

Assessment conceptions of Finnish university hourly paid teachers: The contribution of pedagogical training

Maunumäki, M. Koskinen, M., Talamo, A., Lyyra, P. & Lämsä, T.

University of Jyväskylä, Open University, Finland

ABSTRACT

Universities are increasingly employing part-time teachers who are experts in their field but may lack the pedagogical training crucial for teaching and assessment. Assessment, in turn, is a key factor in promoting students' learning. Research on part-time university teachers is limited, and the assessment conceptions informing their teaching have received little attention. Fifty hourly paid teachers (36.76%) responded to a questionnaire sent to all hourly paid teachers at a Finnish open university to measure their assessment conceptions, teaching experience and pedagogical training. We investigated whether the hourly paid teachers' assessment conceptions differed by teacher's levels of education and teaching experience using Mann-Whitney U test. The assessment conceptions of teachers, who had completed pedagogical training (60 credits), were based more on assessment for teaching and learning than the conceptions of those who had not completed pedagogical training. The study results revealed that pedagogical training shifts teachers' assessment conceptions towards assessment for teaching and learning, emphasizing formative assessment. We recommend providing higher education teachers with more pedagogical training and better integrating hourly paid teachers into the university community to enhance inclusivity and academic excellence.

Keywords: assessment conceptions, hourly paid teachers, part-time teachers, assessment skills, university teaching

Universities employ many part-time teachers who are experts in their field but often lack the pedagogical training considered crucial for teaching and assessment. Assessment, in turn, is a key factor in promoting students' learning (Morris, 2021; Struyven, et al., 2005). Assessment guides what is considered important to learn and how learning is oriented (Boud 2014; Segers & Dochy 2006). Based on the assessment literature (Brown, 2004; Kyttälä et al., 2022), conceptions of assessment can be divided into three dimensions: 1) assessment for teaching and learning, 2) assessment of learning, and 3) assessment as harmful. The first dimension refers to formative assessment, which is designed primarily to improve learning; the second to traditional summative assessment, which is designed primarily to judge learning and where the focus is on the outcome (Crisp, 2012; Scriven, 1967; Winstone & Carless, 2020; Yan & Yang, 2022); and the third to negative conceptions of assessment; e.g., it can harm students' self-perception, be unjust, and encourage unhealthy comparison (Brown, 2004; Kyttälä et al., 2022).

While Finnish universities aim to provide quality teaching, they do not require pedagogical training from teachers. This is linked to the Humboldtian conception of the university, according to which content knowledge is sufficient for a qualification for teaching (Gillespie & Robertson, 2010). In the Humboldtian tradition, research and teaching are inseparable in higher education (Macfarlane & Erikson, 2021). This is also enshrined in the Finnish University Act (2009/558), which states that the university's mission is to provide research-based teaching. Drawing on Humboldtian principles, the legitimacy of the university teacher internationally has been based on the teacher's ongoing commitment to research and not solely on academic and teaching skills (Macfarlane & Erikson, 2021). Building on this tradition, the Finnish university has adopted a pedagogical model in which, for teaching purposes, content knowledge alone is sufficient. Today, many universities offer teachers' pedagogical training, which is voluntary (Vilppu et al., 2019). The challenge presented by university pedagogy courses has been that they have only been available to staff members who can attend relatively long, face-to-face sessions while continuing to perform their mandatory teaching duties (Laato et al., 2018). This has perpetuated the practice of new teachers starting university teaching without any pedagogical training (Knight, 2002). However, university pedagogical training has been found to have a positive impact on teachers' teaching skills, for example by increasing learning and by promoting a student-centered approach to teaching (see, for example, Postareff et. al., 2007) and the development of a teacher's personal vision of a student's prior knowledge (Södervik et al., 2022).

