



Assessment of workplace-based learning: key findings from an ECE professional master programme in Portugal

Sara Barros Araújo & Ana Pereira Antunes

To cite this article: Sara Barros Araújo & Ana Pereira Antunes (2021) Assessment of workplace-based learning: key findings from an ECE professional master programme in Portugal, International Journal of Early Years Education, 29:3, 268-281, DOI: [10.1080/09669760.2021.1952854](https://doi.org/10.1080/09669760.2021.1952854)

To link to this article: <https://doi.org/10.1080/09669760.2021.1952854>



Published online: 12 Jul 2021.



Submit your article to this journal [↗](#)



Article views: 171



View related articles [↗](#)



View Crossmark data [↗](#)



Assessment of workplace-based learning: key findings from an ECE professional master programme in Portugal

Sara Barros Araújo ^a and Ana Pereira Antunes ^b

^aSchool of Education, Polytechnic Institute of Porto, Porto, Portugal; ^bFaculty of Arts and Humanities, University of Madeira, Funchal, Portugal

ABSTRACT

Workplace-based experiences are considered centrally relevant in the professional preparation of prospective teachers. In spite of this, few studies have focused on the assessment of workplace-based learning (WBL) in early childhood education (ECE). This study aims to examine pathways of professional learning of students attending an ECE professional Master programme in Portugal, based on an authentic and participatory approach to assessment. A cohort of 62 students participated in this exploratory study. Data were collected through an assessment grid organised in four domains (observation, planning, action and reflection) and 25 dimensions, in two moments: interim regulatory assessment and final assessment. Key findings point to statistically significant differences between the two moments, showing the progress of students at the level of competences in all domains and dimensions. Results allow to identify tendencies on students' learning pathways in core domains of professionalism and represent an input for understanding the effectiveness of the ECE professional Master programme.

ARTICLE HISTORY

Received 10 April 2020
Accepted 3 July 2021

KEYWORDS

Workplace-based learning; assessment; early childhood teacher education; ECE professional master; professional learning

Introduction

The professional preparation of the ECE workforce has been part of the agenda of several European countries, reflecting international policy debates and documents (Cohen and Korintus 2017; Council of the European Union 2011; European Commission 2014; OECD 2018). The professionalisation of early years staff, emphasising the development of competences, qualifications and working conditions, is considered a core strategy for meeting the dual challenge of providing equitable access to early education and care and raising the quality of provision (Council of the European Union 2011).

The initial professionalization of the early years workforce across Europe is characterised by diversity at the level of qualification requirements and in curricular frameworks (Oberhuemer and Schreyer 2018) due to different historical and cultural backgrounds and administrative arrangements. Nevertheless, work placement has been considered a relevant part of the higher education professionalisation programmes in cross-national studies (Oberhuemer 2015; Urban et al. 2011). Indeed, work placement is recognised as a 'learning space' (Jensen 2015), with opportunities for recursive processes between

theory and practice (Balduzzi and Lazzari 2015) and for its debate against beliefs and values (Formosinho and Formosinho 2016). Edwards (1998) argues that partnerships between schools and universities have the potential to be sites of regeneration of professionalism. In the same direction, several authors have been calling attention to the need for a new epistemology for teacher education through the creation of a 'third space' that would recognise and enact a non-hierarchical interplay between academic, practitioner and community expertise (Martin, Snow, and Franklin Torres 2011). In early childhood teacher education, this 'third space' is perceived as a collaboration space between two learning sites, university and preschools (Jónsdóttir 2015).

This background points to the need for workplace-based experiences that accommodate the complex and dynamic nature of teachers' professional preparation and facilitate professional learning. The assessment of these experiences constitutes a challenge for higher education institutions (HEI) (Jensen 2015), with claims for more problematisation (Formosinho 2009) and transparency (Aspden 2017).

Assessment of workplace-based learning

According to Caughlan and Jiang (2014), the assessment of WBL specifies what teachers or prospective teachers should know and practical know-how in real contexts of teaching. This type of assessment has been associated with the improvement of teaching practices of future teachers (Caughlan and Jiang 2014) and recognised as influential in their learning processes and reflexivity (Wei and Pecheone 2010).

Several authors have been endorsing an authentic approach to the assessment of professional learning. Darling-Hammond (2001) considers that the assessment of future teachers should be based on complex and holistic views of teaching and on validated professional performance standards within an authentic assessment that is sensitive to context, longitudinal and individualised. The author considers that such an approach to assessment offers more valid measures of prospective teachers' knowledge and skills than traditional paper-and-pencil tests (Darling-Hammond 2006; Darling-Hammond, Newton, and Wei 2013). Authentic assessment includes opportunities for the development and analysis of teachers' thought and actions in situations based on experience and oriented towards problem solving (Darling-Hammond and Snyder 2000). The systematic review of authentic assessment literature carried out by Villarroel and colleagues (2018) corroborates these ideas, identifying three core conceptual dimensions of authentic assessment: realism, cognitive challenge and evaluative judgement. *Realism* refers to the presence of a 'real context' that frames relevant problems to be solved, and facilitates transference of knowledge to realistic situations; *cognitive challenge* involves building knowledge and using higher-order cognitive skills, such as understanding, establishing relationships between new ideas and previous knowledge, and linking theoretical concepts with everyday experience and *evaluative judgement* that recognises that students' assessment involves both standards and the practice of judgement. In this case, formative assessment is considered a key component, emphasising the development of independent judgement by the student and the role of feedback in nurturing the life-long capability of students to assess and regulate their learning (Villarroel et al. 2018).

