candidates' assessment literacy. *Action in Teacher Education*, *36* (5-6), 522-532. https://doi.org/10.1080/01626620.2014.977753

Mertler, C. (2003). *Preservice versus inservice teachers' assessment literacy: Does classroom experience make a difference?* In *The Mid-Western Educational Research Association*. Columbus, Ohio.

Newfields, T. (2006). Teacher development and assessment literacy. Authentic Communication. In *5th Annual JALT Pan-SIG Conference*. (pp. 48-73).

Popham, W. (2018). *Assessment literacy for educators in a hurry*. ASCD.

Ramesal, A. (2011). Primary and secondary teachers' conceptions of assessment: a qualitative study. *Teaching and Teacher Education*, *27*, 472-482. https://doi.org/10.1016/j.tate.2010.09.017

Santos, J., &Silva, P. (2009). Formação continuada dos docentes na contemporaneidade: desafios e possibilidades. *I Encontro da Associação Nacional de Política e Administração em Educação*. AMPAE-AL. VI EPEAL, Alagoas.

Stiggins, R. (1991). Assessment literacy. *Phi Delta Kappan*, *72*, 534-539.

Stiggins, R. (1995). Assessment literacy for the 21st century. *Phi Delta Kappan*, *77* (3), 238-246.

Taber, K. (2017). The use of Cronbach's alpha when developing and reporting research instruments in Science Education. *Research in Science Education*, *48*, 1273-1296. https://doi.org/10.1007/s11165-016-9602-2

Volante, L., & Fazio, X. (2007). Exploring Teacher candidates' assessment literacy: implications for teacher education. *Canadian Journal of Education*, *30* (3), 749-770.

Webb, N. L. (1997). *Criteria for alignment of expectations and assessments in mathematics and science* (Council of Chief State School Officers and National Institute for Science Education Research Monograph No. 6). Madison: University of Wisconsin–Madison, Wisconsin Center for Educational Research.

Xu, Y., & Brown, G. (2016). Teacher assessment literacy in practice: A reconceptualization. *Teaching and Teacher Education*, *58*, 149-162. https://doi.org/10.1016/j.tate.2016.05.010

Yamtim, V., & Wongwanich, S. (2014). A study of classroom assessment literacy of primary school teachers. *Procedia – Social and Behavioral Sciences*, *116*, 2998-3004. https://doi.org/10.1016/j.sbspro.2014.01.696