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DIGITAL COMPETENCIES IN THE REFLECTIVE PRACTICE OF TEACHERS³

Abstract: Indicators of high-quality educational practice in contemporary times include teachers' digital competence and their reflective practice. Keeping pace with current trends and innovations in education is not possible without the effective integration of digital technologies into teaching and learning, as well as continuous self-monitoring and evaluation of one's own teaching. In line with this, the research problem in this study is as follows: whether teachers' digital competence influences their reflective practice. The aim of the research is to determine the impact of teachers' digital competence on reflective practice.

The research sample consisted of 1,517 teachers. For the purposes of the study, two Likert-type rating scales were developed, with Cronbach's alpha test confirming good reliability and internal consistency of the instruments. The study is empirical in nature and based on the descriptive method. An exploratory factor analysis was conducted to examine the latent structure of both scales and to determine the number of dimensions formed by the items. Using principal axis factoring, the latent space between the scales was examined and the optimal number of dimensions identified. The results of the Kaiser-Meyer-Olkin (KMO) and Bartlett's test confirmed the appropriateness of applying factor analysis. Pearson's correlation coefficient indicated a moderate to strong correlation between the scales under comparison. The findings of the study demonstrate that there is a significant influence and correlation between teachers' digital competence and their reflective practice.

Keywords: Digital competence, reflective practice, reflective approach, teacher.

1. Introduction

This paper examines reflective practice and digital competence as important segments in both the innovation of the educational process and the strengthening of teachers' professional engagement. An additional motivation, as well as an indicator of the need for such research, is the growing number of recent studies addressing similar issues. Teacher competences represent an inexhaustible field of research that has always been, and will remain, highly relevant. One of the reasons for this continued relevance is the fact that teacher competences directly influence student competences (Caena & Redecker, 2019), which actually means that the future of a society lies in the hands of teachers.

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Reflective practice is not a new concept when it comes to teachers' work. Schon was among the first to address three levels of teacher reflection (Schon, 1983), followed by Zeichner and Liston (1987) and Freire (1970). As an effective method for improving teachers' work, reflective practice is based on constructivist theory (Alam, 2016; Ally, 2004; Stojnov, 2005), according to which new experiences and knowledge are built upon those already acquired, resulting in new, complex, and comprehensive knowledge and insight into the activities carried out. The assessment of one's own work makes a positive contribution to teachers' further professional development.

Reflective practice represents a process in which teachers consider their educational methods and critically re-examine their actions and choices in the teaching process. Its primary goal is to assess the quality of instruction and to identify opportunities for its improvement; it involves a thorough consideration of all aspects of educational work—from lesson preparation, classroom organization, and lesson delivery, to assessment and relationships with students. By applying reflective practice, teachers analyze both their strengths and their professional challenges, successes and failures, with the aim of learning from their own experience and achieving continuous progress (Brinegar, 2023). Reflective practice is an individual process through which a teacher reflects upon and analyzes their own work, experiences, and relationships with students, with the purpose of enhancing the quality of learning and fostering personal professional development (Ruangsang, 2025). Defined in this way, it is linked to teachers' professional growth (Aljenobi & Ibrahim, 2023).

Reflective practice goes beyond a mere review of previous experiences—it represents a continuous, dynamic, and interactive process that requires a deeper understanding of one's own beliefs, actions, and their impact on the educational context (Ruangsang, 2025). This process fosters the development of teachers' critical self-awareness, enables adaptation to diverse pedagogical situations through adaptive expertise, and creates space for the exploration and implementation of innovative teaching approaches. Through such reflection and active learning from practice, teachers continuously strengthen their professional identity and contribute to a higher-quality educational experience for students. Technology-oriented teaching activities stimulate and provoke transformative (Brinegar, 2023), adaptive, as well as reflective thinking among teachers. It is precisely in pedagogical innovations and the contemporary perspective on learning and teaching that we can most clearly recognize the significance and contribution of digital competence, thereby reaffirming the relevance of our study. All of the points outlined can be taken as a foundation and justification for our research, that is, the examination of the correlation between teachers' reflective practice and digital competence.

The importance of digital competence for contemporary teachers is indispensable. Digital competences have been defined in multiple ways (Almas, Bueie, & Aagaard, 2021; Ally, 2019; Huda & Shukri Mat Teh, 2018; Faloon, 2020; Ferrari, Punie, & Brecko, 2013; Ferari, 2012). Teachers' digital competence is conditioned by professional development (Horvath, Pinter, Misley, & Dringo-Horvath, 2025) and is theoretically grounded in connectivism as a contemporary pedagogical theory, according to which knowledge is generated from databases that can only be accessed through digital technologies (Siemens, 2004).

