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Open Educational Resources in Professional Development: Attitudes and Intentions to Use Among Early Childhood Educators

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Abstract
This study examined early childhood educators' attitudes toward Open Educational Resources (OER) in professional development, as well as the relationship between their level of professional training, their attitudes toward OER and their intention to use digital technologies in educational practice. The research was grounded in a theoretical framework based on technology acceptance models, alongside the principals of open pedagogy and continuous professional development. Statistical analysis revealed significant correlations between the level of professional training and positive attitudes toward OER, as well as between attitudes toward OER and the intention to integrate technology into teaching and learning activities. These findings highlight the role of OER not only as tools for free access to educational content but also as catalysts for teachers' digital competence and innovation in early childhood education.

Keywords: open educational resources, teacher professional development, digital competencies, early childhood education

Introduction

The rapid digitalization of education has profoundly transformed how teachers access, create and share learning resources. Within this context, OER have emerged as key instruments democratizing access to knowledge and promoting collaboration among educators. Previous studies emphasize that OER can support both pedagogical renewal and teachers' professional growth, particularly when integrated into continuous training contexts (Ambrose et al., 2024; Getenet et al., 2024; Otto, 2021).

However, despite their recognized benefits, the effective adoption of OER in teacher education remains inconsistent and depends on multiple factors such as digital competence, professional readiness and teachers' attitude toward openness (Issa et al., 2020; Adedoyin & Altinay, 2023). To better understand these dynamics, this study draws on the Technology Acceptance Model (TAM) (Davis, 1989; Kim et al., 2015) and the Attitude Towards Open Educational Resources (ATOER) framework (Mishra et al., 2016), which explain how attitudes influence the intention to use educational technologies.

Grounded in this theoretical foundation, this research examines the relationships between early childhood teachers' level of professional training, their attitudes toward OER and their intention to use technology in professional learning. Therefore, this study aims to fill this gap by examining these relationships within the Romanian context, contributing to a deeper understanding of how OER can act as both a learning resource and a catalyst for professional transformation in early childhood education.

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Theoretical Framework and Literature Review

This study draws upon three complementary theoretical perspectives: Open Educational Resources (OER), teachers' professional development and technology acceptance in education. In the context of contemporary early childhood education, teachers are required to continuously adapt their practices to respond to technological innovation and the principles of openness and collaboration (Ilomäki et al., 2016; Otto, 2021). Effective integration of OER relies on teachers' digital competencies and continuous professional development that support the adoption, adaptation and creation of openly licensed educational resources. (Adedoyin & Altinay, 2023; Mishra et al., 2016; Ramirez-Montoya et al., 2017)

Open Educational Resources (OER) represent more than freely accessible educational materials (UNESCO, 2002); they also reflect an educational philosophy that promotes openness, collaboration, adaptation and the sharing of knowledge. From this perspective, teachers' attitudes toward OER may be associated with their willingness to adopt innovative teaching practices and integrate digital technologies into everyday educational activities. Therefore, examining these attitudes is relevant for understanding factors associated with technology acceptance in early childhood education.

Professional development and technology

Digital technologies have significantly influenced teaching, learning and curriculum development, creating new opportunities for more flexible and accessible educational practices. The role of technology in education and professional training has always been significant, with both mutually reinforcing and complementing each other, consistently at the forefront of development (Grimus, 2020). Technology has facilitated solutions for combining efficiency and effectiveness within the education system, providing options that enable training to be cost-effective, rapid and of high quality (Grimus, 2020; Stolovitch et al., 2017). Conversely, education has consistently supported and driven technological development by fostering creativity and developing human competencies (Grimus, 2020; Ilomäki et al., 2016).

A central issue in discussions of online education and professional development concerns the relationship between technology and learning outcomes. Stolovitch et al. (2017) argue that while technology and media tools can improve the efficiency of the educational process by making it faster and less costly, learning effectiveness depends primarily on instructional design rather than on the technologies used to deliver content. Consistent with this perspective, research on OER has increasingly emphasized that the effective adoption and integration of OER depend not only on the availability of digital technologies but also on teachers' professional development, digital competencies and positive attitudes toward using and adapting openly licensed resources (Adedoyin & Altinay, 2023; Ambrose et al., 2024; Otto, 2021; Ramirez-Montoya et al., 2017).

