Exploring Teachers' Acceptance of Digital Textbooks: A Pilot Study in Croatian Primary Schools

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Abstract. *This pilot study aims to validate a measurement instrument based on an extended UTAUT model, examining factors related to behavioral intention toward digital textbooks (DT) among Croatian primary school subject teachers. Data were analyzed using PLS-SEM, suitable for small samples and non-normal distributions, to assess model adequacy of the proposed model. Fifty-two teachers from 12 counties participated; analysis focused on 39 active DT users. Results show positive attitudes, high perceived usefulness and ease of use, and low perceived workload. Despite non-significant predictors, the model's high explanatory power supports further refinement for broader DT adoption research.*

Keywords. digital textbook, e-textbook, technology acceptance, UTAUT, PLS-SEM, primary education

1 Introduction

Rapid technological changes significantly affect the type of knowledge, skills, and competencies that are imperative for maintaining national competitiveness and individual well-being. The education system is increasingly becoming part of the digital transformation, which in the Republic of Croatia (RC) has been driven by the pilot project "e-Schools" ('E-Škole', n.d.) and the comprehensive curricular reform (School for life, n.d.). As part of this project, in addition to systematic teacher training, **digital textbooks (DT)** were developed for STEM subjects (*Materijali*, n.d.), to support innovative learning and teaching methods. The importance of early technology integration into the teaching process was particularly recognized during the COVID-19 pandemic (Divjak, 2022).

The introduction of DT represents a significant step forward, offering easy access, interactive content, and learning unbound by time or physical constraints (Hermita et al., 2023; Joo et al., 2017; Wijaya et al., 2022). Competent and effective use of DT in teaching can improve educational quality and inclusiveness, facilitating access to materials and supporting students with special educational needs and vulnerable groups (Grönlund et al., 2018; Kabugo, 2020). DT also enable and support personalized learning through adaptable interfaces.

Despite these advantages, implementing DT faces challenges such as infrastructure deficits, the need for additional support and teacher training, and inconsistent improvements in learning outcomes (Sun & Jiang, 2015). Successful implementation depends on various factors, including teacher attitudes and readiness to use them (Wijaya et al., 2022). International studies like Teaching and Learning International Survey (TALIS) (Dekanić et al., n.d.), provide important insights into teachers' work conditions and workload as well as technology acceptance. In Croatia, administrative workload (60% teachers cite it as a major strass factor) and responsibility for student success (56% teachers cite it as a major strass factor) are cited as major sources of stress among teachers.

In general, most studies focus on student attitudes toward DT, while there is a significant lack of research addressing teachers' perspectives (Milić & Divjak, 2023). To address the gap, this paper aims to collect teachers' views and needs in the context of validating a measurement instrument used in a pilot study of factors affecting behavioral intention to use DT in subject-specific teaching in Croatian primary schools.

2 Theoretical Framework and Hypotheses

This pilot study is theoretically grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003).

2.1 Theoretical Constructs of Intention to Use Digital Textbooks (DT)

UTAUT provides a framework for understanding the factors that influence **behavioral intention (BI)** to adopt and use new technology, as well as actual usage behavior. The model identifies four core constructs: Performance Expectancy (PE), Effort Expectancy

(EE), Social Influence (SI) and Facilitating Conditions (FC) along with Behavioral Intention (BI). In addition to the UTAUT constructs, this study also investigates three more factors: Pedagogical Potential (PP), Workload (WLO) and Attitude (AT). All constructs used in this study are explained below in the context of education. AT, WLO, and PP extend UTAUT with affective, contextual, and pedagogical factors relevant to Croatian schools (Cukurova et al., 2023; Hermita et al., 2023).

BI (Behavioral Intention) is defined as an individual's internal orientation reflecting their willingness to perform a certain behavior (Venkatesh et al., 2003). It is empirically confirmed to be a significant predictor of many behaviors, including technology acceptance (Shukla, 2021).