DIGCOMPEDU, or the European Framework for the Digital Competence of Educators, encompasses digital pedagogical competences classified into three categories: teachers' professional competences, pedagogical competences, and student competences. These competences are key drivers of teachers' self-reflection processes through professional engagement, the use of digital resources, teaching and learning, assessment or evaluation, student empowerment, support for students' digital competence, and open education (da Luz & Espirito Santo, 2023). For the purpose of examining teachers' digital competence, we refer to the Digital Competence Framework (Okvir digitalnih kompetencija, 2019:5), in which these competences are classified as follows:

1. The digital environment encompasses competences that serve as a prerequisite for using the potential of digital technologies to build a successful civil society.
2. Competences required for the responsible and effective use of digital resources for teaching and learning purposes.
3. Knowledge and skills essential for planning and creating an authentic and stimulating digital learning environment that respects student diversity and facilitates their direct interaction.
4. Contemporary approaches to assessment and monitoring of student progress that contribute to increased responsibility for autonomous learning, development of self-regulation, and tracking of personal growth within the context of lifelong learning.
5. Support for students based on the principle of equity in education, highlighting the potential of digital technologies to assist students who require additional learning support.
6. Competences related to the context of teachers' professional engagement.

The contribution of this research is multifaceted. Empowering the teacher's role in the digital age is the primary motivation for this study, as the professional profile of the teacher of the future would be incomplete without competences in reflective practice and digital skills. Regarding the research instruments, statistical analyses in both cases yielded values indicating their practical significance. The newly developed instruments can be used to examine teachers' reflective practice and digital competence in further studies addressing similar issues, as well as serving as tools for teachers' self-reflection.

2. Method

Research problem

1. Examine the impact of digital competence on reflective practice; 2. Examine the influence of moderating variables on the relationship between digital competencies and reflective practice.

Research hypotheses

1. There is a positive impact of digital competence on reflective practice; 2. It is assumed that moderating variables have no influence on the relationship between digital competence and reflective practices.

Sample

The nature of the research problem, the objectives, and the hypotheses determined the sample on which the study was conducted. To ensure greater reliability of the obtained data and in accordance with the selected research focus, we aimed to include a larger number of participants. The sample consists of 1,517 actively employed teachers from primary and secondary schools in the Jablanica and Pčinja districts. This includes teachers from both primary schools (class teachers and subject teachers) and secondary schools of all profiles. A purposive sampling method was applied in the study. Prior to completing the questionnaire, all participants were informed about the purpose and nature of the research, as well as the anonymity and confidentiality of the data. The research sample was constructed based on the voluntary consent of teachers to participate in the empirical study. A total of 276 teachers up to the age of 35 participated, 515 teachers between the ages of 36 and 46, 496 teachers between 47 and 57, while the smallest percentage were teachers over 57 years of age ($n = 230$). With regard to years of service, the fewest were teachers with 5 or fewer years of work experience ($n = 178$), whereas the largest group comprised those with more than 20 years of work experience ($n = 600$). The study included 957 female and 560 male respondents. The majority of participants were from urban settlements ($n = 1096$), representing nearly three quarters of the sample, while considerably fewer respondents were from suburban ($n = 128$) and rural areas ($n = 293$). The largest group consisted of subject teachers ($n = 599$), followed by secondary school

teachers ($n = 557$) and primary school class teachers ($n = 361$). In total, 800 teachers from the Jablanica District and 717 teachers from the Pčinja District took part in the study.

Variables

For the purposes of the research, and with the aim of obtaining the most relevant data possible, several independent variables were selected. The independent variables were defined through the following subcategories: age (up to 35, 36–46, 47–57, over 57); years of work experience (up to 5, 6–10, 11–20, over 21); gender (female, male); school location (urban, suburban, rural); educational cycle (primary school class teacher, primary school subject teacher, secondary school teacher); and district to which the school belongs (Jablanica and Pčinja).

Instruments

The Teacher Reflective Practice Scale (RPRAXIS) is an instrument consisting of 53 items, developed specifically for the purposes of this study to measure the level of teachers' reflective practice. The scale is composed of nine subscales with a total of 53 items. Each subscale is supported by statements in the following way: (1) continuous self-analysis and self-monitoring, (2) viewing situations from different perspectives, (3) seeking elements of good practice, (4) trying out alternative approaches to established methods, (5) exchanging experiences with colleagues, (6) analyzing the beliefs underlying teaching practices, (7) readiness to adapt the lesson plan during the lesson, (8) keeping a reflective journal, and (9) conducting action research.