Ambrose et al. (2024) argue that effective professional learning relies on the dynamic interaction between prior knowledge, intrinsic motivation and the design of the learning environment- factors that determine the depth and sustainability of teachers' professional growth. In line with this view, Otto (2021) highlights that the integration of OER in teacher education depends not only on access and licensing but also on educators' positive disposition toward openness and institutional support for sharing and reuse.

Digital competencies, prerequisites for integrating OER into learning

For teachers, the digital competencies required in contemporary society translate into a set of knowledge and skills that enable them to operate, communicate and create educational content. Trese competencies include basic computer management, proficient use of the internet, use of social networks, knowledge of digital tools and teaching materials, text-processing skills and proficiency with software such as PowerPoint, Prezi and Word. They also involve the integration of openly licensed implementation in the classroom of openly licensed educational resources into classroom practice,

awareness of the limitation and ethical implications of ICT use and motivation to participate in digital culture (Ilomäki et al., 2016; Ramirez-Montoya et al., 2017,). As such, these competencies foster innovation in education, by enabling teachers to create and use media-based instructional resources, including OER.

Based on a synthesis of information regarding teachers' digital competencies for using and creating OER, several conclusions can be drawn (Grimus, 2020; James & Bossu, 2014; Ramirez-Montoya et al., 2017):

- Before teachers can create and use digital materials, they must be highly digitally competent;
- To become digitally competent, teachers need to be trained in and for digital culture (at secondary schools and/or universities), to increase their engagement and interest in producing OER as an essential part of their profession;
- To be trained in and for digital culture, trainees (future teachers) require appropriate infrastructure and specialized guidance;
- Experience in online environments determines digital competencies, particularly in the production of OER.

Teacher professional development in the context of OER

This study also draws upon theories of technology acceptance to explain teachers' engagement with OER. The Technology Acceptance Model (TAM), originally proposed by Davis (1989), posits that technology adoption is determined by perceived usefulness (PU) and perceived ease of use (PEOU), which influence behavioral intention (BI) and actual use. This model has been further adapted by Kim et al. (2015) to suit the specific context of OER, maintaining the original structure while focusing on educators' interaction with open and collaborative digital resources. Within this framework, teachers' attitude toward OER (AT) represents a central mediating construct that links internal factors (PE, PU, SE) and social/institutional factors (SN, JF) to the intention to integrate open educational resources in professional learning and pedagogical practice.

Empirical evidence from recent studies supports the interconnection of these constructs. Getenet et al. (2024) demonstrate that pre-service teachers' digital attitudes, literacy and engagement are closely related, reinforcing that readiness and positive attitudes are precursors to technology integration. Issa et al. (2020) and Adedoyin & Altinay (2023) further reveal that higher levels of professional training and exposure to open, collaborative environments correlate with stronger behavioral intentions to use digital tools. Collectively, these perspectives affirm that professional development, positive attitudes toward OER and behavioral intention form an interdependent triad that shapes teachers' engagement with open and digital resources.

Within this theoretical framework, the present study conceptualizes the adoption of OER by early childhood teachers as an intentional and reflective process associated with teachers' professional characteristics, their attitudes toward OER and their intention to use technology, as explained by the adapted Technology Acceptance Model. Although previous research examined teachers' digital competence, technology acceptance, and the use of OER, these topics have often been investigated separately or within higher education settings. Comparatively, little attention has been paid to the relationship between teachers' attitude toward OER and their intention to use technology in early childhood education. Given the distinctive pedagogical characteristics of early childhood settings, it remains unclear whether attitudes toward OER are associated with technology acceptance in this educational context. Addressing this gap may contribute to a better understanding of contextual factors related to technology acceptance among early childhood teachers and provide evidence to inform professional development and educational practices.

To examine the relationships among teachers' professional characteristics, their attitudes toward OER and their intention to use technology, the study addresses the following research questions (RQ):

RQ1: To what extent do the level of continuous professional development (teaching certification level) and educational attainment explain teachers' attitudes toward OER?

RQ2: To what extent do the level of continuous professional development (teaching certification level) and educational attainment explain teachers' intention to use technology?

RQ3: To what extent do teachers' attitudes toward OER explain the intention to use technology?

Methodology

Research design

This empirical study employed a quantitative, cross-sectional, non-experimental research design to examine the relationship among teaching certification level, educational attainment, attitudes toward OER and teachers' intention to use digital technologies in early childhood education. A quantitative approach was considered appropriate because the study aimed to examined relationships among variables using standardized questionnaires and statistical analyses (Creswell & Creswell, 2018). Data were collected at a single point in time, consistent with the characteristics of a cross-sectional reasearch design (Cohen et al., 2017).