Darling-Hammond and Snyder (2000) point out that an authentic approach to the assessment of future teachers supports them to dislocate from generalisations about

the practice to learning approaches that are apparently more idiosyncratic, contextual and responsive to the multidimensionality of each students' problems and possibilities. Similar ideas are shared by Tillema, Smith, and Leshem (2011) that stress the dual purpose of assessment in teacher education: to establish attainment of learning objectives and professional standards, and to scaffold and promote development and growth in the profession.

Authentic assessment recognises the student's agency within the assessment process. Indeed, several authors have been recognising the need for wide participation in the assessment of WBL, involving mentors in HEI, mentors in workplace institutions and students. Brody and Irving (2007) call attention for the need to consider not only the employer and higher education framework requirements but also the learner requirements. Wiggins (2011) refers that alternative assessment becomes more rigorous, fair and equitable when it involves the opinion, dialogue, input and feedback of those that are being assessed. Caughlan and Jiang claim for an *agentive professionalism* (2014, 381) when examining the need to consider students' power and agency, and their opportunity to make decisions when choosing the instruments to assess the progress and the exit performances of candidate teachers. Indeed, the authors stress that these instruments are not neutral, but reflect the values of the programme that uses them; furthermore, the programmes must be vigilant on the consistency between the learning theory that they advocate and practice, and the assessment theory, both of them being often at odds.

In the specific realm of the preparation of candidate ECE teachers, an inclusive approach that involves students' participation in assessment has also been reinforced. Flämig, König, and Spiekermann (2015) point the need for students to be positioned as subjects at the centre of learning and not as objects of educational measures. Also, Dayan (2008) proposes a humanistic–democratic approach, with students and supervisors from university and early childhood centres engaging in partnerships and democratic processes of deliberation and discussion that could benefit students' autonomy and their sense of responsibility for their learning and professional growth. Loizou (2011) calls special attention to the pivotal role of power relations in early years practicum and the importance of empowering student–teachers by enacting critical reflection on professionalism and praxis. Student–teachers should consider mentors' knowledge and experience and, simultaneously, be given the opportunity to critically reflect on their own and other practices. These ideas are relevant for assessment processes within a participatory *ethos*, because, according to the author, in this potentially empowering role, student–teachers become agents of their own learning and in the shaping of their teaching identity.

Furthermore, studies have been emphasising the importance of shared responsibility of HEI and ECE centres in assessment processes (Aspden 2017; Dayan 2008; Jensen 2015), as well as a joint focus on formative and summative assessment (Aspden 2017; Balduzzi and Lazzari 2015).

This exploratory study departs from the acknowledgment of the importance of WBL in the preparation of ECE teachers, which constitutes an understudied topic in the early years. Drawing on previous results (Araújo and Antunes 2018), this study aims to examine ECE candidate teachers' pathways of professional learning during a practicum, through the use of a reflection-based instrument, in two different phases. The study tries to answer a composite research question: what was the students' learning progression on

core professional competences at the level of: (i) observation; (ii) planning; (iii) action and (iv) reflection?

Method

Participants and context of the practicum

A cohort of 62 students (61 women and 1 man) participated in the study. These students attended an ECE professional master at a Portuguese HEI. Specifically, the participants attended their final practicum, the key component of the Master programme, in a total of 360 h, articulating, each week, full days in ECE institutions (three or four, depending on the semester) and full days in HEI. The practicum experiences were supported by on-site supervision by a cooperating supervisor (early childhood teachers that supervise the practicum *in situ*) and the supervisor from the HEI, seminars in the HEI, individual reflective narratives, field-based journals and portfolios. Prior to the Master, students attended three periods of initiation into professional practice during the Bachelor in Basic Education, focused on observation and cooperation in educational institutions, including 50 h in ECE settings.

In Portugal, since 2007, within the changes brought about by the Bologna Process, the initial professional studies of ECE teachers are characterised by a sequential model that encompasses a Bachelor's degree in Basic Education (*Licenciatura em Educação Básica*, 6 semesters and 180 ECTS), common for all candidate teachers, and a professional Master's degree, one of the highest qualification required at an European level (Oberhuemer and Schreyer 2018). In the present study, students attended the second and third semesters of a professional Master in Pre-school Education (*Mestrado em Educação Pré-Escolar*, 3 semesters and 90 ECTS).

Instrument

This study used the Assessment Grid on the Learning Processes in Supervised Pedagogical Practice (AGLP_SPP) (Ribeiro, Araújo, Oliveira and Neiva 2010/2012). The use of this reflection-based grid serves as the basis for the interim regulatory assessment and the final assessment of students' professional knowledge and competences. Its construction took into consideration the Portuguese specific profile of the professional performance of an early childhood educator (Decree-Law 241/2001, Annex No. 1), the guiding principles of Pedagogical Practice adopted by the HEI, and selected theoretical and methodological underpinnings, namely ECE curricular approaches. The main purpose of the AGLP_SPP was to assist the students' assessment process as a qualitative procedural tool and not to be used as a quantitative isolated instrument to measure students' achievements. A preliminary version of the grid was analysed by a group of ECE teachers, students and two ECE experts, and changes were introduced, mainly for clarification of pedagogical terminology. A beta version of the instrument, composed of 4 domains (observation, planning, action and reflection) and 35 dimensions, was piloted during a school year, both in the regulatory and final assessment, and qualitative feedback from ECE teachers, supervisors and students was collected. Drawing on these inputs, some dimensions were merged or eliminated. The final version of the AGLP_SPP is

organised in 4 domains and 25 dimensions: (1) observation (5 dimensions); (2) planning (6 dimensions); (3) action (9 dimensions) and (4) reflection (5 dimensions), as can be seen in Table 1. In the current study, the internal consistency of each domain was calculated (Cronbach's alpha), and results are quite acceptable for all of them: observation ($\alpha = 0.85$), planning ($\alpha = 0.91$), action ($\alpha = 0.90$) and reflection ($\alpha = 0.94$).