PE (Performance Expectancy) refers to teachers' perceptions of how DT can enhance quality of learning and teaching, ease preparation and administrative tasks, and improve student acquisition of learning outcomes (Hermita et al., 2023; Shukla, 2021).

EE (Effort Expectancy) encompasses the perceived ease of use of DT, intuitive interface, and minimal effort required for integration into teaching and learning (Hermita et al., 2023).

SI (Social Influence) includes the perceived support and expectations from peers and superiors regarding the use of DT (Hermita et al., 2023)

FC (Facilitating Conditions) relates to the availability of necessary equipment (e.g. computers, tablets), reliable internet access, technical support, and adequate training to use DT (Kahnbach et al., 2024).

PP (Pedagogical Potential) represents teachers' perceptions of how DT can improve teaching and learning and lead to learning outcomes, with a positive influence on BI (Hermita et al., 2023).

WLO (Workload) describes teachers' perceptions of the additional effort & time that using DT may require, e.g. lesson preparation, technical difficulties, extra training, and increased administrative tasks. A negative impact on BI is expected (Cukurova et al., 2023).

AT (Attitude) encompasses teachers' beliefs, feelings, and behavioral tendencies toward DT. A positive attitude is likely to result in stronger BI, while a negative attitude may represent a major barrier to implementation (Hermita et al., 2023).

By including both the core UTAUT constructs and the additional factors, this model aims to better explain the **behavioral intention** of Croatian teachers to use DT in classroom practice.

2.2 Research Questions and Hypotheses

Research Questions: *What are the attitudes, needs, and experiences of teachers in Croatia related to the use of DT? What factors are important for their use?*

Hypotheses linking latent factors to BI to use DT:
H1: Performance Expectancy positively affects Behavioral Intention to use DT.
H2: Effort Expectancy positively affects Behavioral Intention to use DT.
H3: Attitude toward DT positively affects Behavioral Intention to use DT.
H4: Social Influence positively affects Behavioral Intention to use DT.
H5: Facilitating Conditions positively affect Behavioral Intention to use DT.
H6: Workload negatively affects Behavioral Intention to use DT.
H7: Pedagogical Potential positively affects Behavioral Intention to use DT.

Hypotheses H1, H2, H4, and H5 are based on UTAUT (Venkatesh et al., 2003) and widely supported in education (Hermita et al., 2023; Kahnbach et al., 2024; Viberg et al., 2020; Wijaya et al., 2022). Attitude is often added to capture affective factors, while workload may hinder and pedagogical potential promote adoption (Cukurova et al., 2023; Hermita et al., 2023)

3 Methodology

This pilot study employed a quantitative approach to examine factors influencing teachers' behavioral intention to use digital textbooks, focusing on measurement model validation.

3.1 Sample and Data Collection

The study included 52 subject teachers in the upper grades of primary school (grades 5–8 in Croatia) primary school teachers from 12 counties in the Republic of Croatia. In Croatia, subject teachers in the upper grades of primary school (grades 5–8) teach specific subjects such as mathematics, biology, or history. The participants represented various age groups (25–30, 31–40, 41–50, 51+), genders, and levels of work experience (novice: <5 years, mid-career: 5–15 years, experienced: >15 years). Data were collected online during April 2025, and participation was voluntary and anonymous, with informed consent obtained. Of the 52 teachers who participated, analysis focused on 39 active DT users. Given the small sample and non-normal data distribution, PLS-SEM was selected as an appropriate method. Pilot studies with 30–50 participants can still yield valuable insights into measurement model adequacy, especially when hypothesis testing is not the primary aim (Hair et al., 2022).

3.2 Measurement Instrument

The questionnaire consisted of 41 items distributed across seven constructs, along with demographic questions. Most constructs (PE, EE, FC, BI) were measured with three items each, while SI and AT had four items, PP had five, and WLO had two. Responses to items were collected using a 5-point Likert type of

scale (1 = strongly disagree, 5 = strongly agree). Each construct was measured through multiple items forming part of a composite scale. The questionnaire was translated into Croatian and then back-translated into English for accuracy, following international guidelines for cross-cultural scale adaptation (Cruchinho et al., 2024).