Participants

The sample consisted of early childhood education teachers working in public and private institutions. Participants were selected through convenience sampling, ensuring representation from different institutional settings. In total, 228 teachers participated in the study. The sample included qualified teachers at different stages of their professional career, with different certification levels. Of the 228 participating teachers, 5 identified as male and 221 as female, while 2 chose not to disclose their gender. Participation in the study was voluntary, and respondents were informed about the purpose of the research before completing the online questionnaire. No personally identifiable information was collected, and all responses were recorded anonymously. Data were stored securely and used exclusively for research purposes, in accordance with applicable data protection requirements. In accordance with institutional regulations for anonymous questionnaire-based research involving adult participants, formal ethical approval was not required. Participants provided informed consent before completing the survey.

Instrument

The theoretical constructs discussed above have been operationalized in previous research using validated instruments. The Technology Acceptance Model (TAM) scale, developed by Kim et al. (2015) based on the original model proposed by Davis (1989), measures teachers' internal and social/institutional factors and intention to use technology. Similarly, the Attitude Towards Open Educational Resources (ATOER) scale developed by Mishra et al. (2016), assesses teachers' cognitive, affective and behavioural dispositions toward OER. Together, these two instruments allow for a comprehensive analysis of the relationships between professional training level, attitudes toward OER and the intention to use educational technologies in early education. Data were collected using a structured online questionnaire comprising three sections:

1. Informed consent, demographic and professional information.

2. ATOER Scale, developed by Mishra et al. (2016), measuring teachers` affective, cognitive and behavioural attitudes toward OER. This section used a 5-point Likert response format.

3. TAM Scale, adapted from Kim et al. (2015), measuring six constructs: Perceived Ease of Use (PE), Perceived Usefulness (PU), Attitude Toward Use (AT), Subjective Norm (SN), Self-Efficacy (SE) and Job-Fit (JF). Items were rated on a 5-point Likert scale (1= strongly disagree, 5= strongly agree).

Data collection and analysis

Statistical analyses were performed using IBM SPSS Statistics. Internal consistency was first examind for all scales and subscales. The adapted Technology Acceptance Model (TAM) scale demonstrated excellent internal consistency (Cronbach's α = .987). The seven subscales also showed excellent reliability (Perceived Ease of Use: α = .955; Perceived Usefulness: α = .955; Attitude: α = .961; Subjective Norm: α = .899; Job Fit: α = .955; Self-Efficacy: α = .959; Intention to Use OER: α = .951). The Attitude toward Open Educational Resources (ATOER) scale also demonstrated excellent internal consistency (overall scale: α = .936; Sharing subscale: α = .926; Adoption subscale: α = .856). Several Cronbach's alpha coefficients exceeded.95, which may reflect the conceptual similarity of the items and the relative homogeneity of the sample, as all participants belonged to the same professional group.

The distribution of scores for the ATOER and TAM scales and their subscales was examined using descriptive statistics, histograms, skewness and kurtosis indices, and the Kolmogorov-Smirnov and Shapiro-Wilk tests. Although both normality tests indicated statistically significant departures from normality, such findings are common in large samples and often reflect the sensitivity of these tests rather than substantial violations of the normality assumption. Therefore, the assessment of normality was based on both statistical tests and graphical inspection. Prior to the ANOVA analyses, homogeneity of variances was addressed using Levene's test. When appropriate, Welch's robust ANOVA was additionally performed to verify the stability of the findings under equal variances or unequal group sizes. For statistically significant ANOVA results, Tukey's Honestly Significant Difference (HSD) post hoc test was conducted to identify pairwise group differences.

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were subsequently conducted, to examine the factor structures of the ATOER and adapted TAM instruments. İn the present sample, neither analysis fully replicated the original factor structures proposed by the developers of the instruments. Consequently, subsequent analyses were performed using the total scores of the two scales rather than individual factor scores.

The relationships among the study variables were examined using Pearson's correlation analysis and simple linear regression was conducted to investigate whether teachers' attitude toward OER predicted their intention to use technology. Prior to the regression analysis, the distribution of standardized residuals was examined to evaluate the suitability of the data for regression analysis. Although the residuals showed some deviation from normality, Pearson correlation, ANOVA and linear regression are generally considered robust to moderate departures from normality in samples of this size (N=228). Accordingly, the selected parametric analyses were considered appropriate for addressing the research questions.