Results from a previous study (Araújo and Antunes 2018) showed that the use of the final version of the AGLP_SPP contributed for the understanding of pathways of professional learning of prospective ECE teachers and represented an input for a more informed understanding of the professional studies programme.

Students' learning was assessed in each of the above-mentioned dimensions on a qualitative scale with the following correspondence: A: excellent; B: very good; C: good; D: sufficient; E: insufficient. In some cases, an intermediate valuation was used, such as B+ (B plus), meaning *very good* but not yet at the level of *excellent*.

Procedures

The AGLP_SPP was used in two phases during practicum: an intermediate phase, with the purpose of monitoring the learning process (interim regulatory assessment), and at the end of practicum (final assessment), with consequences at the level of summative assessment. The interim regulatory assessment occurred after the first 140 h of practicum, while the final assessment was carried out after completion of 360 h of practicum.

Firstly, the AGLP_SPP was presented to students and cooperating supervisors in order to clarify doubts regarding its dimensions. After that, the use of the grid comprised three stages in each phase of assessment: (1) student's self-assessment in each of the

Table 1. Domains and Dimensions of AGLP_SPP.

Domain 1: Observation	Domain 2: Planning	Domain 3: Action	Domain 4: Reflection
O1: Legal framework and theoretical knowledge	P1: Curriculum and content knowledge	A1: Organisation of space and materials	R1: Reflection on, in and for action
O2: Observation of the child and group(s)	P2: Coherence with the group's curricular project	A2: Organisation of time	R2: Mobilisation of theoretical and legal frameworks
O3: Recording practices	P3: Pedagogical strategies and materials	A3: Pedagogical interactions	R3: Critical and questioning attitude
O4: Data collection about contexts	P4: Articulation of intentions, strategies and assessment	A4: Differentiated strategies	R4: Articulation of different points of view, values and knowledge
O5: Self-observation and observation of others	P5: Integration of children's proposals and unpredictable situations	A5: Involvement of children in projects	R5: Critical assessment about students' role and functions
	P6: Integration and pedagogical differentiation	A6: Involvement in free play	
		A7: Partnerships with families and community	
		A8: Collaborative interactions with centre team	
		A9: Democratic and ethical attitudes	

Notes: O: Observation; P: Planning; A: Action; R: Reflection

dimensions, through the reflection on his/her practices and learning, deliberation on what extent they mirrored the dimensions of AGLP_SPP and identification of strengths and weaknesses; (2) reflective meeting between students (practicum is organised in pedagogical pairs) and their cooperating supervisor, centred on self and peer assessment, debate and shared reflection and (3) meeting between the students, cooperating supervisor and HEI supervisor, carried out in the contexts of practice, aiming at a collaborative and co-participated analysis of the professional learning processes, both retrospectively and prospectively.

In the case of the interim regulatory assessment, a set of intentions and priorities deriving from the collective identification of fragilities of each students' professional learning in dimensions of the AGLP_SPP was registered in the grid space dedicated to *Observations*. These meetings also led to a consensual attribution of a level (A, B, C, D or E) in each of the dimensions. In the final assessment, the consensual attribution was associated with the need for a summative assessment. Thus, the qualitative attributions constituted the core information for determining 60% of the candidate teacher's final grade in Supervised Pedagogical Practice (practicum). The remaining 40% was determined by the classification obtained in a practicum report in light of the Portuguese legal framework (Decree-Law 79/2014).

This study makes use of the qualitative attributions in order to analyse the students' evolution in the dimensions of the AGLP_SPP. More specifically, and for the purposes of this study, the qualitative values were matched to quantitative ones (corresponding to a likert scale); namely, A, B, C, D and E became 5, 4, 3, 2 and 1, respectively.

Ethical procedures were taken into account throughout the study, namely in what concerns informed consent, formal assurance of confidentiality and privacy. Procedures of data retention and destruction were also clarified. Following the EECERA Ethical Code for Early Childhood Researchers (2015), special attention was given to the distribution of power among the participants. Procedures adopted to reduce the power differential included the three-phased process of assessment, in which the students had the opportunity to share their perspectives in a gradually more public way, in a safe and respectful atmosphere. Also, the fact that the meetings took place in the contexts of practice, and the systematic appeal to sustain opinions and positions with concrete and critical illustrations from the practicum were adopted procedures in order to guarantee a more equitable and transparent process.

Results

In this section, the descriptive results obtained through the use of the AGLP_SPP are presented in each domain (Observation, Planning, Action and Reflection). Given that the measurement scale of the variables under study can be considered ordinal, a statistical analysis was carried out to compare the results through non-parametric tests, more specifically, the non-parametric *Wilcoxon (signed-rank) test* (Field 2009).

Observation domain

Table 2 shows that students obtained higher mean levels for the specific dimensions in the second assessment moment (Time 2), meaning the acquisition of observation skills

Table 2. Results for the dimensions of the observation domain in Time 1 and Time 2 ($n = 62$).