The Teacher Digital Competence Scale (DIGNAS) is an instrument developed for the purposes of this study to assess teachers' digital competence. The scale was constructed based on the Digital Competence Framework "Teacher for the Digital Age," adopted in 2019 by the Ministry of Education, Science, and Technological Development of the Republic of Serbia (Digital Competence Framework, 2019). It consists of 47 items rated on a five-point Likert scale. A factor analysis of the DIGNAS scale was conducted, revealing six subscales encompassing a total of 47 statements. The items were adapted to the needs of the research in accordance with the aforementioned framework and are organized as follows: (1) creating a safe digital environment, (2) effective use of digital resources for teaching and learning, (3) planning and creating an authentic and stimulating learning environment, (4) modern assessment methods, (5) using digital technologies to support students requiring additional educational assistance, and (6) leveraging the benefits of digital technologies for professional development.

The examination of the metric properties, specifically the reliability of the scales, was conducted using Cronbach's alpha test for both instruments. This indicator reflects the internal consistency of the scale and allows us to assess whether the instruments could have comparable results if applied in another study addressing an identical issue. Ideally, the Cronbach's alpha coefficient should exceed 0.7 (DeVellis, 2003). Briggs and Cheek (1986) recommend an optimal correlation range of 0.2 to 0.4 between items. Cronbach's alpha value is sensitive to the number of items in the scale. The RPRAXIS scale contains 1,517 variables, so we can believe that this number contributes to its higher reliability. Furthermore, the reliability of the scale also depends on the characteristics of the sample used.

Table 1. Cronbach's alpha reliability test of the RPRAXIS instrument

Cronbach's alpha	Cronbach's alpha based on standardized items	N
.954	.958	53

Based on Table 1, we conclude that for the sample of 1,517 respondents (100% valid sample), the Cronbach's alpha coefficient (Cronbach's Alpha = 0.954) indicates very good reliability and internal consistency of the scale for this sample, thereby meeting the reliability criterion.

In the same manner as with the first assessment scale, the reliability of the scale was examined using the Cronbach's alpha test.

Table 2. Cronbach's alpha reliability test for the DIGNAS instrument

Cronbach's alpha	Cronbach's alpha based on standardized items	N
.966	.967	47

Based on Table 2, it can be concluded that the DIGNAS scale meets the reliability criterion, with a Cronbach's alpha coefficient of 0.966.

In order to examine the latent structure of the RPRAXIS and DIGNAS scales and to determine the optimal number of dimensions formed by the items, an exploratory factor analysis was conducted using the Principal Axis Factoring method on each scale.

All scales (extracted factors) used in the study were standardized to a 1–5 scale (averaged summative scores) to facilitate comparison and interpretation. To address univariate outliers in the data, all variables containing univariate outliers ($z > |3.29|$) were subjected to Winsorization.

A factor analysis was conducted on the RPRAXIS scale. Prior to performing the analysis, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were calculated to examine whether the application of factor analysis was justified. The KMO value was 0.96, and Bartlett's test of sphericity was significant ($\chi^2(1378, n = 1517) = 43,535.96, p < 0.001$), indicating that it was appropriate to conduct factor analysis on the items.

Figure 1 presents the parallel analysis of the RPRAXIS scale items. The parallel analysis suggests that six factors should be retained, whereas the scree plot interpretation indicates that two or three factors may be sufficient. Given that the indicators pointed to the possibility of retaining solutions with different numbers of factors, the sample was randomly split, and factor congruences were calculated for solutions with 2 to 6 extracted factors. The congruences of the same factors were satisfactory ($> .85$) only in the case of the two-factor solution, which was therefore retained as the final solution. The congruences for the two-factor solution are presented in Table 1.