Assessment feedback quality is intrinsically linked to student learning (e.g., Carless & Boud 2018) and agency in learning (Maunumäki et. al. 2023). However, providing quality feedback to students is currently challenging in a

context in which universities are increasingly relying on casualized and inexperienced academic staff to assess undergraduate work (Richards et al., 2017). The global randomization and differentiation of academic work has meant that ‘temporary’ teachers now do much of the front-line teaching (Nica, 2018). It is known that part-time teachers form the majority of teachers in many higher education institutions (e.g., Chen & Lopes, 2015; Coughlan, 2015; Ott & Dippold, 2018). In the US, for example, higher education institutions have embraced the ‘gig economy’ and make extensive use of part-time teachers (Nelson et al., 2020). Previous studies have used various terms for part-time higher education workers, such as part-time worker (Coughlan, 2015), sessional (Richards et al., 2017) or casual academic staff (McComb & Eather, 2021), invisible faculty adjunct worker (Fuller et al., 2017; Nica, 2018), part-time faculty (Coughlan, 2015; Ott & Dippold, 2018), para-academics (Brand, 2013), gig-worker (Nelson et al., 2020), and hourly paid teacher (Chen & Lopes, 2018). Brand (2013) describes this growing teaching staff as an invisible or lost tribe, referring to the fact that they are not seen as part of the core team that develops and implements the course or curriculum and are often not offered the same recognition, systematic support, and development opportunities as full-time staff (also Coughlan, 2015). Moreover, their work is seemingly free when compared to the salaries of full-time professionals (Brand, 2013). Part-time teachers are also not entitled to, for example, university health care (Coughlan, 2015). In this study, we use the term hourly paid teachers, which best describes the phenomenon in the Finnish context, including the fact that a large proportion of teachers are paid on an assignment/exam basis. In other contexts, we use the term part-time teacher as an umbrella term to refer to a variety of part-time and seasonal higher education teachers.

The assessment conceptions of hourly paid teachers warrant this study, as they may lack pedagogical training and do not have strong links to the university community, its assessment culture or research activities. However, their assessment conceptions have been little researched. This study contributes to filling this gap by exploring hourly paid teachers' assessment conceptions, and how they vary according to pedagogical training and highest degree. Further, by exploring hourly paid teachers' assessment conceptions, this study illuminates the context of assessment practices, which often unconsciously drives assessment (Hailikari et al., 2014, p. 109–110). Ultimately, a better understanding of hourly paid teachers' assessment conceptions will increase understanding of the university assessment culture and its role in promoting student learning and inform future efforts to develop and implement effective assessment practices in universities.

Goals of assessment

Assessment has been widely researched from different perspectives. In particular, the role and timing of assessment in learning have been at the center of assessment research for decades. Assessment has diagnostic, formative and summative functions. Diagnostic assessment refers to the initial mapping of learning baselines at the beginning of a course of study to help regulate learning and instruction (Crisp, 2012). The concepts of formative and summative assessment were originally proposed by the American scholar Michael Scriven. Formative assessment is defined as assessment during learning that is designed to inform both the student and the teacher about the student's progress in relation to set objectives (Scriven, 1967). Formative assessment has also been defined as assessment for learning, as distinct from summative assessment of learning (Tierney, 2014). Summative assessment takes place at the end of learning, when the task of assessment is to evaluate how well the learning objectives have been achieved (Boud, 2000; Crisp, 2012, Muñoz et al., 2019). In recent years, assessment of lifelong learning has been a central issue in research and debate on assessment. Crisp (2012) argues that in addition to traditional assessment tasks, assessment should aim at supporting lifelong learning skills. In lifelong learning assessment, the student plays an active role (Crisp, 2012). The notion of lifelong assessment has prompted talk about a new culture of assessment, in which assessment is an authentic element integrated into teaching and learning, challenging students, learning environments and knowledge (Winstone, 2020). Lifelong assessment can be implemented and promoted through integrative (Crisp, 2012) and sustainable (Boud, 2000; Boud & Soler, 2016) assessment. Integrative assessment, in turn, is assessment designed to promote future learning by developing students' self-assessment and problem-solving skills and strengthening students' responsibility for and understanding of their own learning and its assessment (Crisp, 2012). The concept of sustainable assessment encompasses assessment practices that prepare students to meet learning challenges beyond the end of formal learning (Boud, 2000; Boud and Soler, 2016). Sustainable assessment is associated with supporting students' self-assessment skills and lifelong learning capacities (Boud 2000; Boud and Soler 2016).