D	Time 1			Time 2			Wilcoxon signed-rank test		
	Mdn	<i>M</i> (SD)	Range	Mdn	<i>M</i> (SD)	Range	<i>Z</i>	<i>p</i>	<i>r</i>
O1	3.0	2.69 (0.64)	1.0–4.5	3.5	3.33 (0.72)	1.0–4.5	–5.663	0.000	–0.51
O2	3.0	3.03 (0.47)	2.0–4.0	3.5	3.40 (0.67)	2.0–4.0	–5.149	0.000	–0.46
O3	3.0	2.97 (0.75)	1.0–4.0	3.5	3.48 (0.60)	1.0–4.0	–4.075	0.000	–0.37
O4	3.0	3.27 (0.63)	2.0–4.0	3.5	3.52 (0.67)	2.0–4.5	–2.717	0.007	–0.24
O5	3.0	2.94 (0.51)	1.0–4.0	3.5	3.42 (0.64)	1.0–4.0	–4.657	0.000	–0.42

Notes: D: Dimension; O1: Observation 1; O2: Observation 2; O3: Observation 3; O4: Observation 4; O5: Observation 5; Time 1: Interim Regulatory Assessment; Time 2: Final Assessment.

by them. But, despite that evolution, the lowest level and the highest level remain the same in both moments of assessment, except for Dimension O4, where students had a different upper level (4.5), denoting their progress from the very good level (4) to the very good plus (4.5).

A comparison of results in Time 1 and Time 2 (*Wilcoxon signed-rank test*) revealed statistically significant differences in students' median scores, increasing from 3 (good) to 3.5 (good plus), as can be seen specifically for all Dimensions.

Planning domain

The results follow the tendency previously registered in the Observation Domain, that is, there is an improvement in the mean results of students, favourable to the final assessment (Table 3), suggesting their evolution in this domain. Specifically, for Dimensions P2, P3 and P4, students kept the same lower level, whereas for Dimension P6, the lower level increased (from 2 to 2.5), and for Dimensions P1 and P5, there was a decrease in the minimum value assigned (down from 2 to 1). Therefore, it was decided to carry out an individual analysis so as to understand this result, which showed that this corresponds to a decrease in results of participant 8. Concerning the upper level, only for Dimension P4, students had a different upper level (4.5) in Time 2 compared to Time 1 (4.0), meaning students' progress from the very good level (4) to a very good plus (4.5).

In addition, the results from the *Wilcoxon signed-rank test* showed that all variables differed significantly on median scores from Time 1 to Time 2, rising from 3 (good) to 3.5 (good plus) for Dimensions P1, P4, P5 and P6, while an increase from 3 (good) to 4 (very good) occurred for Dimensions P2 and P3.

Table 3. Results for the dimensions of the planning domain in Time 1 and Time 2 ($n = 62$).

D	Time 1			Time 2			Wilcoxon signed-rank test		
	Mdn	<i>M</i> (SD)	Range	Mdn	<i>M</i> (SD)	Range	<i>Z</i>	<i>p</i>	<i>r</i>
P1	3.0	2.96 (0.57)	2.0–4.0	3.5	3.48 (0.60)	1.0–4.5	–4.789	0.000	–0.43
P2	3.0	3.30 (0.53)	2.0–4.0	4.0	3.68 (0.59)	2.0–4.5	–4.391	0.000	–0.39
P3	3.0	3.07 (0.53)	2.0–4.5	4.0	3.68 (0.55)	2.0–4.5	–5.435	0.000	–0.49
P4	3.0	2.89 (0.53)	1.0–4.0	3.5	3.37 (0.63)	1.0–4.5	–5.185	0.000	–0.47
P5	3.0	3.05 (0.63)	2.0–4.0	3.5	3.47 (0.71)	1.0–4.5	–4.520	0.000	–0.41
P6	3.0	2.77 (0.56)	2.0–4.5	3.5	3.44 (0.47)	2.5–4.5	–5.224	0.000	–0.47

Notes: D: Dimension; P1: Planning 1; P2: Planning 2; P3: Planning 3; P4: Planning 4; P5: Planning 5; P6: Planning 6; Time 1: Interim Regulatory Assessment; Time 2: Final Assessment.

Action domain

The data depicted in Table 4 shows an increase in the value of the mean scores between the interim regulatory assessment (Time 1) and the final assessment (Time 2), which demonstrates students' progress in this area. In the majority of Dimensions (A2, A4, A5, A6, A7 and A8) the lower level rises but in the Dimension A9, it drops from the level 3–2.5, which is due to the results' decrease of participant 54. In the upper level, the majority of Dimensions maintained the level (very good plus or excellent), except the Dimensions A3 and A5, which ascended from 4 (very good) to 4.5 (very good plus), and the Dimension A8, which got down from 5 (excellent) to 4.5 (very good plus). In this case, the individual analysis indicated a decrease in the results of participant 35.

Moreover, the difference in the distribution of median results was statistically significant across all dimensions (*Wilcoxon signed-rank test*), also revealing students' progression. For the majority of the dimensions, progress could be situated between level 3 (good) and level 4 (very good), such as the Dimensions A1, A2, A3, A4, A5, A6 and A8. But for Dimension A7, the students' improvement was from sufficient to good, and for Dimension A9 was from good to excellent.

Reflection domain

The last domain under analysis (Table 5) is also characterised by higher mean results in the final assessment, showing students' development in this domain. Though Dimensions R1, R2 and R3 maintained the lower level (insufficient), in the final assessment, Dimensions R4 and R5 actually showed a decrease in the minimum assessment assigned (down from 2 to 1). Once more, the analysis of individual performances pointed the student 8 as the one responsible for these values. Concerning the upper level, Dimensions R2, R3 e R4 kept 4.5 (very good plus), and Dimensions R1 and R5 increased from 4 (good) to 4.5 (very good plus).

Those results correspond to a significant differentiation of students' median results between the two phases of assessment in all the assessed dimensions, situating the students' progression between 3 (good) and 3.5 (good plus) for Dimensions R1, R2 and R3, and between 3 (good) and 4 (very good) for Dimension R4 and Dimension R5.

Table 4. Results for the dimensions of the action domain in Time 1 and Time 2 ($n = 62$).