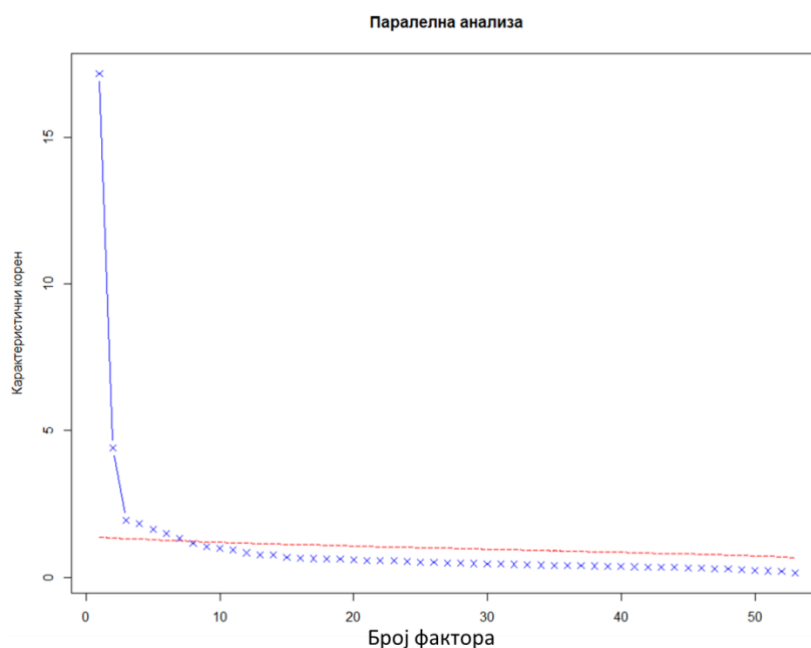


Figure 1. Scree plot of the RPRAXIS scale items

Table 3. Congruence of the two-factor solution

	Factor 1	Factor 2
Factor 1	.99	.05
Factor 2	.04	.98

The structure of the two-factor solution is presented in Table 3. The two factors together accounted for 40.72% of the total variance of the items. The first factor grouped items whose content reflects a tendency toward self-analysis of one's work and its application for personal and professional development, as well as items indicating a tendency toward collaboration and experience sharing with colleagues. This factor was labeled Self-Analysis and Collaborativeness (SC). The second factor (AI) primarily comprised items related to action research, both in terms of its implementation and general attitudes toward action research. Two items did not show significant loadings on either factor: "The classroom atmosphere dictates the way I work." and "I reflect on how my biography and background influence my work." There were no items with substantial cross-loadings on the non-primary factor. Reliability, measured using Cronbach's alpha, was SC $\alpha = .95$ and AI $\alpha = .91$, indicating excellent scale reliability. The correlation between the factors was .57, indicating a significant positive association between these constructs.

Prior to conducting the analysis, the KMO measure and Bartlett's test of sphericity were calculated to examine whether the application of factor analysis was justified. The KMO value was .97, and Bartlett's test of sphericity was significant ($\chi^2(1081, n = 1517) = 52,989.12, p < 0.001$), indicating that it was appropriate to perform factor analysis on the items.

Figure 2 presents the parallel analysis of the DIGNAS scale items. The parallel analysis suggested that five factors should be retained, whereas the scree plot interpretation indicated that two or three factors would be sufficient. Since the indicators suggested that solutions with different numbers of factors could be retained, the sample was randomly split, and factor congruences were calculated for solutions with two to five extracted factors. The congruences of the same factors in the solutions

with two to four factors were satisfactory, whereas only one pair of factors in the five-factor solution showed congruences below .85. The structures of the solutions with two to four factors were interpreted, and the four-factor solution was retained as it resulted in four interpretable and structurally sufficiently distinct factors. The factor congruences for the four-factor solution are presented in Table 4.