Conceptions of assessment and development of assessment skills

Teachers' beliefs about learning and knowledge are reflected in their approaches to assessment (Brown, 2008). The conception of assessment includes teachers' conceptions of knowledge, beliefs about assessment, and the implications of these conceptions and beliefs for assessment (Thompson, 1992, p. 130). A key factor that affects teachers' assessment conceptions is the prevailing assessment culture (Segers & Tillema, 2011), meaning the beliefs and values that underlie assessment practices and tasks and that guide assessment practices across a community (Deneen & Bound, 2014; Fuller & Skidmore, 2014.) Teachers' understanding of assessment develops subjectively throughout the life

course through the interaction of social, professional, and individual historical contexts (Looney et al., 2018). This understanding includes theoretical and practical knowledge about assessment as well as personal beliefs and feelings (Brown, 2008). The relationship of beliefs and feelings with knowledge is, however, interesting. Xu and Brown (2016) found that the more distant from existing beliefs the 'new' information provided during theoretical studies or practical sessions is, the more challenging teachers find it to change their own beliefs (Xu & Brown, 2016).

According to Xu and Brown (2016), a teacher's conceptions of assessment consist of two interrelated dimensions: affective and cognitive (Brown, 2008). The affective dimension refers to the teacher's own past positive or negative assessment experiences: the stronger these experiences are, the more strongly they maintain existing conceptions (Xu & Brown, 2016). The cognitive dimension refers to what the teacher believes to be true or false in the assessment (Xu and Brown, 2016). Brown (2008) suggests that teachers' assessment conceptions can be grouped under four main purposes: 1) improving teaching, 2) assessing students, 3) assessing schools and teachers, and 4) irrelevance. In improvement, assessment informs teachers and students about what students need to learn and how to guide learning. Student assessment is the assessment of performance in relation to standards, grading, and credentialing. School and teacher assessments are used to determine the performance of teachers and schools. Irrelevance refers to assessment perceived as unrelated to learning or as bad for students. Based on these dimensions, Brown (2004) developed the COA-III, a model to measure teachers' assessment conceptions. In this study, following Brown (2004) and Kyttälä et al. (2022), teachers' conceptions of assessment are structured along three dimensions: assessment for teaching and learning, assessment of learning, and assessment as harmful.

If teachers see teaching as knowledge transfer, they are likely to see teaching and assessment as separate. In such cases, assessment is seen as following learning rather than supporting and developing learning and understanding (Postareff & Lindblom-Ylänne, 2008). Watkins et al. (2005) found two factors influencing teachers' conceptions of assessment: teachers' conceptions of teaching methods and knowledge, and conceptions of the relationship between learning and assessment. If teachers were aware of the importance of different teaching and assessment methods for student learning, they were more likely to have a deeper understanding of the importance of assessment for student learning. A teacher's whose concept of knowledge was separate from understanding and learning would likely find it challenging to see the processual relationship between learning and assessment and the importance of assessment for learning, whereas a teacher with a reflective and understanding-oriented concept of knowledge would more likely see the relationship between learning and assessment as close (Watkins et al., 2005). Parpala and Lindblom-Ylänne (2007) found that only one teacher in 20 included

assessment as part of good teaching. In this case, assessment is understood as separate from teaching and not as part of teaching (Pekkarinen & Hirsto, 2016).

A large study by Ödalen et al. (2019) found that participants' self-reported confidence in their teaching role increased slightly and their self-assessed pedagogical skills increased significantly after courses on pedagogic. Although these courses were relatively short, some subgroups of respondents showed changes in their fundamental approaches to teaching, some in a more student-centered direction and others, unexpectedly and confoundingly, in a more teacher-centered direction.

There are also indications that while pedagogical training can increase teachers' understanding of assessment skills, their understanding of assessment related to the application of assessment skills do not change (Deneen et al., 2016; Ogan-Bekiroglu & Suzuk, 2014; Ödalen et al., 2019). The assessment conceptions of a teacher who has not studied to become a teacher or received other pedagogical training are likely to be based on personal and intuitive understandings of assessment. Subjective experiences can also lead to flawed assessment conceptions (Brown, 2008). Kyttälä and Björn (2023) studied ~~student teachers'~~ student teachers' perceptions of assessment methods. They identified four types, which differed by completion of studies and teaching experience. They found that many students had a narrow understanding of assessment practices. Students with more education had a broader understanding of the purposes of assessment than students with less education. Students with more teaching experience had a greater knowledge of the ways in which assessment information is produced. Assessment conceptions and knowledge can also be influenced through teacher education and pedagogical training, and even short pedagogical interventions and training periods can develop teachers' assessment skills (De Luca & Glinger, 2010; McGee & Colby, 2014; Postareff & Nevgi, 2015; Södervik, 2022; Xu & He, 2019).