D	Time 1			Time 2			Wilcoxon signed-rank test		
	Mdn	M (SD)	Range	Mdn	M (SD)	Range	Z	p	r
A1	3.0	2.94 (0.66)	2.0–4.5	4.0	3.60 (0.57)	2.0–4.5	-5.114	0.000	-0.46
A2	3.0	3.06 (0.70)	1.0–4.5	3.5	3.40 (0.63)	2.0–4.5	-3.031	0.002	-0.27
A3	3.0	3.03 (0.65)	1.0–4.0	4.0	3.53 (0.69)	1.0–4.5	-4.604	0.000	-0.41
A4	3.0	3.03 (0.53)	1.0–4.5	4.0	3.65 (0.58)	1.5–4.5	-5.452	0.000	-0.49
A5 ^a	3.0	2.76 (0.77)	1.0–4.0	4.0	3.70 (0.55)	2.0–4.5	-4.392	0.000	-0.44
A6	3.5	3.36 (0.69)	1.5–4.5	4.0	3.59 (0.62)	2.0–4.5	-2.622	0.009	-0.24
A7 ^b	2.0	2.55 (0.89)	1.0–5.0	3.0	3.41 (0.64)	2.0–5.0	-5.261	0.000	-0.47
A8	3.0	3.22 (0.70)	1.5–5.0	3.8	3.59 (0.60)	2.0–4.5	-3.532	0.000	-0.32
A9	4.0	4.16 (0.67)	3.0–5.0	5.0	4.42 (0.76)	2.5–5.0	-2.999	0.003	-0.27

Notes: D: Dimension; A1: Action 1; A2: Action 2; A3: Action 3; A4: Action 4; A5: Action 5; A6: Action 6; A7: Action 7; A8: Action 8; A9: Action 9; Time 1: Interim Regulatory Assessment; Time 2: Final Assessment.

^a $n = 42$ in Time 1 and $n = 56$ in Time 2.

^b $n = 61$ in Time 1.

Table 5. Results for the Dimensions of the Reflection Domain in Time 1 and Time 2 ($n = 62$).

D	Time 1			Time 2			Wilcoxon signed-rank test		
	Mdn	<i>M</i> (SD)	Range	Mdn	<i>M</i> (SD)	Range	<i>Z</i>	<i>p</i>	<i>r</i>
R1	3.0	2.99 (0.63)	1.0–4.0	3.5	3.40 (0.67)	1.0–4.5	–4.630	0.000	–0.42
R2	3.0	2.99 (0.80)	1.0–4.5	3.5	3.43 (0.77)	1.0–4.5	–4.549	0.000	–0.41
R3	3.0	2.88 (0.65)	1.0–4.5	3.5	3.36 (0.72)	1.0–4.5	–4.923	0.000	–0.44
R4	3.5	3.33 (0.62)	2.0–4.5	4.0	3.52 (0.71)	1.0–4.5	–2.180	0.029	–0.20
R5 ^a	3.0	2.73 (0.58)	2.0–4.0	3.5	3.37 (0.74)	1.0–4.5	–4.826	0.000	–0.43

Notes: D: Dimension; R1: Reflection 1; R2: Reflection 2; R3: Reflection 3; R4: Reflection 4; R5: Reflection 5; Time 1: Interim Regulatory Assessment; Time 2: Final Assessment.

^a $n = 52$ in Time 1.

Discussion

The analyses have shown that there were statistically significant differences between the two moments of assessment in all dimensions across the four examined domains. Considering the study's aim and research question, the results allow verification of evidence about students' professional learning in core domains of professional practice.

In the Observation Domain, it's possible to verify that in Dimensions O2 (*Observation of the child and group(s)*), O3 (*Recording practices*) and O5 (*Self-observation and observation of others*), the scores obtained in the final assessment never exceeded 4 points, that is, never reached the level of Excellent. This raises the possibility that this constitutes a particularly complex domain for the educational intervention. In the Portuguese context, some studies have identified difficulties and demands posed by these specific professional competences in ECE (Araújo 2015; Oliveira-Formosinho and Parente 2005; Parente 2004), due to specific conditions in ECE contexts (large groups of children, high adult–child ratio, lack of time to observe, record and interpret).

In the Planning Domain, the results show students' improvement in all dimensions. This positive evolution is particularly relevant in the challenging Dimension P6 (*Integration and pedagogical differentiation*), meaning that the students, during the last months of practicum, showed more proficiency in planning pedagogical experiences by articulating different content areas and domains and by taking into consideration each child's interests and needs, as foreseen in the Portuguese specific profile of professional performance of an early childhood educator.

Other dimensions of significance are found in the Action Domain. Therefore, it should be noted the progress between the two moments of assessment that were found in Dimension A7 (*Partnerships with families and community*) and Dimension A9 (*Democratic and ethical attitudes*). Whereas, in both cases, prospective early childhood teachers have reached relevant results, it should be highlighted that they departed from different mean values in the interim regulatory assessment (2.55 in the case of A7, and 4.16 in the case of A9). This discrepancy may point to different courses of professional learning in the period prior to regulatory assessment, which includes the first months of practicum and a three-year Bachelor's degree in Basic Education. From the standpoint of the professional Master programme, it may indicate the need to intensify students' learning opportunities on the collaborative work with families and communities, especially during the first phase of the practicum. It may also point to the need of unfolding these two dimensions in separated items in the grid, which could lead to

a more specific and differentiated assessment (e.g. A7: Partnerships with families *and* Partnerships with the community; and, A9: Democratic attitudes *and* Ethical attitudes).