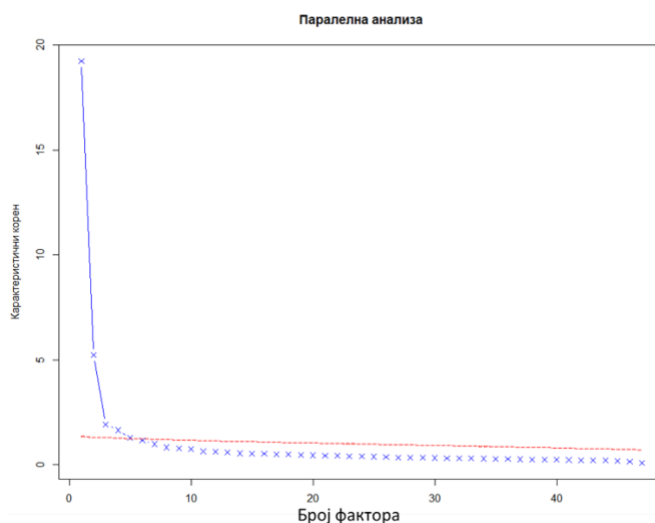


Figure 2. Scree plot of the DIGNAS scale items

Table 4. Congruences of the four-factor solution

	F4	F1	F3	F2
F1	.38	.92	.14	-.01
F3	.01	.19	.98	-.03
F4	.92	-.05	.04	.11
F2	.06	0.00	-.03	.98

The structure of the four-factor solution is presented in Table 4. The four factors together accounted for 59.66% of the total variance of the items. The first factor grouped items whose content reflects the use of e-portfolios and the general application of digital technologies to improve one's work, and it was labeled Use of Digital Technologies and E-Portfolios for Professional Development (DTE). Based on the structure, the second factor was named Innovation in Work (IR) and comprised items indicating the encouragement of students' engagement as well as collaborative work with students on digital resources. The third factor describes behaviors related to educating students and the individual's own application of safe practices on the Internet and in digital environments more broadly (Student Safety in Digital Environments – BDO). The final factor was named Creation and Retrieval of Digital Materials for Teaching Purposes (DMN), and it grouped items whose content reflected the use of digital technologies to create or find optimal resources for teaching. All items showed significant loadings on at least one factor, while the items “I use an electronic portfolio to monitor students' progress, develop self-regulation in learning, and present achievements” and “I create and use online tests” exhibited similar levels of loadings on two factors and were therefore excluded from further analyses. Reliability, measured using Cronbach's alpha, was as follows: DTE $\alpha = .95$, IR $\alpha = .92$, BDO $\alpha = .88$, DMN $\alpha = .92$, indicating excellent scale reliability. Factor correlations were positive, with the lowest correlation observed between IR and BDO ($r = .29$) and the highest between IR and DTE ($r = .72$).

3. Research results

The basic descriptive statistics for the scales are presented in Table 5. All variables had skewness and kurtosis values within the recommended range of ± 2 (George & Mallery, 2010), indicating that the variables did not deviate substantially from a univariate normal distribution. For all variables, the minimum and maximum possible values were 1 and 5, respectively. Overall, participants rated their reflective practices very highly; on the SK scale, no scores were below 3.12, while the lowest observed value in the sample was 2.12. Regarding digital competencies, teachers achieved the highest scores on the BDO and DMN scales, whereas slightly lower scores were observed for the IR and DTE scales.

Table 5. Descriptive statistics of the scales

Variable	Minimum	Maximum	Mean	Standard deviation	Skewness	Kurtosis
SK	3.12	5.00	4.37	.45	-.91	.33
AI	2.12	5.00	3.80	.70	-.46	-.45
DTE	1.69	5.00	3.84	.82	-.70	-.13
IR	1.33	5.00	3.40	.99	-.32	-.83
BDO	2.70	5.00	4.42	.57	-1.25	1.02
DMN	2.27	5.00	4.16	.68	-.94	.41

Comment: SK – Self-Analysis and Collaborativeness; AI – Implementation of Action Research; DTE – Use of Digital Technologies and E-Portfolios for Professional Development; IR – Innovation in Work; BDO – Student Safety in Digital Environments; DMN – Creation and Retrieval of Digital Materials for Teaching Purposes.

Scale correlations – Pearson's correlation coefficient

Correlations between the RPRAXIS and DIGNAS questionnaire scales are presented in Table 6. The Self-Analysis and Collaborativeness scale showed significant positive correlations with all DIGNAS questionnaire scales. The same pattern was observed for the Implementation of Action Research scale. The strength of the correlations between these scales ranged from moderate to strong, with the lowest correlation observed between the SK and IR scales ($r = .27$) and the highest between the AI and IR scales ($r = .58$).

Table 6. Correlation between the scales

	SK	AI	DTE	IR	BDO	DMN
SK	1	.57**	.46**	.27**	.57**	.53**
AI		1	.53**	.58**	.31**	.39**
DTE			1	.72**	.49**	.71**
IR				1	.29**	.51**
BDO					1	.66**
DMN						1

Comment ** - $p < .01$.

Age as a moderator of the relationship between the SK scale and the DIGNAS questionnaire scales. Given the large sample and the high number of conducted moderation analyses, to minimize the likelihood of a Type I error, only moderations significant at a more stringent criterion ($p < .01$) were considered statistically significant. The results of adding the moderation effect, where the predictor was the SK scale, the moderator was age, and the criteria were the DIGNAS questionnaire scales, are presented in Table 7. Age did not emerge as a significant moderator in any of the models.