Assessment in Finnish higher education

The demands for high-quality research-based teaching have challenged the skills of university teachers (Toom & Pyhäntö, 2020). Finnish university teaching has been criticized for not requiring university teachers to have a pedagogical background. In practice, many teachers may have to teach without pedagogical training (Toom & Pyhäntö, 2020). The need to develop university teachers' competence has also been voiced. In Finland, a higher university degree is usually a requirement for a full-time university teaching post. This degree can be supplemented by a degree in pedagogy (60 credits) or, e.g., basic pedagogical training (25 credits). Pedagogical training has been considered an advantage in recruitment, but it is not mandatory. Teachers should have a broad knowledge of pedagogical methods assessment practices (Hyytinen et al., 2019; Toom & Pyhäntö, 2020; Virtanen & Tynjälä, 2019). Finnish universities have recently been investing in developing teachers' higher education pedagogical skills and all

conduct higher education pedagogical research (Vilppu et al., 2019). Moreover, the Ministry of Education and Culture (2019) has stipulated that by 2030 all full-time university teachers should have at least 25 credits of pedagogical training. This policy does not mention pedagogical training for part-time teachers. No precise official data exist on the number of hourly paid part-time teachers in Finnish universities as their use has been needs based and thus flexible. Finland has a low threshold higher education assessment culture, i.e., there are no national exams or strictly controlled assessment practices. Assessment of learning is guided by university-specific curricula. Courses are generally assessed on a five-point scale (0-5). In their assessment practices, subjects and teachers have pedagogical freedom and autonomy, constrained only by the curriculum and subject guidelines.

Context and aim of the study

An important goal of the Finnish higher education system is to create more flexible learning pathways (Moitus et al., 2020). An alternative route is offered by the Finnish open universities, which offer paid university education to all (Ministry of Education and Culture). The open university system has many roles, one of which is the “Open University path” (Joutsen et al., 2021) to studying for a university degree. This supports the national educational policy goal for 2030 of at least 50% of 25- to 34-year-olds completing a higher education degree (Ministry of Education and Culture, 2017). Other open university roles are providing alternative paths for career changers and developing working-aged people’s competences alongside their work (Haltia et al., 2021). At the Open University, assessment is increasingly online, as studies are increasingly moving towards online learning. In the open university under study, most studies are also online, and assessment is therefore also online. Online assessment in this study refers to the assessment of student learning that is integrated into digital learning environments and can be implemented through different technological tools (e.g., written, oral or video) (See Heil & Ifenthaler 2023).

In this study, we explored hourly paid teachers' assessment conceptions in one Finnish open university using an online questionnaire. The study extends literature in at least three ways. First, very little research exists on academic teachers' assessment conceptions in general (e.g., Brown et. al., 2019; Hidri, 2016; Postareff et al., 2012; Richards et al., 2017; Samuelowicz & Bain, 2002; Watkins et al., 2005). Previous studies on academic part-time employees have examined, for example, job satisfaction (Nelson et al., 2020) and their abilities, qualifications and job need (Ott & Dippolt, 2018). To the best of our knowledge, no research exists on the assessment conceptions of academic hourly paid teachers or other temporary academic teachers, who are referred to by various terms. Second, the study deepens our understanding of the relationship between assessment conceptions and part-time teachers' pedagogical training. Third,

assessment conceptions have important implications for assessment practices (Myyry et. al., 2020; Reimann & Sadler, 2017) as well as for the quality and organization of teaching, how teachers implement their teaching (Toom & Pyhältö, 2020), and the promotion of student learning (e.g., Morris, 2021). Elucidating conceptions thus offers insights for developing part-time teachers' assessment skills.

The research question was: Do assessment conceptions differ by education (teacher's pedagogical training and highest degree) and hourly paid teaching experience? We expected that, as with students (Kyttälä & Björn, 2023), teachers acquire an even deeper understanding of the assessment's purposes, the more pedagogical training, academic education, or teaching experience the teachers accumulate.