3.3 Data Analysis

PE, EE, BI, and AT were modeled reflectively, following the original UTAUT (Venkatesh et al., 2003), while SI, FC, WLO, and PP were specified formatively, as their indicators reflect distinct, non-interchangeable aspects. Despite reflective phrasing, formative modeling better captures their multidimensionality in the Croatian educational context. Data analysis was conducted using the PLS-SEM method, with the **SmartPLS** software (version 4.1.1.2).

For **reflective constructs**, the measurement model assessment included: Item factor loadings (>0.70); Indicator VIF values (<5); Construct reliability (Cronbach's alpha >0.70); Composite reliability (CR >0.70) and Convergent validity using Average Variance Extracted (AVE >0.50).

For **formative constructs**, outer weights and VIF values for indicators were checked (<5). **Discriminant validity** was assessed using: Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT <0.85). **The structural model assessment** included: Analysis of path coefficients (β) and their statistical significance (bootstrapping with 5,000 samples); Effect sizes (f^2); Multicollinearity among latent variables and Explained variance (R^2) of endogenous constructs.

4 Results

Before assessing the measurement and structural models in detail, a preliminary analysis of the collected data was conducted to ensure suitability for PLS-SEM analysis. The analysis showed no missing data.

4.1 Descriptive Statistics

4.1.1 Sample Description

Although 52 teachers participated in the pilot study, only those who actively use digital textbooks were included in the validation of the instrument, resulting in a final sample of 39 participants (N=39).

Table 1. shows the demographic profile of the sample. Of the 39 respondents, the majority were female (69%, N=27). The most represented age group was 50–59 years (44%, N=17). Regarding work experience, the largest portion had 21–30 years of experience (33%, N=13), followed by those with 31+ years (26%, N=10).

4.1.2 Indicator Statistics

As shown in Table 2., analysis of arithmetic means revealed generally positive attitudes toward the questionnaire items. Most items had average values above 3.50 on a 5-point Likert scale. Particularly high averages (above 4) and medians (4 or 5) were noted for items under: Performance Expectancy (PE1 = 4.18, PE2 = 3.97, PE3 = 4.10), Effort Expectancy (EE2 = 4.28), Social Influence (SI1 = 4.41, SI4 = 4.00), Facilitating Conditions (FC1 = 4.49, FC2 = 4.70) and Behavior Intention (BI1 = 4.51, BI2 = 4.33). The lowest averages were for Workload (WLO1 = WLO2 = 2,59), and BI3 (2.90), followed by Pedagogical Potential (PP4 = 3.54, PP5 = 3.44).

Table 1. Demographic profile

Characteristic	Category	N	%
Gender	M	12	31%
	F	27	69%
Age	21 - 29	4	10%
	30 - 39	5	13%
	40 - 49	10	26%
	50 - 59	17	44%
	60+	3	8%
Work experience (years)	<5	8	21%
	5 - 10	4	10%
	11 - 20	4	10%
	21 - 30	13	33%
	31 +	10	26%

Standard deviations mostly ranged between 0.57 and 1.14, indicating moderate to somewhat pronounced response variability. The lowest variability was seen in FC2 (SD = 0.57), and the highest in EE3 (SD = 1.14) and PP5 (SD = 1.11), suggesting a wide range of opinions.

Kurtosis values were negative for all items except WLO1 and WLO2, suggesting left-skewed distributions typical for positively worded Likert-scale items. The most negatively skewed was FC1 (-1.81). In contrast, WLO1 and WLO2 had slightly positive skewness, indicating concentration of responses on the lower end of the scale. PLS-SEM was chosen given the non-normality of several indicators (Table 2), as it is robust to deviations from multivariate normality (Hair et al., 2022).