Table 7. Model changes after introducing the moderating effect of age and the SK scale

Variable	F	df-Regression, df-Residual	P	Change in R ²
DTE	0.27	3, 1509	.849	.000
IR	2.05	3, 1509	.105	.030
BDO	1.17	3, 1509	.317	.000
DMN	1.09	3, 1509	.351	.000

Age as a moderator of the relationship between the AI scale and the DIGNAS questionnaire scales. The results of adding the moderation effect, where the predictor was the AI scale, the moderator was age, and the criteria were the DIGNAS questionnaire scales, are presented in Table 8. Age emerged as a significant moderator for two scales, DTE and DMN. In the case of the DTE scale, both older and younger participants showed higher levels of Use of Digital Technologies and E-Portfolios for Professional Development, but the increase in usage was more pronounced among older participants, indicating a stronger relationship between the implementation of action research and the use of digital technologies for older respondents. A similar pattern of association was observed for the DMN scale, where younger participants scored high on this scale, and the relationship between the AI and DMN scales was weaker compared to older participants.

Table 8. Model changes after introducing the moderating effect of age and the AI scale

Variable	F	df-Regression, df-Residual	P	Change in R ²
DTE	5.33	3, 1509	.000	.007
IR	1.11	3, 1509	.342	.001
BDO	1.29	3, 1509	.275	.002
DMN	5.59	3, 1509	.000	.008

Years of work experience as a moderator of the relationship between the SK scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the SK scale, the moderator was years of work experience, and the criteria were the DIGNAS questionnaire scales, are presented in Table 9. Years of work experience did not emerge as a significant moderator in any of the models.

Table 9. Model changes after introducing the moderating effect of years of work experience and the SK scale

Variable	F	df-Regression, df-Residual	P	Change in R ²
DTE	.95	3, 1509	.417	.00
IR	2.57	3, 1509	.08	.00
BDO	2.71	3, 1509	.04	.00
DMN	1.06	3, 1509	.36	.00

Years of work experience as a moderator of the relationship between the AI scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the AI scale, the moderator was years of work experience, and the criteria were the DIGNAS questionnaire scales, are presented in Table 10. Years of work experience emerged as a significant moderator for the DTE, IR, and DMN scales, with the moderation effects shown in Figures 6, 7, and 8. For all three scales, the moderating effect of work experience was moderate, and increases in the predictor were accompanied by increases in the criterion. For the DTE scale, the pattern of association was very similar across the three levels of work experience, although the increase was slightly weaker for teachers with 6 to 10 years of experience. For the IR scale, teachers with the shortest and longest work experience showed a stronger relationship between the predictor and the criterion compared to the other

moderator categories. In the case of the DMN scale, the association with the AI scale was somewhat stronger for teachers with the shortest and longest work experience compared to those with 6 to 20 years of experience.

Table 10. Model changes after introducing the moderating effect of years of work experience and the AI scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	7.26	3, 1509	.000	.01
IR	5.81	3, 1509	.000	.01
BDO	2.83	3, 1509	.037	.00
DMN	6.77	3, 1509	.000	.01

Gender as a moderator of the relationship between the SK scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the SK scale, the moderator was gender, and the criteria were the DIGNAS questionnaire scales, are presented in Table 11. Gender emerged as a significant moderator for the IR and DMN scales. In both cases, the pattern of moderation was very similar: male and female participants with lower SK levels showed approximately the same levels of the criterion variables, but the increase in the dependent variable in relation to the increase in the predictor was more pronounced for male participants.

Table 11. Model changes after introducing the moderating effect of gender and the SK scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	4.63	1, 1513	.032	.00
IR	7.09	1, 1513	.007	.00
BDO	5.19	1, 1513	.023	.00
DMN	7.67	1, 1513	.005	.00

Gender as a moderator of the relationship between the AI scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the AI scale, the moderator was gender, and the criteria were the DIGNAS questionnaire scales, are presented in Table 12. Gender did not emerge as a significant moderator in any of the models.

Table 12. Model changes after introducing the moderating effect of gender and the AI scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	3.93	1, 1513	.047	.00
IR	2.59	1, 1513	.107	.00
BDO	3.55	1, 1513	.067	.00
DMN	1.91	1, 1513	.166	.00

School location as a moderator of the relationship between the SK scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the SK scale, the moderator was school location, and the criteria were the DIGNAS questionnaire scales, are presented in Table 13. School location did not emerge as a significant moderator in any of the models.

