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Learners' adoption of the Gauteng Department of Education's Educational Digital Platform: A UTAUT analysis of performance and effort expectancy q

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ABSTRACT

Although significant investment has been made towards educational technologies across South African schools, these tools remain underutilised by learners, most notably in the under-resourced educational settings. The study, therefore, investigates the behavioural intentions of Grade 10 learners towards the Educational Digital Platform initiated by the Gauteng Department of Education. It focuses on the no-fee-paying schools within the Further Education and Training phase. Based on the Unified Theory of Acceptance and Use of Technology, the study examined how learners' behavioural intentions to use the Educational Digital Platform are influenced by performance expectancy and effort expectancy. To evaluate the factors that influence technological adoption and behavioural intention, a quantitative technique was employed, utilising data from Grade 10 learners. The results show that in addition to access to digital resources, learners' engagement with the educational digital platform is influenced by contextual, perceptual, and motivational aspects that drive platform adoption. The study recommends optimising the perceived utility of the EDP through curriculum-aligned educational resources and pedagogical integration, while strengthening usability through intuitive platform design. This study adds to the expanding body of knowledge on adopting educational technology in secondary schools by placing the perspectives of learners at the forefront. It also offers evidence that policymakers and practitioners can use to improve fair and meaningful use of digital learning platforms in educational settings with minimal resources.

Keywords: Performance Expectancy, Effort Expectancy, Educational Digital Platforms, Unified Theory of Acceptance and Use of Technology, Behavioural Intention

INTRODUCTION

Educational digital platforms play a critical role in modern education by promoting equity and access, especially in South African secondary schools. Despite large investments, these platforms remain underutilised due to enduring disparities in access, connectivity, and knowledge, particularly in resource-constrained places.[1] In addition to accessibility, research suggests that other significant factors,

[1] Arfa Afzal et al., "Addressing the Digital Divide: Access and Use of Technology in Education," *Journal of Social Sciences Review* 3, no. 2 (2023): 883–95; Philangenkosi Shabangu and Thuthukile Jita, "Digital Divide and Social Justice in South African Rural

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such as learners' attitudes, perceived effort, peer influence, and institutional support, also play a role in this underutilisation. Venkatesh et al. and Muhammad and Aliyu claim that the UTAUT framework simplifies these dynamics by emphasising performance expectancy, effort expectancy, social influence, and facilitating factors as the main elements that determine technological acceptance.[2]

Nevertheless, learners' behavioural intentions, motivations, attitudes, and perspectives are not well understood because most current empirical studies concentrate on infrastructure and educators instead of learners. This research project intends to examine these characteristics in the South African context and offer suggestions to improve practice and policy by using the UTAUT paradigm to illuminate the causes of the underuse of educational digital platforms. Given the continued underutilisation of the EDP and lack of empirical attention to learners' behavioural intentions in secondary school settings with limited resources, there is an evident need for learner-centred, theory-driven research that elucidates technology acceptance in actual educational contexts.[3] Research suggests that if learner demands, institutional support, and infrastructure realities are not sufficiently taken into account, educational technology may worsen already-existing gaps rather than diminish them.[4] The Gauteng province offers an interesting case study for examining these phenomena due to its significant investment in digital learning projects and the ongoing problems with the sustainable and equitable use of platforms in under-resourced schools, especially in the no-fee secondary schools.[5]

Considering that the Grade 10 learners are in the further education and training (FET) phase and are expected to use digital learning resources more independently as they get ready for postsecondary education and career pathways, it is especially important to focus on them. To investigate more general concerns regarding learner technology acceptability and underutilisation in underprivileged educational contexts, the current study uses Gauteng as an empirical lens. The GDE implemented the EDP at no-fee-paying secondary schools during the FET phase. This study examined the behavioural intentions of Grade 10 learners towards this deployment.

Therefore, the study's compass was provided by the following two research questions.

1. How beneficial do learners believe the EDP preloaded on GDE-provided tablets is for educational endeavours?
2. To what degree do learners believe it is easy to use and access the EDP that is preloaded on GDE-provided tablets allocated to learners?
3. Is there a statistically significant correlation between Performance Expectancy and learners' behavioural intention to utilise the Educational Digital Platform?
4. Is there a statistically significant correlation between Effort Expectancy and learners' behavioural intention to utilise the Educational Digital Platform?

LITERATURE REVIEW

By encouraging learner-centered learning through multimedia resources, interactive learning activities, and online assessments, educational digital platforms (EDPs) have emerged as key players in the digital transformation of education. When accompanied by appropriate educational methods, their effective adoption in countries like Korea and Spain shows their ability to improve learner autonomy, engagement, and academic achievement.[6] Similarly, learning management systems such as Canvas,

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Schools," *International Journal of Learning, Teaching and Educational Research* 24, no. 10 (October 30, 2025): 892–910, https://doi.org/10.26803/ijlter.24.10.42.