4.2 Measurement Model Evaluation

For reflective constructs, high internal consistency was confirmed via: Cronbach's α, Composite reliability (ρ_C), Indicator reliability (ρ_A) and Convergent validity (AVE). Table 3. shows all values for reflective constructs (PE, EE, BI and AT) exceeded thresholds

(α >0,70, ρ_C >0,70, AVE > 0.50). Although high composite reliability values (e.g., PE, ρ_C = 0.965) indicate excellent internal consistency, they may also suggest potential item redundancy, warranting a review of the construct's operationalization in future studies.

Table 2. Statistics per item

Item	Average	Min	Max	SD	Kurtosis
PE1	4.18	1	5	0.90	-1.2468
PE2	3.97	1	5	0.95	-0.8893
PE3	4.10	1	5	0.93	-1.0139
EE1	4.10	1	5	1.00	-1.1535
EE2	4.28	2	5	0.78	-0.8953
EE3	3.85	1	5	1.14	-0.6459
SI1	4.41	3	5	0.74	-0.8561
SI2	3.31	1	5	1.14	-0.3200
SI3	3.36	1	5	1.07	-0.3929
SI4	4.00	1	5	0.91	-1.0768
FC1	4.49	2	5	0.09	-1.8130
FC2	4.70	3	5	0.57	-1.5694
FC3	3.95	1	5	1.13	-0.8907
BI1	4.51	3	5	0.71	-1.1580
BI2	4.33	2	5	0.86	-1.4864
BI3	2.90	1	5	1.08	-0.2940
AT1	4.08	2	5	0.86	-0.6593
AT2	4.08	2	5	0.83	-0.7129
AT3	3.90	2	5	0.93	-0.3879
AT4	3.90	1	5	0.96	-0.5205
WLO1	2.59	1	5	1.01	0.45205
WLO2	2.59	1	5	0.98	0.07852
PP1	3.90	2	5	0.90	-0.4479
PP2	3.87	2	5	0.79	-0.0837
PP3	3.92	2	5	0.83	-0.4131
PP4	3.54	1	5	1.03	-0.5416
PP5	3.44	1	5	1.11	-0.3654

Table 3. Reliability indicators and convergent validity for reflective constructs

Construct	Cronbach α	ρ_C	AVE	ρ_A
EE	0.837	0.902	0.754	0.843
PE	0.946	0.965	0.903	0.947
AT	0.923	0.945	0.812	0.935
BI	0.700	0.833	0.625	0.708

Outer loadings and VIF values for reflective constructs showed satisfactory convergent validity. However, VIF values for PE1 (6.305), PE3 (5.478), and AT3 (5.204) exceeded the threshold of 5, indicating potential multicollinearity within PE and AT constructs (Table 4.).

Table 4. Outer loadings & VIF for reflective constructs

	Outer Loadings	T Stat.	*p*-value	VIF
PE1	0.960	48.783	<0.001	6.305
PE2	0.937	36.520	<0.001	3.768
PE3	0.953	41.585	<0.001	5.478
EE1	0.865	24.155	<0.001	1.816
EE2	0.893	21.478	<0.001	2.272
EE3	0.846	15.023	<0.001	1.959
AT1	0.849	10.822	<0.001	2.519
AT2	0.926	28.157	<0.001	4.832
AT3	0.935	49.168	<0.001	5.204
AT4	0.891	25.318	<0.001	3.012
BI1	0.817	16.011	<0.001	1.420
BI2	0.824	9.720	<0.001	1.496
BI3	0.727	6.345	<0.001	1.266

For formative constructs, VIF values were acceptable (<5), confirming no significant multicollinearity. However, indicator contributions to formative constructs (Table 5.) varied: Only SI4 (weight = 0.694, p = 0.002) significantly contributed to SI; In constructs WLO, FC, and PP, no indicators were statistically significant; Some indicators (PP2, PP5) had negative weights, which is theoretically dubious and indicates a need for revision.