Table 13. Model changes after introducing the moderating effect of school location and the SK scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	1.75	2, 1511	.174	.00
IR	.47	2, 1511	.624	.00
BDO	1.33	2, 1511	.265	.00
DMN	2.22	2, 1511	.109	.00

School location as a moderator of the relationship between the AI scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the AI scale, the moderator was school location, and the criteria were the DIGNAS questionnaire scales, are presented in Table 14. School location did not emerge as a significant moderator in any of the models.

Table 14. Model changes after introducing the moderating effect of school location and the AI scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	3.11	2, 1511	.044	.00
IR	.22	2, 1511	.795	.00
BDO	1.22	2, 1511	.295	.00
DMN	3.14	2, 1511	.043	.00

Educational cycle as a moderator of the relationship between the SK scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the SK scale, the moderator was educational cycle, and the criteria were the DIGNAS questionnaire scales, are presented in Table 15. Educational cycle did not emerge as a significant moderator in any of the models.

Table 15. Model changes after introducing the moderating effect of educational cycle and the SK scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	1.79	2, 1511	.166	.00
IR	2.74	2, 1511	.064	.00
BDO	2.18	2, 1511	.112	.00
DMN	.77	2, 1511	.462	.00

Educational cycle as a moderator of the relationship between the AI scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the AI scale, the moderator was educational cycle, and the criteria were the DIGNAS questionnaire scales, are presented in Table 16. Educational cycle significantly moderated the relationship between the AI scale and BDO. At lower levels of AI, primary school teachers exhibited the highest levels on the BDO scale, whereas secondary school teachers had the lowest levels. At higher levels of the AI scale, the pattern was completely reversed, with secondary school teachers showing the highest levels and primary school teachers the lowest scores on the BDO scale.

Table 16. Model changes after introducing the moderating effect of educational cycle and the AI scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	2.28	2, 1511	.102	.00
IR	1.05	2, 1511	.349	.00
BDO	6.40	2, 1511	.001	.01
DMN	1.77	2, 1511	.171	.00

School district as a moderator of the relationship between the SK scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the SK scale, the moderator was school district, and the criteria were the DIGNAS questionnaire scales, are presented in Table 17. School district emerged as a significant moderator for the relationship between the SK scale and BDO. Teachers from the Jablanica district showed lower BDO scores at lower levels of the SK scale compared to teachers from the Pčinja district. However, the increase in SK scores was associated with a greater increase in the criterion variable for teachers from the Jablanica district, so that at higher SK levels they achieved higher BDO scores compared to teachers from the Pčinja district.

Table 17. Model changes after introducing the moderating effect of school district and the SK scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	.12	1, 1513	.727	.00
IR	3.56	1, 1513	.059	.00
BDO	9.60	1, 1513	.002	.00
DMN	1.01	1, 1513	.314	.00

School district as a moderator of the relationship between the AI scale and the DIGNAS questionnaire scales

The results of adding the moderation effect, where the predictor was the AI scale, the moderator was school district, and the criteria were the DIGNAS questionnaire scales, are presented in Table 18. School district did not emerge as a significant moderator in any of the models.

Table 18. Model changes after introducing the moderating effect of school district and the AI scale

Variable	F	df _{Regression} , df _{Residual}	P	Change in R ²
DTE	3.64	1, 1513	.056	.00
IR	5.98	1, 1513	.014	.00
BDO	5.90	1, 1513	.015	.00
DMN	.21	1, 1513	.643	.00

4. Discussion of the findings

The participants in the study positively evaluated reflective practice in almost all segments. Therefore, it can be stated that, regardless of years of work experience, age, educational cycle, school location, or gender, there is no pronounced negative deviation. Teachers tend to analyze their professional actions and steps. Research on teachers' reflective practice (da Luz & Santo, 2023) has also been conducted in Brazil. In Brazil, the teaching process is exclusively linked to the classroom environment, while online and hybrid learning are minimally represented; in fact, contemporary methods of learning and teaching are still in their early stages. The use of digital technology for teaching purposes leads to the redefinition of traditional methodologies and the disruption of conventional curricula.

Regarding the second research instrument, the results indicate that teachers perceive themselves as digitally competent. It is particularly noteworthy that high scores were observed in areas related to safety in the digital environment and the creation and sourcing of digital materials for teaching purposes. Interestingly, in a study addressing similar issues, older teachers and those with more years of work experience assigned less importance to digital competence (Bilbao-Aiastui, Gomez, & Morillo, 2023). Although the sample in that study consisted of university teachers, the results align closely with our findings. An increase in years of work experience, and consequently professional experience, appears to be associated with a decrease in teachers' digital competence or

innovativeness. Similar significant differences in teachers' digital competence are observed in relation to professional category (permanent versus occasional teachers) as well as teachers' age. Teachers with more years of experience tend to have slightly lower scores in digital competence (Ghomi & Redecker, 2019). Age is a significant variable for teachers' digital competence (Horvath et al., 2025), which aligns with our findings. The results of these studies correspond with our data, showing that older teachers assign lower ratings to statements regarding digital competence.