Findings

The statistical analyses were conducted to address the research questions concerning the relationships between teachers' teaching rank, educational attainment, attitudes toward OER and intention to use technology. The results are presented below.

To examine differences in participants' attitude toward OER as a function of continuous professional development level (teaching rank), a univariate ANOVA was conducted. Due to small group sizes, underrepresented categories were merged with the closest relevant groups: participants without a teaching rank (N= 8) were included in the Fully qualified teacher group, while participants holding a doctoral degree (N= 2) were merged with the master's degree category. Descriptive statistics indicated a gradual increase in attitude scores with higher teaching ranks, with the lowest mean observed among participants without a teaching rank or with fully qualified teacher (M= 4.09, SD= 0.65), followed by those holding the Second-level teaching qualification (M=4.18, SD= 0.51) and the highest mean among participants with the First-level teaching qualification (M=4.28, SD= 0.55). However,

those differences did not reach statistical significance, $F_{(2,225)}=2.77$, $p= 0.065$. The effect size was small ($\eta^2=0.024$), indicating that the level of continuous professional development explains approximately 2% of the variance in attitudes toward OER. Although a slight upward trend was observed, the results suggest that teaching rank does not significantly influence early childhood teachers' attitudes toward OER.

Table 1
Univariate ANOVA Results for Differences in Attitudes Toward OER by Level of Continuous Professional Development

Dependent Variable	Factor	Group	M	SD	F	P	η^2
Attitude toward OER	Level of CPD	Fully qualified teacher	4.09	0.65	2.77	0.065	0.024
		Second-level teaching qualification	4.18	0.51			
		First-level teaching qualification	4.28	0.55			

N=228.

A second univariate ANOVA was conducted to examine the differences in attitudes toward OER according to educational level (upper secondary education, bachelor's degree, master's/doctoral degree). Descriptive results (Table 2) showed a gradual increase in mean scores with higher levels of education (M= 4.07 for upper secondary; M= 4.16 for bachelor's degree; M=4.27 for master's/doctoral degree). Nevertheless, the differences between groups were not statistically significant, $F_{(2,225)}= 1.604$, $p= 0.203$. The effect size was small ($\eta^2= 0.014$), indicating that educational level accounts for only about 1% of the variance in attitude scores.

Taken together, the two ANOVA analyses indicate that neither continuous professional development level nor educational attainment has a statistically significant effect on attitude toward OER. Although mean scores showed a modest increasing trend with higher teaching ranks and educational levels, these differences were small and statistically non-significant ($p> 0.05$). Effect sizes were low ($\eta^2< 0.03$), suggesting that attitudes toward OER remain relatively stable regardless of formally certified professional experience or level of education.

Table 2
Univariate ANOVA Results for Differences in Attitudes Toward OER by Educational Level

Dependent Variable	Factor	Group	M	SD	F	p	η^2
Attitude toward OER	Educational Level	Upper/Secondary Education	4.07	0.61	1.604	0.203	0.014
		Bachelor's Degree	4.16	0.53			
		Master's/Doctoral Degree	4.27	0.57			

N=228.

Univariate ANOVA was also used to investigate differences in intention to use technology as a function of continuous professional development level (teaching rank). Descriptive statistics showed (Table 3) slightly higher mean scores for participants holding the Second-level teaching qualification (M= 4.11, SD= 0.72), compared to those without a teaching rank or Fully qualified teacher (M= 3.86, SD= 0.99) and those holding the First-level teaching qualification (M= 4.01, SD= 0.92). However, these differences were not statistically significant, $F_{(2,225)}$= 1.275, p= 0.281 and the effect size was very small (η^2= 0.011).

Table 3
Univariate ANOVA Results for Differences in Intention to Use Technology by Level of Continuous Professional Development

Dependent Variable	Factor	Group	M	SD	F	p	η^2
Intention to use technology	Level of CPD	Fully qualified teacher	3.86	0.99	1.275	0.281	0.011
		Second-level teaching qualification	4.11	0.72			
		First-level teaching qualification	4.01	0.92			

N=228

These findings indicate that continuous professional development level does not significantly influence teacher's intention to use technology within the investigated sample.