Methods

Participants and data collection

A total of 50 hourly paid teachers in one Finnish open university participated in the current study. They ranged in age from 26 to 71 ($M = 46.25$, $SD = 12.28$). The descriptive statistics related to background characteristics of the study group are presented in Table 1. The data were gathered via a web-based questionnaire. A link to the questionnaire was sent to all 136 hourly paid teachers of the organization. The response rate was 36.76%. Participation was voluntary, and participants were able to access the questionnaire after giving their informed consent. All rights of the participants were protected in line with the university's data protection guidelines. Participants personal data were protected, and they had the right to leave the study if they wanted to.

Table 1. Background characteristics of research group

Variables	<i>n</i>	%
Completed teacher's pedagogical training (60 credits)		
Yes	27	54.0
No	21	42.0
Intention to complete them	2	4.0
Highest academic degree		
Bachelor's or master's	33	66.0
Licentiate or doctorate	17	34.0
Hourly paid teaching experience in open university		
3 years or less	24	48.0
4 years or more	26	52.0
Gender		
Females	30	60.0
Males	16	32.0
Preferred not to report	4	8.0
Faculty of part-time teaching		
Humanities and Social Sciences	23	48.9
Education and Psychology	10	21.3
Sport and Health Science	9	19.1
School of Business and Economics	8	17.0
Mathematics and Science	2	4.3

Teachers' assessment conceptions were measured with 19 items (see Table 2), 6 from the questionnaire of Kyttälä et al. (2022), 2 from the Teachers' Conceptions of Assessment (COA) III (Brown (2004), and 11 formulated by the research team. Most of these 11 items were modified from the instruments of Kyttälä et al. (2022) and Brown (2004) with these authors' permission. Participants were asked to what extent they agreed/disagreed with the 19 statements on a scale from 1 to 6 (1 = completely disagree; 6 = completely agree).

Analysis

Statistical analyses were made using SPSS version 28.0, and *p*-values below .05 were considered statistically significant. The analyses followed the following steps. First, the 19 statements were categorized according to the assessment literature into three scales (assessment for teaching and learning, assessment of learning, and assessment as harmful) (Kyttälä et al., 2022). Cronbach's alphas were .87 for the internal consistency and reliability of assessment for teaching and learning and .73 for assessment as harmful. The reliability value for the assessment of learning was .67 after removing the items 'Assessment is the responsibility of the teacher' and 'Assessment sums up student's learning'. The three scales were dependent variables and studied as continuous variables. Descriptive statistics were calculated, and Spearman's correlation was used to study the associations of three assessment conceptions.

To answer our research question, as the participants naturally fell in two groups based on their official pedagogical training amount of hourly paid teaching experience and their academic education level, respectively, we tested the differences in assessment conceptions between the groups using Mann-Whitney *U*-test. Non-parametric tests were used due to the small sample size. Sufficient sample sizes for independent samples Mann-Whitney *U*-Test for $P(X > Y) = .76$, two-sided $\alpha = .05$, and power of .8, were estimated, as in Noether (1987), using an online calculator. The calculation suggested a sufficient sample size of $n = 20$ per group.

Results

Descriptive statistics

Table 2 shows the means as well as variability and consistency measures for the summary variables Assessment for teaching and learning, Assessment of learning and Assessment as harmful.

Table 2. Items and subscales of the assessment conceptions measure

Measures and items	<i>M</i>	<i>SD</i>	Cronbach <i>α</i>
Assessment for teaching and learning	4.69	.79	.87
¹ The role of assessment is to support learning.	5.50	.93	
¹ Assessment provides information on student's learning needs.	4.74	1.12	
³ Assessment enables targeting guidance to different students in different ways.	4.44	1.34	
³ Assessment identifies strengths and areas for improvement in a student's learning.	5.20	.99	
³ Through assessment, guidance can be targeted at different stages of the learning process.	4.34	1.71	
³ Assessment promotes interaction between student and teacher.	4.24	1.30	
³ Assessment provides information on how the instructions and guidance provided have benefited students.	4.52	1.15	
³ Assessment and feedback is provided during the learning process, not only at the end of the learning process.	4.44	1.58	
³ Assessment is the student's responsibility.	4.46	1.28	
¹ Assessment guides the planning of teaching.	4.28	1.11	
² Assessment provides feedback to students about their performance.	5.40	1.03	
Assessment of learning	3.82	1.05	.67
³ Assessment measures student learning.	5.00	.95	
³ Assessment is the responsibility of the teacher. (Removed to increase <i>C_α</i>).	4.90	1.11	
¹ Assessment sums up student's learning. (Removed to increase <i>C_α</i>).	4.80	1.18	
³ Past grades predict a student's future grades.	3.34	1.48	
³ In performing assessment, the student's grade is compared to the grades of other students.	3.12	1.55	
Assessment as harmful	2.15	.89	.73
¹ Assessment negatively affects student's conceptions of themselves.	2.24	.92	
² Assessment is unfair.	1.70	1.04	
¹ Assessment exposes students to comparing each other's performance.	2.52	1.33	