The positive evolution of the students in the Reflection Domain is also noteworthy both because of its meaning within the assessment process and because of the future integration of students into the world of work. Indeed, reflection constitutes a core process in the assessment of these students, mirroring its relevance in the literature (Balduzzi and Lazzari 2015; Gibbs and Costley 2006; Iredale et al. 2013; Wei and Pecheone 2010); thus, the adopted reflection-based grid seems to create opportunities for the development of competences that itself assesses, contributing to strengthening the needed consistency between the learning theory and the assessment theory (Caughlan and Jiang 2014). Furthermore, the positive results in this domain can also be critical on the candidate teacher's future integration in the workplace, in which higher-order cognitive skills and independent judgement can play a major role in adaptability, problem-solving, self-regulation and metacognition (Villarroel et al. 2018).

The overall positive results across domains and dimensions show that, at the end of the practicum, students seemed to satisfy the demands foreseen in the Portuguese legal framework in what concerns ECE professional performance standards. This assertion is only possible because the construction of the assessment grid was based on validated professional standards, mirroring a core characteristic of authentic assessment (Darling-Hammond 2001; Tillema, Smith, and Leshem 2011; Villarroel et al. 2018). However, it's important to highlight that the use of such standards was highly contextualised, once students and supervisors were asked to use concrete and critical examples from practice in order to illustrate and validate positions and arguments. In our perspective, these procedures contribute to strengthening the *authenticity* and the transparency of the assessment process, overcoming an identified limitation of such processes in early childhood initial teacher education programmes (Aspden 2017).

Albeit this positive scenario, other evidence that warrants further scrutiny concerns the fact that, for the most part of the dimensions (20 out of 25), the highest result achieved is 4.5. These results may indicate that, according to the participants, it has not yet been possible to achieve the level of excellence at the end of practicum. The reasons for this may be the often identified need for more time allocated to practicum in studies carried out in Portugal (Conselho Nacional de Educação 2016; Flores 2015; Flores et al. 2014). Also, in the current curricular organisation prescribed by the Bologna Process since 2007, the work placement is located at the end of the education programme, at the level of the Master degree. The possible consequences of this sequential model are related to a lack of opportunities to articulate theory and practices and to engage students in research processes throughout the first three years of initial teacher education (Flores, 2011, 2015).

Since this constitutes an education programme, the students' progress would be expected, taking into account the intentions and desirable direction at the level of a successful learning pathway during practicum. However, the 'contamination potential' of expectations both from students and supervisors may have been reduced, in some extent, by procedures adopted throughout the assessment process. First of all, the layered nature of assessment that create opportunities for self and peer assessment, involving as well the contributions of experienced mentors. Also, the fact that the assessment process is based on a set of participated deliberations and consensual attributions

between students and mentors may contribute to strengthening the reliability of these data.

The students' participation in the assessment of their practicum experiences is not stipulated in the legal framework that regulates initial teacher training in Portugal (Decree-Law 79/2014), in spite of strong arguments on the benefits of such participation (Caughlan and Jiang 2014; Flämig, König, and Spiekermann 2015; Wiggins 2011). In this study, students' participation in their own assessment appears to contribute to their professional learning and to strengthen the trustworthiness and transparency of the assessment process. Furthermore, the formative nature of assessment and evaluation in ECE, in which a wide participation is paramount (Formosinho and Pascal 2016; Parente 2004) demands from HEI a repertoire of assessment instruments and procedures in which the students can experiment first-hand the values and practices that she/he will develop in the ECE contexts.

Conclusions

This article presents an examination of students' progress in what concerns ECE core professional competences. It departs from an assessment proposal that brings together validated standards of professional performance and a set of principles and procedures that intend to mirror a reflexive, individualised and wide participated approach to the assessment of WBL. This proposal also follows internationally recognised quality practices at the level of the assessment of WBL in ECE, particularly the focus on a processual and critically reflexive approach (Balduzzi and Lazzari 2015; Loizou 2011), and the shared responsibility between HEI and ECE contexts (Aspden 2017; Dayan 2008; Jensen 2015).

This study shows a positive evolution of the students of this professional Master in what concerns ECE core professional competences, in the Domains of Observation, Planning, Action and Reflection. Recognising the relevance of assessing WBL for the quality evaluation of preservice education programmes (Darling-Hammond 2006; Wei and Pecheone 2010), the contribution of this study for an endogenous understanding of the initial teacher education processes should also be emphasised. In this particular case, it is possible to confirm the perceived effectiveness of the education processes undertaken within the programme, thereby recognising the need to carry out further analyses of the strategies that may ultimately have a greater effect at the level of students' WBL.

Despite the highlighted contributions, some limitations may be outlined. As an exploratory study, with no extensive number of participants, contributions cannot be generalised. Also, the timeline used did not consider the baseline, that is, it was not possible to understand the evolution of students from their initial condition at the beginning of the practicum, but only their performance at the middle and at the end of the practicum. In future studies, these limitations can be overcome, and the assessment grid can be improved through validating studies. The triangulation of the results of this study with data from students' portfolios and practicum reports could constitute valuable input about their perspectives on the assessment process of their learning during practicum.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work is funded by National Funds through the FCT – Fundação para a Ciência e a Tecnologia, I.P., under the scope of the projects UIDB/05198/2020 (Centre for Research and Innovation in Education, Polytechnic Institute of Porto) and UIDB/00317/2020 (Research Centre on Child Studies, University of Minho).