Table 5. Outer weights & VIF for formative constructs

Item	Outer Weights	T stat	*p*-value	VIF
SI1	0.261	0.924	0.356	1.461
SI2	0.131	0.462	0.644	1.770
SI3	0.129	0.400	0.689	2.591
SI4	0.694	3.122	0.002	2.006
WLO1	0.817	0.837	0.402	2.684
WLO2	0.220	0.223	0.823	2.684
FC1	0.396	0.973	0.331	1.209
FC2	0.444	1.026	0.305	1.259
FC3	0.594	1.430	0.153	1.047
PP1	0.495	1.367	0.172	3.761
PP2	-0.156	0.576	0.565	2.168
PP3	0.716	2.120	0.034	3.631
PP4	0.166	0.444	0.657	2.187
PP5	-0.289	1.090	0.276	1.988

Discriminant validity (Table 6.) using Heterotrait-Monotrait Ratio (HTMT) values showed: HTMT between EE and PE = 0.883 (acceptable); HTMT between AT and EE = 0.912 (above 0.90), suggesting a problem with discriminant validity between those constructs.

Table 6. HTMT for discriminant validity

Construct	EE	PE	AT	BI
EE				
PE	0.883			
AT	0.912	0.802		
BI	1.017	0.877	0.971	

4.3 Structural Model Evaluation

Structural model evaluation began with path coefficients and their significance. The **R^2 value for BI was 0.712**, meaning that exogenous constructs explained 71.2% of the variance in Behavioral Intention, i.e. a high level of explained variance. Graphical representation of the evaluated structural model with R^2 values is given on **Fig. 1.**

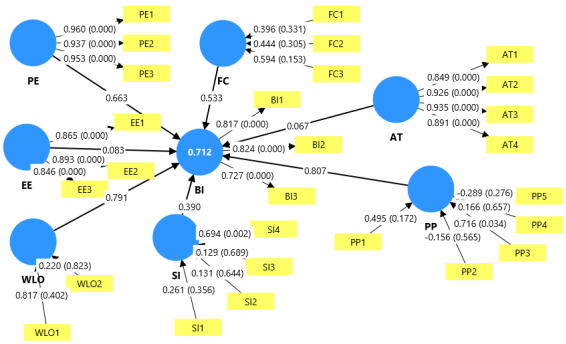

Figure 1. Evaluated structural model

However, none of the tested hypothesis, i.e. paths to BI were statistically significant ($p < 0.05$), as shown in Table 7. The path EE → BI came closest ($\beta = 0.316$, $p = 0.083$).

Table 7. Path coefficients, p-value, f^2

Relationship	Path coefficients (b)	T stat.	p-value	f^2
SI® BI	0.167	0.860	0.390	0.044
EE® BI	0.316	1.735	0.083	0.087
WLO® BI	0.024	0.266	0.791	0.002
FC® BI	0.087	0.623	0.533	0.020
PE® BI	0.087	0.436	0.663	0.008
PP® BI	-0.047	0.245	0.807	0.003
AT® BI	0.380	1.831	0.067	0.121

Effect sizes **(f^2)** were small. Despite the fact that the total explained variance ($R^2 = 0.712$) is high, individual effects of predictors measured with f^2 are small. The largest were: EE → BI (0.087); AT → BI (0.121) and SI → BI (0.044). Other paths had very small effects ($f^2 < 0.02$), suggesting that although the model explains BI collectively, no single predictor has a strong individual contribution.

Finally, multicollinearity among predictors in the inner model was checked (Table 8.). All VIF values were below 5 (maximum = 4.148 for AT), indicating no multicollinearity issues and supporting the reliability of path coefficient estimates.

Table 8. VIF for constructs in the inner model

Constructs	BI
SI	2.205
EE	3.986
WLO	1.192
FC	1.336
PE	3.521
PP	2.420
AT	4.148

5 Discussion

This study was designed as a pilot project with the primary aim of validating a newly developed measurement instrument within the extended UTAUT framework. As such, the findings should be viewed as preliminary and interpreted in the context of instrument testing rather than generalization.