Note. 1= the item is from Kyttälä et al. (2022); 2 = the item is from Brown's (2004) COA-III instrument; 3= the item was developed for the present study or modified from Kyttälä and colleagues' (2021) instrument and Brown's (2004) COA-III instrument.

The association between the different assessment conceptions were studied using Spearman’s correlation. Assessment of learning showed a low positive statistically significant association with Assessment as harmful ($\rho = .41, p < .01, R^2 = 16.65\%$): thus, the more teachers' conceptions were based on Assessment of learning, the more they perceived Assessment as harmful. Assessment for teaching and learning showed a low negative statistically significant association with Assessment as harmful ($\rho = -.29, p < .05, R^2 = 8.24\%$): thus, the more teachers' conceptions were based on Assessment for teaching and learning, the less their conceptions were based on Assessment as harmful. No statistically significant association was observed between Assessment for teaching and learning and Assessment of learning ($\rho = -.07, p = .64, R^2 = 0.46\%$).

Differences in assessment conceptions by education and teaching experience

We investigated do assessment conceptions differ by education (teacher’s pedagogical training and highest degree) and hourly paid teaching experience? The results of the Mann-Whitney *U*-test are given in Table 3.

Table 3. Mann-Whitney *U*-tests for differences among groups of pedagogical training, highest academic degree, and teaching experience on assessment conceptions (*N* = 50)

Measure	Pedagogical training		<i>U</i>	<i>p</i>	η^2
	Yes	No			
	(<i>n</i> = 27)	(<i>n</i> = 21)			
Ass. for teaching and learning	31.69	15.26	89.50	< .001	.35
Ass. of learning	22.43	27.17	227.50	.242	.03
Ass. as harmful	23.17	26.21	247.50	.450	.01
Measure	Highest academic degree		<i>U</i>	<i>p</i>	η^2
	B.A./M.A.	Lic./Ph.D.			
	(<i>n</i> = 33)	(<i>n</i> = 17)			
Ass. for teaching and learning	27.08	22.44	228.50	.286	.02
Ass. of learning	25.02	26.44	264.50	.742	.00
Ass. as harmful	24.64	27.18	252.00	.555	.01
Measure	Teaching experience		<i>U</i>	<i>p</i>	η^2
	0-3 years	4+ years			
	(<i>n</i> = 24)	(<i>n</i> = 26)			
Ass. for teaching and learning	27.08	22.44	228.50	.286	.02
Ass. of learning	25.02	26.44	264.50	.742	.00
Ass. as harmful	24.64	27.18	252.00	.555	.01

Measure	Mean rank	Mean rank	<i>U</i>	<i>p</i>	η^2
Ass. for teaching and learning	24.17	26.73	280.00	.534	.01
Ass. of learning	21.83	28.88	224.00	.086	.06
Ass. as harmful	22.15	28.60	231.15	.114	.05

Teachers with official pedagogical training saw assessment more as formative (their assessment conceptions were more often based on Assessment for teaching and learning) than teachers without such training, but not for other dimensions of assessment conceptions (Assessment of learning and Assessment as harmful). Pedagogical training explained about 35% of the variation in conceptions of Assessment for teaching and learning.

No statistically significant differences were observed in any of the three assessment conceptions with respect to teachers' highest academic degree, or the amount of teaching experience.

Discussion

Although universities are increasingly employing part-time academic staff, these teachers are largely unrepresented in higher education assessment and assessment studies. The present empirical results contribute to the literature on part-time teaching by focusing on the assessment conceptions of a sample of hourly paid teachers in a Finnish open university. We examined differences between assessment conceptions by educational level including pedagogical training and highest degree completed.