ORCID

Sara Barros Araújo  <http://orcid.org/0000-0002-9866-0060>

Ana Pereira Antunes  <http://orcid.org/0000-0002-3336-7867>

References

- Araújo, S. B. 2015. “Professional Development Within the Effective Early Learning Programme: A Contribution to a Participatory and Context-sensitive Approach to ECEC Evaluation.” *Early Years* 35 (3): 249–259. doi:10.1080/09575146.2014.995599.
- Araújo, S. B., and A. P. Antunes. 2018. “Avaliação da Aprendizagem Profissional no Estágio Supervisionado: Estudo Exploratório na Educação Infantil [Assessment of Professional Learning in Supervised Practicum: Exploratory Study in Early Childhood Education].” *Estudos em Avaliação Educacional* 29 (70): 1–154.
- Aspden, K. M. 2017. “The Complexity of Practicum Assessment in Teacher Education: An Examination of Four New Zealand Case Studies.” *Australian Journal of Teacher Education* 42 (12): 128–143.
- Balduzzi, L., and A. Lazzari. 2015. “Mentoring Practices in Workplace-based Professional Preparation: A Critical Analysis of Policy Developments in the Italian Context.” *Early Years* 35 (2): 124–138. doi:10.1080/09575146.2015.1022513.
- Brody, P., and K. Irving. 2007. “Assessment in Work-based Learning: Investigating a Pedagogical Approach to Enhance Student Learning.” *Assessment & Evaluation in Higher Education* 32 (1): 11–19. doi:10.1080/02602930600848218.
- Caughlan, S., and H. Jiang. 2014. “Observation and Teacher Quality: Critical Analysis of Observational Instruments in Preservice Teacher Performance Assessment.” *Journal of Teacher Education* 65 (5): 375–388. doi:10.1177/0022487114541546.
- Cohen, B., and M. Korintus. 2017. “Making Connections: Reflections on Over Three Decades of EU Initiatives in Early Childhood Education and Care (ECEC).” *Early Years: An International Research Journal* 37 (2): 235–249. doi:10.1080/09575146.2016.1181050.
- Conselho Nacional de Educação. 2016. *Formação Inicial de Educadores e Professores e Acesso à Profissão* [Initial Teacher Education and Access to the Profession]. Lisboa: CNE. https://www.cnedu.pt/content/edicoes/estudos_e_relatorios/RelatorioTecnico_FIP_Acesso.pdf.
- Council of the European Union. 2011. *Council Conclusions on Early Childhood Education and Care: Providing All our Children with the Best Start for the World of Tomorrow*. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:175:0008:0010:EN:PDF>.
- Darling-Hammond, L. 2001. “Standard Setting in Teaching: Changes in Licensing, Certification, and Assessment.” In *Handbook of Research on Teaching*, 4th ed, edited by V. Richardson, 751–776. Washington: American Educational Research Association.
- Darling-Hammond, L. 2006. “Assessing Teacher Education: The Usefulness of Multiple Measures for Assessing Program Outcomes.” *Journal of Teacher Education* 57 (2): 120–138. doi:10.1177/0022487105283796.
- Darling-Hammond, L., S. Newton, and R. Wei. 2013. “Developing and Assessing Beginning Teacher Effectiveness: The Potential of Performance Assessments.” *Educational Assessment, Evaluation and Accountability* 25 (3): 179–204.
- Darling-Hammond, L., and J. Snyder. 2000. “Authentic Assessment of Teaching in Context.” *Teaching and Teacher Education* 16 (5-6): 523–545. doi:10.1016/S0742-051X(00)00015-9.

- Dayan, Y. 2008. "Towards Professionalism in Early Childhood Practicum Supervision – A Personal Journey." *European Early Childhood Education Research Journal* 16 (2): 153–170. doi:10.1080/13502930802141592.
- Decree-Law 241/2001. *Aprova os Perfis Específicos de Desempenho Profissional do Educador de Infância e do Professor do 1º Ciclo do Ensino Básico* [Approves the Specific Professional Profiles of the Early Childhood Teacher and Primary School Teacher]. (D.R. n. 201, Série I-A, 30 August 2001: 5572-5575).
- Decree-Law 79/2014. *Aprova o Regime Jurídico da Habilitação Profissional para a Docência na Educação Pré-escolar e nos Ensinos Básico e Secundário* [Approves the Legal Regime of Professional Qualification for Teaching in Pre-school, Basic and Secondary Education]. (D.R. n. 92, Série I, 14 May 2014: 2819-2828).
- Edwards, A. 1998. "Mentoring Student Teachers in Primary Schools: Assisting Student Teachers to Become Learners." *European Journal of Teacher Education* 21 (1): 47–62. doi:10.1080/0261976980210106.
- EECERA (European Early Childhood Education Research Association). 2015. *EECERA Ethical Code for Early Childhood Researchers*. <https://www.eecera.org/wp-content/uploads/2016/07/EECERA-Ethical-Code.pdf>.
- European Commission. 2014. *Proposal for Key Principles of a Quality Framework for Early Childhood Education and Care*. Brussels: European Union. https://ec.europa.eu/assets/eac/education/policy/strategic-framework/archive/documents/eccc-quality-framework_en.pdf.
- Field, A. 2009. *Discovering Statistics Using SPSS*. London: Sage.
- Flämig, K., A. König, and N. Spiekermann. 2015. "Potentials, Dissonances and Reform Initiatives in Field-Based Learning and Mentoring Practices in the Early Childhood Sector in Germany." *Early Years: An International Research Journal* 35 (2): 211–226. doi:10.1080/09575146.2015.1028899.
- Flores, M. A. 2011. "Curriculum of Initial Teacher Education in Portugal: New Contexts, Old Problems." *Journal of Education for Teaching* 37 (4): 461–470. doi:10.1080/02607476.2011.611015.
- Flores, M. A. 2015. "Formação de Professores: Questões Críticas e Desafios a Considerar [Teacher Education: Critical Questions and Challenges To Be Considered]." In *Formação Inicial de Professores* [Initial Teacher Education], edited by Conselho Nacional de Educação, 192–222. Lisboa: CNE.
- Flores, M. A., P. Santos, S. Fernandes, and D. Pereira. 2014. "Pre-service Teachers' Views of Their Training: Key Issues to Sustain Quality Teacher Education." *Journal of Teacher Education for Sustainability* 16 (2): 39–53. doi:10.2478/jtes-2014-0010.
- Formosinho, J. 2009. "A Formação Prática dos Professores: Da Prática Docente na Instituição de Formação à Prática Pedagógica nas Escolas [The Practical Education/Training of Teachers: From Teaching Practice in Higher Education to Pedagogical Practice in Schools]." In *Formação de Professores: Aprendizagem Profissional e Acção Docente* [Teacher Education: Professional Learning and Teaching Action], edited by J. Formosinho, 93–117. Porto: Porto Editora.
- Formosinho, J., and J. Formosinho. 2016. "Pedagogy-in-Participation: The Search for a Holistic Praxis." In *Assessment and Evaluation for Transformation in Early Childhood*, edited by J. Formosinho and C. Pascal, 26–55. Abingdon: Routledge.
- Formosinho, J., and C. Pascal. 2016. *Assessment and Evaluation for Transformation in Early Childhood*. Abingdon: Routledge.
- Gibbs, P., and C. Costley. 2006. "Work-based Learning: Discipline, Field or Discursive Space or What?" *Research in Post-Compulsory Education* 11 (3): 341–350. doi:10.1080/13596740600916575.
- Iredale, A., K. Orr, W. Bailey, and J. Wormald. 2013. "Confidence, Risk, and the Journey Into Praxis: Work-based Learning and Teacher Development." *Journal of Education for Teaching* 39 (2): 197–208. doi:10.1080/02607476.2013.765192.