5.1 Teachers' Attitudes, Needs and Experiences

Especially high average values and medians were recorded for all **Performance Expectancy** (PE) items, as well as certain Effort Expectancy (EE2), Social Influence (SI1, SI4), Facilitating Conditions (FC1, FC2), and Behavioral Intention (BI1, BI2**)** items. These results indicate highly positive teacher perceptions regarding the benefits, ease of use, and available support for using DT. This aligns with prior findings (Hermita et al., 2023; Wijaya et al., 2022), which showed PE as a significant positive predictor of teachers' intentions to use DT. While (Wijaya et al., 2022) found EE was not significant, (Masango, 2022) reported that participants considered digital resources "easy to use and navigate." (Hermita et al., 2023) found EE positively and significantly influenced teachers' intentions to use DT.

Low averages for **Workload** items (WLO1, WLO2) further reinforce the perceived ease of use, suggesting that teachers do not see DT as a significant source of stress or additional work.

High averages for **Social Influence (SI1, SI4)** reflect a strong perception that principals and students encourage teachers to use DT which is consistent with UTAUT, where SI is a key factor. SI was identified by (Wijaya et al., 2022) as the second most important factor influencing BI, and by (Hermita et al., 2023) as the most important.

High values for **Facilitating Conditions (FC1, FC2)** indicate that teachers believe their schools and technical infrastructure support DT use. UTAUT defines FC as the degree to which one believes that organizational and technical systems support

technology use. Other studies (Hermita et al., 2023; Masango, 2022; Wijaya et al., 2022) confirm FC's importance in enabling DT adoption. Namely, (Wijaya et al., 2022) found that Facilitating Conditions (FC) have a significant effect on the actual use of digital textbooks, highlighting the need for schools to provide all necessary support and training. (Masango, 2022) also reported adequate support from technical staff in schools. (Hermita et al., 2023) likewise found that FC positively and significantly influence teachers' intention to use digital textbooks.

High values for **Behavioral Intention (BI1, BI2)** suggest a strong intention among teachers to continue using DT and recommend them to others. This supports the UTAUT model, where BI is the strongest predictor of actual usage. (Wijaya et al., 2022) confirmed that BI had the most significant effect on actual DT use by teachers.

A lower average for item BI3 ("I think most of my teaching will be conducted using DT.") suggests teacher hesitation or disagreement with the idea that DT will be used as the most prominent source in teaching and learning. This implies that teachers see DT as **a complement rather than a replacement** for traditional methods which is consistent with (Moundy et al., 2022), who found that digital tools support teachers and students in teaching and learning but do not replace face-to-face teaching. On the other hand, (Grönlund et al., 2018) noted that teachers often use DT traditionally, without leveraging their interactive or collaborative features. Additionally, (Håkansson Lindqvist, 2019) observed that students frequently use printed materials in the classroom and digital ones outside it — pointing to a potential divide between social and educational use.

Lower-rated items were also found in the **Pedagogical Potential (PP4, PP5)** area. This may suggest some hesitancy or uncertainty about DT's full pedagogical value, despite their perceived usefulness and ease of use. (Grönlund et al., 2018) noted that teachers often view DT as static books, while (Håkansson Lindqvist, 2019) highlighted challenges teachers face in finding time to explore and implement DT effectively, which may limit their understanding of DT's pedagogical potential.

5.2 Validity and Reliability of Constructs

High **VIF values** were observed for indicators PE1 (6.305), PE3 (5.478), and AT3 (5.204), suggesting potential **multicollinearity** within those constructs and indicating a need to re-examine content redundancy in these items (see Table 4.).