The descriptive statistics showed that conceptions were based mostly on Assessment for teaching and learning, followed by Assessment of learning and least on Assessment as harmful. In general, conceptions seem to be in line with the ideals of formative assessment, where the central aim is to promote learning (e.g., Morris et al., 2021). The relatively high mean of Assessment for teaching and learning can be explained by the fact that up to 54% of the participants had completed pedagogical training (60 credits). In turn, the Spearman correlation indicated that the more teachers' conceptions were based on Assessment of learning, the more they perceived Assessment as harmful. Moreover, the more teachers' conceptions were based on Assessment for teaching and learning, the less they were based on Assessment of learning.

To answer our research question, we explored the associations of the different assessment conceptions with education. The Mann-Whitney *U*-test showed that pedagogical training explained about 35% of the variation in conceptions of Assessment of teaching and learning. Teachers who had completed teachers' pedagogical training (60 credits) reported conceptions of Assessment of teaching and learning, which refers to formative assessment, more often than those who had not. This result supports previous findings according to which pedagogical training can direct teaching towards a student-centred approach, which is characteristic of formative assessment (e.g., Ma et al. 2023; Postareff et al., 2007). Postareff and Nevgi (2015) examined the relationship between a five-month, 10-credit pedagogical training course and conceptions of teaching and learning. They found that some teachers resisted changing their conceptions, while others described strong changes in their conceptions, learning and teacher identity. Södervik et al. (2022) also found that after teacher training, all the participating university teachers from different faculties scored higher on their professional conceptions of prior knowledge. Further, more developed professional conceptions were associated with more constructivist conceptions of learning. However, there are also indications that pedagogical training could lead to more teacher-centered thinking (Ödalen et al. 2019). In conclusion, our results showed that pedagogical training seems to promote a shift in teachers' assessment conceptions towards assessment for teaching and learning, where assessment is seen as formative assessment. Given the strong evidence that formative assessment promoted student achievement in higher education (e.g., Morris et al., 2021), we recommend that higher education teachers should be offered more pedagogical training and education.

The knowledge base underpinning assessment skills (Xu & Brown, 2016) could be strengthened through, for example, short pedagogical training and regular meetings and discussions with other teachers. In addition, each hourly paid teacher should have a tutor-teacher they can turn to when needed (Hill & Barber, 2014). Xu and Brown (2016), and Hill and Barber (2014) emphasize participation in the culture of assessment and the building of partnerships that generate a sense of being heard. Teachers' reflection on and active development of their assessment practices is an important part of their assessment identity. According to Xu and Brown (2016), teachers' assessment identity can gradually empower teachers through their participation in communities of practice, i.e., sharing experiences with other teachers and learning from others. Participation in the culture of assessment and self-reflection also prevents teachers' approaches to assessment from going off on their own. This is important both for the quality of education and teaching, and for student learning, as the diversity of teachers' assessment skills should not be seen as excluding or unequally treating students.

Rapid changes in the world of work and changing skills needs require universities to be flexible and responsive in developing new training modules, for example micro credentials (e.g. Tamoliune et.al. 2023). In these situations, universities can quickly recruit part-time teachers to meet teaching needs that require expertise that the university does not have on a permanent basis. However, academic teaching should not be solely content-based knowledge but also informed by pedagogical skills, including assessment.

Limitations and future research

This study has its limitations. First, the number of participants (N = 50) was small, and the response rate (36.76%) low. It is possible that teachers who consider assessment important in their teaching were more motivated to participate. In addition, the absence of precise up to date data on the number of hourly paid teachers (see also Coughlan, 2015) means the size of this population is only indicative. Further, as the respondents participated anonymously dropout analysis was not possible, meaning that nothing can be known about non-responders. Hence, the sample cannot be considered representative of the population of hourly paid teachers in the open university. Research with a larger number of participants would make for a more representative sample, allow more sophisticated analysis, and yield more generalizable results.

Second, the reliability of this study is limited in its context. According to Brown et al. (2019), because they are linked to societal and cultural factors, assessment conceptions cannot be considered a universal model of assessment. The theories and measures used in this study are also context specific. Therefore, the study may best describe the Finnish context. Moreover, the questionnaire, which was partly based on the COA III (Brown, 2004) and the measure developed by Kyttälä et al. (2022), was modified to capture hourly paid teachers' assessment conceptions in an open university context.