- Jensen, J. 2015. "Placement Supervision of Pedagogue Students in Denmark: The Role of University Colleges and Early Childhood Centres." *Early Years: An International Research Journal* 35 (2): 154–167. doi:10.1080/09575146.2015.1024616.
- Jónsdóttir, A. 2015. "University–Preschool Partnership and Workplace-based Learning: A Collaborative 'Third Space' or no Space at all?" *Early Years: An International Research Journal* 35 (2): 184–196. doi:10.1080/09575146.2015.1026248.
- Loizou, E. 2011. "The Diverse Facets of Power in Early Childhood Mentor-Student Teacher Relationships." *European Journal of Teacher Education* 34 (4): 373–386. doi:10.1080/02619768.2011.587112.
- Martin, S., J. Snow, and C. Franklin Torres. 2011. "Navigating the Terrain of Third Space: Tensions with/in Relationships in School-University Partnerships." *Journal of Teacher Education* 62 (3): 299–311. doi:10.1177/0022487110396096.
- Oberhuemer, P. 2015. "Seeking New Cultures of Cooperation: A Cross-national Analysis of Workplace-based Learning and Mentoring Practices in Early Years Professional Education/Training." *Early Years: An International Research Journal* 35 (2): 115–123. doi:10.1080/09575146.2015.1028218.
- Oberhuemer, P., and I. Schreyer. 2018. *Early Childhood Workforce Profiles in 30 Countries with Key Contextual Data*. Munich: State Institute of Early Childhood Research/Federal Ministry for Family Affairs, Senior Citizens, Women and Youth. <http://www.seepro.eu/ISBN-publication.pdf>.
- OECD (Organisation for Economic Co-operation and Development). 2018. *Engaging Young Children: Lessons from Research About Quality in Early Childhood Education and Care*. Paris: OECD Publishing. doi:10.1787/9789264085145-en.
- Oliveira-Formosinho, J., and C. Parente. 2005. "Para uma Pedagogia da Infância ao Serviço da Equidade: O Portfólio como Visão Alternativa da Avaliação [For a Childhood Pedagogy at the Service of Equity: The Portfólio as an Alternative Vision of Assessment]." *Infância e Educação: Investigação e Práticas* 7: 22–46.
- Parente, C. 2004. "A Construção de Práticas Alternativas de Avaliação na Pedagogia da Infância: Sete Jornadas de Aprendizagem [The Construction of Alternative Assessment Practices in Childhood Pedagogy: Seven Learning Journeys]." PhD diss., University of Minho.
- Ribeiro, D., S. B. Araújo, A. Oliveira, and M. Neiva. 2010/2012. *Assessment Grid on the Learning Processes in Supervised Pedagogical Practice (AGLP_SPP)*. Porto: Polytechnic Institute of Porto.
- Tillema, H. H., K. Smith, and S. Leshem. 2011. "Dual Roles – Conflicting Purposes: A Comparative Study on Perceptions on Assessment in Mentoring Relations During Practicum." *European Journal of Teacher Education* 34 (2): 139–159. doi:10.1080/02619768.2010.543672.
- Urban, M., M. Vandenbroeck, J. Peeters, A. Lazzari, and K. Van Laere. 2011. *CoRe: Competence Requirements in Early Childhood Education and Care. Final Report*. Bruxelles: European Commission.
- Villarroel, V., S. Bloxham, D. Bruna, C. Bruna, and C. Herrera-Seda. 2018. "Authentic Assessment: Creating a Blueprint for Course Design." *Assessment & Evaluation in Higher Education* 43 (5): 840–854. doi:10.1080/02602938.2017.1412396.
- Wei, R. C., and R. L. Pecheone. 2010. "Assessment for Learning in Preservice Teacher Education: Performance-Based Assessments." In *Teacher Assessment and the Quest for Teacher Quality: A Handbook*, edited by M. Kennedy, 60–103. San Francisco: Jossey Bass.
- Wiggins, G. 2011. "A True Test: Toward More Authentic and Equitable Assessment." *Phi Delta Kappan* 92 (7): 81–93. doi:10.1177/003172171109200721.