For the **formative constructs**, although VIF values were within acceptable limits (Table 5.), **most indicators did not show statistically significant weights**. This was especially true for the constructs Workload (WLO), Facilitating Conditions (FC), and Pedagogical Potential (PP), where none of the indicators significantly contributed to construct formation. These findings indicate potential weaknesses in content validity, suggesting that some indicators may not meaningfully contribute to the conceptual domain of the construct. However, given the limited sample size and the exploratory nature of this pilot study, no changes to the instrument are planned at this stage. Instead, further validation with a larger sample will help confirm whether the observed issues (such as non-significant or negative indicator weights) persist, and whether any refinement is ultimately warranted. Furthermore, some indicators had **negative weights**, such as PP2 (-0.156), and PP5 (-0.289), which raises theoretical concerns and calls for thorough **review or reformulation** of these items before the main study.

In the case of WLO, the similarity in content between WLO1 and WLO2, despite differing weights, further suggests the need to revise these indicators to avoid redundancy and ensure that each item contributes clearly and consistently to the concept of teacher workload.

The low perceived workload in this study may partially explain the absence of a negative effect of WLO on Behavioral Intention, which is consistent with **TALIS 2018** results for Croatia (Dekanić et al., n.d.). This showed that workload is luckily not perceived as a barrier to professional development. This finding is important because it suggests that teachers **do not perceive DT as a major source of stress or additional work**, which is a key positive aspect in their integration into teaching and learning.

Given that Croatian teachers often report a **high workload**, especially in administrative tasks and lesson planning, our preliminary results indicate that DT **do not add to this burden**. On the contrary, low levels of perceived workload may be a **key factor** in successful acceptance and broader implementation of DT which is contrary to common expectations that new technologies inherently increase teacher workload. Therefore, these aspects should be explored further in the main study to more precisely identify elements that reduce or increase workload.

5.3 Discriminant Validity

Discriminant validity assessment using the Heterotrait-Monotrait Ratio (HTMT) showed an overlap between **Attitude (AT)** and **Effort Expectancy (EE)**, with a value of 0.912 that is exceeding the recommended threshold of 0.90 (Table 6.).

This suggests that participants **did not clearly distinguish** between these two constructs. While this is statistically problematic for discriminant validity, the overlap is not theoretically unexpected: both constructs come from established technology acceptance models and are often closely linked and mutually influential (Hermita et al., 2023; Venkatesh et al., 2003). Nevertheless, this calls for a **revision of indicators** to avoid redundancy and ensure better discriminant validity in the main study. In the main study, the item

sets for Attitude and Effort Expectancy should be reviewed and potentially reworded or reorganized to reduce conceptual overlap and improve discriminant validity. Similarly, the HTMT value between PE and EE was 0.883 — slightly under the 0.90 threshold but still indicating a strong correlation, which is theoretically expected due to their conceptual proximity.

The HTMT value between BI and EE (1.017) also exceeds the recommended threshold, indicating substantial conceptual overlap that may reflect item redundancy or insufficient differentiation in item wording. This further supports the need to review both constructs' operationalization in future studies.

5.4 Structural Model Results

The structural model analysis revealed that although the total explained variance (R^2) for BI is high at 0.717, **none of the tested hypothesis, i.e. paths** to BI were statistically significant (see Table 7.). The closest was EE → BI (p = 0.098), aligning with previous studies (Kahnbach et al., 2024; Wijaya et al., 2022). Other paths were far from significance thresholds, likely due to the **small sample size (N = 39)** in this pilot study, which limits the statistical power of the model and its ability to detect significant relationships (Hair et al., 2022).

The f^2 effect size values further confirmed that **no individual predictor** had a strong influence on BI. This opens room to explore the potential role of **moderating variables** in the main study. VIF values (Table 8.) confirmed the **absence of multicollinearity** among latent variables in the inner model, supporting the reliability of the path coefficients.

6 Conclusion

This pilot study investigated the factors influencing the acceptance of DT among primary school subject teachers in Croatia, focusing on attitudes, experiences, and behavioral intentions. Based on the UTAUT framework, extended with pedagogical, attitudinal, and workload-related constructs, the study aimed to validate a measurement instrument for broader research.