A third limitation concerns the variables used. The original variable ‘Assessment of teaching’, which refers to summative assessment, contained five statements. However, due to a low Cronbach's alpha, two items were removed. This increased the alpha from .58 to .67, which exceeds the .60 criterion for a moderate and acceptable level (Nunnally, 1978) and thereby the internal consistency of the variable. However, removing these theoretically relevant items may have reduced the validity of the variable and influenced the results. The assessment conceptions of teachers from different disciplines would also merit study, as teachers in soft disciplines tend to adopt more learner-centered approaches to assessment than those in hard disciplines (Lueddeke, 2003; p. 48; Postareff et al., 2009). Fourth, as assessment conceptions are complicated, and emphasized, modified, or developed based on specific practices and personal experiences (Reiman & Sadler, 2017), a focus on attributing single conceptions to a single person does not do justice to the phenomenon itself. Therefore, to obtain in-depth and comprehensive insight on teachers' assessment conceptions, future studies should also use qualitative methods.

Teachers' assessment conceptions showed a slight non-significant changing trend by the number of teachers' teaching experience. However, judging by the small or medium effect size ($\eta^2 = .05-.06$), a larger and a more targeted study than the present one is required to resolve whether and how teachers' work experience might transform their assessment conceptions.

Conclusion

Despite its limitations, the study furthered insight into an under researched topic while highlighting the important role of hourly paid teachers in higher education. Education policymakers have stated that higher education institutions should actively anticipate the competence needs of their staff and provide training that develops their pedagogical, welfare and guidance skills (Ministry of Education and Culture, 2019; Toom & Pyhältö, 2020). However, these reports have not included hourly paid teachers. To conclude, we argue that higher education legislation must be based on a broader definition of research and science. Higher education institutions should do more to create and implement sustainable curricula and learning and teaching methods (Hayes & Reinders, 2020) and act as role models for the education sector in implementing the principles of sustainable development. The integration of hourly paid teachers into the core team at universities is essential for fostering inclusivity, academic excellence, and institutional cohesion. By recognizing their contributions, involving them in decision-making processes, and investing in their professional development, universities can cultivate a more supportive and dynamic learning environment that benefits students, faculty, and the broader community alike. Universities need to look ecologically far into the future, systemically and equitably involve in this process all those working and studying in them and be active drivers of change.

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Authors' Bios

Dr. Minna Maunumäki, I am Minna Maunumäki, PhD in Education and I work as a university teacher in the fields of Education, Adult Education and Early Childhood Education at the Open University and in the adult education of primary school teachers at Kokkola University Centre. My work includes a wide range of teaching (including qualitative research methods and supervision of undergraduate and postgraduate theses and dissertations) and supervision tasks, as well as various university working groups. My research interests include the phenomena of teaching, learning and assessment as well as current issues in education policy. I am active in many international and national research networks as a researcher and a learner.

Email: minna.j.maunumäki@jyu.fi

Dr. Maarit Koskinen, I am Maarit Koskinen, PhD in Education, and I work as a university teacher in the fields of Education, Adult Education and Family studies at the Open University. My work includes a wide range of teaching (including research methods and supervision of undergraduate theses). My research interests include the phenomena of assessment and international adoption.

Email: maarit.g.koskinen@jyu.fi

M.Ed. Auli Talamo, I work as a university teacher at the Open University in the fields of Education and Adult Education. My work includes teaching, guidance of adult learners and its research-based development. My research focuses on adult learning, learning assessment and peer assessment.

Email: auli.talamo@jyu.fi

Dr. Pessi Lyyra, I am a university teacher and hold a PhD in Psychology and Philosophy. My current role includes teaching and its research-based development. In my research, I focus on consciousness studies, attention, body awareness, social cognitive neuroscience, and learning motivation. My teaching interests cover cognitive neuroscience, ontology and epistemology, philosophy of mind, and quantitative research methods.

Email: pessi.lyyra@jyu.fi

Dr. Tiina Lämsä, I specialize in adult education, childhood, family, and cultural studies. Currently, I serve as a university teacher in educational sciences and early education, while also managing customer relationships for continuous learning programs. I have also taught entrepreneurship and service design. I hold a PhD in Education, and my research focuses on arts-based methodologies, pedagogy, curriculum development, sustainable learning, and educational leadership.

Email: tiina.al.lamsa@jyu.fi