In contrast, a univariate ANOVA examining differences in intention to use technology according to educational level revealed statistically significant results. Mean scores increased progressively with higher educational attainment, from upper secondary education (M= 3.71, SD= 1.18) to bachelor's degree (M= 3.83, SD= 0.97) and master's/doctoral degree (M= 4.25, SD= 0.63). The ANOVA indicated significant differences between groups, $F_{(2,225)}$ = 7.143, p<0.001, with a small to moderate effect size (η^2= 0.060), suggesting that approximately 6% of the variance in intention to use technology scores is explained by educational level.

Table 4
Univariate ANOVA Results for Differences in Intention to use Technology by Educational Level

Dependent Variable	Factor	Group	M	SD	F	p	η^2
Intention to use technology	Level of CPD	Upper/Secondary Education	3.71	1.18	7.143	<.001	0.060
		Bachelor's Degree	3.83	0.97			
		Master's/Doctoral Degree	4.25	0.63			

N=228

In summary, the two ANOVA analyses focusing on intention to use technology yielded contrasting results. While continuous professional development level did not have a significant impact, educational attainment emerged as a significant predictor, with participants holding postgraduate degrees reporting significantly higher intention to use technology. Despite the modest effect size, these findings highlight the role of formal education level in shaping teachers' technology-related behavioral intentions.

The correlational analysis (Pearson) revealed a positive and statistically significant association between attitudes toward OER and the intention to use digital technologies (r= 0.178, p= 0.003).

Table 5
Pearson Correlation Matrix between Attitudes toward OER and Intention to Use Digital Technologies

Variable	N	M	SD	r	p
Attitude toward OER	228	4.19	0.56	0.178**	p<.001
Intention to use technology		3.99	0.90		

** Correlation is significant at the 0.01 level (2-tailed)

To further explore this relationship, a simple linear regression analysis was conducted, with intention to use digital technologies as the dependent variable and attitude toward OER as the predictor.

Table 6
Results of the Simple Linear Regression with Intention to Use Digital Technologies as the Dependent Variable and Attitude toward OER as the Independent Variable

Predictor	N	B	SE	β	t	p	R^2
Constant	228	2.777	0.448	-	6.202	<0.01	
Attitude toward OER		0.288	0.106	0.178	2.722	0.007	0.032

Although attitudes toward OER significantly predicted teachers' intention to use technology, the effect size was modest (R^2= 0,032). These findings suggest that attitudes toward OER represent one factor associated with technology acceptance in early childhood education. However, the limited explanatory power of the model indicates that additional, individual, institutional and contextual factors are likely to contribute to teachers' intention to use technology.

Discussion

The present study examined whether early childhood teachers' educational attainment and teaching rank were associated with their attitudes toward OER and their intention to use technology. In addition, it explored the relationship between attitudes toward OER and teachers' intention to use technology within the framework of the Technology Acceptance Model (TAM).

The findings indicated that educational attainment was associated with teacher intention to use digital technology, Specifically, participants holding postgraduate qualifications reported significantly stronger intentions to use technology than teachers with lower educational attainment. One possible explanation is that postgraduate studies may provide greater exposure to educational research, innovative pedagogical approaches and digital technologies, thereby strengthening teachers' confidence and willingness to integrate technology into educational practice. This interpretation is consistent with the findings of Li et al. (2025), who reported that teachers' technology integration is associated with

individual and contextual factors, including professional learning, pedagogical knowledge and positive attitudes toward digital technologies. Similarly, Gui et al. (2026) concluded that teachers' professional development contributes to strengthening positive attitudes, self-efficacy and digital competencies, which are associated with greater technology integration in educational practice. Within the context of early childhood education, advanced academic preparation may help teachers select, adapt and implement developmentally appropriate digital resources that support children's learning while remaining consistent with play-based pedagogical approaches. Nevertheless, this finding should be interpreted cautiously, because the doctoral group included only two participants, resulting an unequal group size.

In contrast, educational attainment was not significantly associated with teachers' attitudes toward OER. One possible explanation is that favourable attitudes toward OER may develop through teachers' professional experiences, collaboration with colleagues, participation in professional learning communities and access to openly available educational resources rather than through formal academic qualifications alone. Because OER are freely accessible, and increasingly disseminated through online platforms and teacher networks, educators with different educational backgrounds may have similar opportunities to become familiar with these resources and recognise their educational value. This finding suggests that, within early childhood education, positive attitudes toward OER may be shaped more by everyday professional practice than by differences in formal academic attainment.