The findings revealed generally positive attitudes among teachers toward the use of DT. Teachers recognize the value, ease of use, and support associated with DT implementation. Further, low workload perceptions indicate that DT are not viewed as a source of stress or additional burden. However, the study also highlighted the need for strategies that foster deeper understanding and full use of DT's pedagogical potential, and their integration beyond traditional methods.

Despite these encouraging perceptions, none of the hypothesized relationships with behavioral intention were statistically significant, which is likely due to the limited sample size in this pilot phase. Nonetheless, the overall explained variance for behavioral intention was high, pointing to the collective strength of the model and its potential in the broader study.

Despite a small sample and limited theoretical clarity in some constructs, the study provides valuable input for instrument refinement. The main study will include a larger sample, revised items, and mediation testing to strengthen model validity. The lack of a priori power analysis limits interpretation of non-significant paths in this relatively complex model.

In conclusion, the pilot study confirmed strong readiness among teachers to adopt DT as well as the relevance and applicability of the extended UTAUT model in this context, and the need for instrument revision.

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Appendix A

Latent Construct	Item	Measurement	Reference
Performance expectancy	PE1	Digital textbooks improve my teaching quality.	(Hermita et al., 2023; Shukla, 2021)
	PE2	Teaching using digital textbooks increases my productivity.	
	PE3	Digital textbooks help me when teaching elementary materials.	
Effort expectancy	EE1	It is easy for me to teach using a digital textbook	(Hermita et al., 2023)
	EE2	I find the digital textbook easy to use.	
	EE3	Using a digital textbook for teaching does not require much preparation	
Social influences	SI1	In general, the school supports me using digital textbooks.	(Hermita et al., 2023)
	SI2	Colleagues affecting my work think I should use digital technology.	
	SI3	Parents support the use of digital textbook in teaching.	(Kahnbach et al., 2024)
	SI4	Students support the use of digital textbook in teaching.	(Wijaya et al., 2022)
Facilitating conditions Infrastructure Knowledge Support	FC1	I have all the necessary resources (technology, Internet access, licenses) to be able to use digital learning digital learning platforms for practice.	(Kahnbach et al., 2024)
	FC2	I have the knowledge necessary to use digital learning platforms for practice.	
	FC3	I have a contact person available to help me with difficulties in using digital learning platforms for practice	
Behavior intention	BI1	I will continue to use digital textbooks to teach.	(Hermita et al., 2023)
	BI2	I will use the digital textbook whenever the situation allows.	
	BI3	I think most of my teaching will be conducted using digital textbooks	
Attitude	AT1	Using digital textbooks to teach in elementary schools is a good idea.	(Hermita et al., 2023; Liebenberg et al., 2018)
	AT2	Digital textbooks make lessons more interesting.	
	AT3	I like to teach using a digital textbook.	
	AT4	Using digital textbooks makes teaching and learning activities fun	(Hermita et al., 2023; Briz-Ponce et al., 2017)
Workload	WLO1	Since I started using digital textbooks, I have significantly more workload in Lesson planning and preparation (i.e. setting instructional goals, understanding student levels, previewing lessons etc.)	(Cukurova et al., 2023)
	WLO2	Since I started using digital textbooks, I have significantly more workload in Classroom management (i.e. balancing self-regulated learning and collaboration, behavioural management, orchestration of learning tasks etc.)	
Pedagogical potential	PP1	Digital textbooks provide opportunities to teach in new ways.	(Hermita et al., 2023)
	PP2	Digital textbooks provide opportunities to interact with students.	(Hermita et al., 2023)
	PP3	Digital textbooks provide opportunities for creative thinking	(Hermita et al., 2023)
	PP4	Digital textbooks allows for the adaptation of content and activities to the individual needs and abilities of students.	(Wijaya et al., 2022)
	PP5	Digital textbooks allows for the monitoring of student progress.	(Wijaya et al., 2022)