Regarding the comparison of the scales, it is important to conclude that Self-Analysis and Collaboration and the Implementation of Action Research stand out as the most significant scales in the first research instrument, RPRAXIS. In the case of the second research instrument, DIGNAS, four factors stand out - scales that are sufficiently interpretable and distinct from one another.

The scales from the first questionnaire show significant positive correlations with all scales from the second questionnaire. This indicates that digital competence and reflective practice are segments of teachers' professional activity that can be related to one another - segments that interact and are, to some extent, interdependent. Notably, the highest correlation is observed between the implementation of action research and innovativeness in teaching practice. The lowest correlation was observed between Self-Analysis and Collaboration and Innovativeness in Teaching Practice. Consistent with our study is the examination of technology use to facilitate a reflective approach in the research by Ruangsang (2025), where the integration of technology is seen as a transformative force and a tool to help teachers achieve deeper self-evaluation and professional development. A noteworthy comparison is with research that examines the dependence of reflective practice on digital competence. In that study, the authors conclude that digital storytelling, which reflects teachers' digital competence, serves as a means of introducing reflective practices (Challinor, Marin, & Tur, 2017).

5. Conclusion

Teachers are crucial for the educational process, and their role is becoming increasingly relevant for research in pedagogy as well as teaching methodology. A teacher has a significant and powerful influence on students, shaping their understanding of and engagement with educational demands. Digital learning, which has gained prominence over the past decade, represents just one of the topics and issues that will remain relevant and of interest in the coming period. In the context of digital competence, a teacher's work can be greatly facilitated, while also supporting professional growth and development. Only digitally competent teachers can align their professional engagement with educational reforms and the demands that digitalization brings to the school system. Digital competence enables teachers to use digital tools effectively for learning, communication, and professional development.

It is important for a teacher to act reflectively, as reflection enables continuous improvement of teaching practice, better adaptation to students, and the development of professional identity. A reflective approach to teaching means that the teacher critically evaluates their own work, analyzes their decisions, methods, and outcomes, and is willing to learn from experience.

Both digital competence and reflective practice are equally important for the sustainability of the teaching profession and the educational system.

Reflective practice, as a process of continuous professional thinking, analysis, and evaluation of one's own pedagogical actions, depends on teachers' digital competence, as digital tools provide access to relevant information, feedback, collaborative networks, and digital resources that facilitate and deepen the process of reflection.

Today, teachers' reflective practice is inconceivable without digital competence, as it enables access to relevant information, the use of tools for analyzing and evaluating one's work, connection with the broader professional community, and a better, more effective relationship with students. This interconnection is also reflected in the contribution of digital competence to reflective practice, making it more systematic, evidence-based, and oriented toward professional growth and the improvement of teaching quality. Reflective practice supports teachers in the continuous development and refinement of all professional skills, and in this regard, our results confirm the dependence of reflective practice on digital competence. Thus, a teacher who carefully analyzes their work, critically examines past and current practices, and considers their professional plans demonstrates a greater understanding of the importance of using digital technologies across all stages of the teaching process. Reflective practice and digital competence are interconnected components of teachers' professional activity.

Recent studies (Novoa-Echaurren, Pavez, & Anabalón, 2025; Ruangsang, 2025) have highlighted reflective practice as a crucial factor in empowering teachers. In this sense, reflective practice is seen as the most important component of a teacher's professional growth in the digital age. A study conducted this year (Novoa-Echaurren et al., 2025) explored the relationship between reflective practice and the use of digital technologies in higher education teaching. Reflective practice has proven to be essential not only for integrating digital technologies into teaching but also for supporting teachers' professional development and advancement.

This study contributes to the development of a new, dynamic framework for professional growth and the improvement of teaching practice, aligned with the ongoing changes and innovations that human civilization continually encounters. The implications for future research arising from this study are directed toward further growth and advancement of teaching competencies. Following the examination of digital competence, and in line with the development of digital technologies, artificial intelligence, and its tools, it is important to explore teachers' competence in using artificial intelligence for educational purposes.

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