Likewise, teaching rank was not significantly associated with either attitudes toward OER or intention to use technology. This finding is consistent with Serin and Bozdağ (2020), who similarly reported that teachers' attitudes toward technology use and their digital autonomy do not differ significantly according to professional development level. Although teachers holding higher teaching ranks obtained slightly higher mean scores in the present study, the observed differences remained small and statistically non-significant. One possible explanation is that access to digital technologies, online professional learning opportunities and educational resources has become increasingly widespread across all stages of teachers' professional careers. This may explain why teachers with different teaching ranks have comparable opportunities to develop digital competencies and engage with OER. Gui et al. (2026) likewise emphasized teachers' technology-related attitudes and competencies are influenced not only by formal professional development, but also by institutional support, facilitating conditions and opportunities for meaningful technology integration. Within the context of early childhood education, teachers across different teaching ranks typically work within similar curricular frameworks and share comparable pedagogical responsibilities, which may further contribute to the absence of substantial differences between professional groups.

Finally, the study found a positive but weak relationship between teachers' attitudes toward OER and their intention to use digital technology. Teachers with more favorable attitudes toward OER tended to report stronger intentions to integrate digital technologies into their educational practice. Although the association was statistically significant, its magnitude was modest (r=.178) and attitudes toward OER explained only 3.2% of the variance on teachers' intention to use technology. This finding is consistent with the Technology Acceptance Model (Davis, 1989), which proposes that positive attitudes toward technology-related innovations are associated with stronger behavioural to use technology. Similar relationships between teachers' attitudes and behavioural intentions have also been reported by Teo (2013). More recently, Gui et al. (2026) highlighted that positive attitudes, together with digital competences and self-efficacy are associated with greater technology integration among teachers.

The present findings are also consistent with Merjovaara et al (2024), who reported that early childhood pre-service teachers with more positive attitudes toward digital technologies demonstrated higher perceived digital competence. Although their study focused on pre-service teachers, it likewise highlights the importance of positive technology-related attitudes within the specific pedagogical context of early childhood education. Taken together, these findings suggest that positive attitudes

toward OER may represent one element supporting teachers' readiness to integrate digital technologies into educational practice. However, the relatively low explained variance observed in the present study indicates that attitudes toward OER represent only one factor associated with teachers' intention to use technology. Other factors, including digital competence, self-efficacy, institutional support, previous experience with educational technologies and school culture are also likely to contribute to technology acceptance. This interpretation is particularly relevant in early childhood education, where teachers are expected to integrate digital technologies in ways that are developmentally appropriate, pedagogically meaningful and responsive to the needs of young children. Thus, technology acceptance in early childhood education is likely to reflect the combined influence of individual characteristics and the broader educational context.

Overall, the findings suggest that attitudes toward Oer represent a relevant contextual factor associated with early childhood teachers' intention to use technology. Although the predictive effect was modest, the present study contributes to the existing literature by providing evidence from the comparatively underexplored context of early childhood education and by highlighting the potential role of attitudes toward OER as one factor associated with teachers' technology acceptance

Conclusion

This study examined the relationships between early childhood education teachers' educational attainment, teaching rank, attitudes toward OER and intention to use digital technology. The findings showed that educational attainment was associated with teachers' intention to use digital technology, whereas no significant differences were found according to teaching rank. Likewise, educational attainment was not significantly associated with teachers' attitudes toward OER. These results suggest that formal academic qualifications may be more closely related to teachers' readiness to adopt digital technologies than to their perceptions of OER.

The study also found a weak but statistically significant positive relationship between attitudes toward OER and intention to use digital technology. Although attitudes toward OER significantly predicted technology use intention, the explained variance was modest, indicating that technology acceptance is shaped by multiple individual and contextual factors rather than by attitudes alone.

From a practical perspective, the findings suggest that initiatives promoting technology integration in early childhood education should focus not only on improving teachers' digital competencies, but also on fostering positive attitudes toward OER through continuous professional development, collaborative learning opportunities and access to high-quality open educational resources. Such initiatives may contribute to strengthening teachers' willingness to integrate digital technologies into educational practice.

Future research should investigate additional factors associated with technology acceptance, including digital competencies, self-efficacy, organizational support, school culture and previous experience with educational experiences. Longitudinal studies involving larger and more diverse samples of early childhood teachers would further improve understanding of how these factors contribute to technology acceptance over time.

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