[2] Viswanath Venkatesh et al., "User Acceptance of Information Technology: Toward A Unified View1," *MIS Quarterly* 27, no. 3 (September 1, 2003): 425–78, https://doi.org/10.2307/30036540; Yahaya MUHAMMAD and Aminu Aliyu, "Predictors of Mobile Learning Acceptance: A Study Based on the Integration of UTAUT and Mobile Learning Acceptance Measures," *International Journal of Research and Innovation in Social Science* VIII, no. IIIS (2024): 3006–34, https://doi.org/10.47772/IJRISS.2024.803214S.

[3] Ekua Bosomefi Acquaye, "Teachers' Use of Information and Communication Technology Tools to Facilitate Teaching in Early Childhood Centres in the Gomoa Central District" (University of Education, Winneba, 2025).

[4] Manos Antoninis et al., "Global Education Monitoring Report 2023: Technology in Education: A Tool on Whose Terms?," 2023.

[5] UNESCO., *Global Education Monitoring Report 2023: Technology in Education: A Tool on Whose Terms?* (GEM Report UNESCO, 2023), https://doi.org/10.54676/UZQV8501.

[6] D. Singh, "A Case Study on Moodle: An Effective Learning Management System in the Present Scenario," *International Journal of Multidisciplinary Educational Research* 2, no. 4 (2022): 11–18; Abebaw Belew Mitiku et al., "Acceptance of E-Learning and Associated Factors among Postgraduate Medical and Health Science Student's at First Generation Universities, Amhara Region, 2023 Using Modified Technology Acceptance Model," January 16, 2024, https://doi.org/10.21203/rs.3.rs-3493767/v1.

Sakai, Moodle, and Blackboard have enabled online and blended learning in a variety of educational settings.[7]

Despite these developments, studies constantly demonstrate that the availability of technology alone is not enough for successful deployment. Although mobile technologies have made digital learning more accessible globally, issues including expensive data, unequal access, and a lack of digital skills still prevent significant ICT use, especially in developing countries.[8] ICT integration has been given top priority in South African national and provincial programmes to raise educational standards and lessen digital inequality.[9] This dedication to increasing digital learning options is shown in the Gauteng Department of Education's tablet-based EDP initiative.[10] Effective ICT integration in schools is nevertheless hampered by a lack of infrastructure, uneven technical assistance, and various levels of educator readiness.[11]

There is increasing evidence that behavioural factors influence learners' use of technology beyond infrastructure. While South African research highlights learner motivation, digital competency, and training as prerequisites for meaningful ICT use,[12] previous studies identify perceived value as a significant driver of platform utilisation.[13] The development of ICT integration projects that resulted in the execution of the GDE-initiated EDP is summarised in Figure 1.

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[7] Rina Durandt, Sheldon Herbst, and Majane Seloane, "Teaching and Learning First-Year Engineering Mathematics over a Distance: A Critical View over Two Consecutive Years," *Perspectives in Education* 40, no. 1 (March 4, 2022): 143–63, https://doi.org/10.18820/2519593X/pie.v40.i1.9.

[8] Ali Guma et al., "Use of Mobile Devices by Students to Support Learning in Universities: A Case of Muni University," 2017.

[9] M. B. Mosehlana and M P Sebola, "Assessment of the Implementation of the'digital Classroom'initiative in the Gauteng Provincial Department of Basic Education" (International Conference on Public Administration and Development …, 2020); Samuel Maredi Mojapelo, "Whopping Low Reading Literacies in South Africa," *South African Journal of Libraries and Information Science* 89, no. 1 (2023): 1–14.

[10] Nothando Sehlako, Mackenzie Ishmael Chibambo, and Joseph Jinja Divala, "The Fourth Industrial Revolution in South Africa's Basic Education: A Search for Cogent Curriculum Justice," *Frontiers in Education* 8 (October 13, 2023), https://doi.org/10.3389/feduc.2023.1209511.

[11] Zyliekha Matwadia, *The Influence of Digital Media Use in Classrooms on Teacher Stress in Gauteng Schools* (University of South Africa (South Africa), 2018); Hendro Zakhele Mnisi, *Ict Integration in Fet Mathematics Teaching and Learning in KwaMhlanga Secondary Schools Post COVID-19* (University of Johannesburg (South Africa), 2023).

[12] P.P. Blom and D.E. Uwizeyimana, "Assessing the Effectiveness of E-Government and e-Governance in South Africa: During National Lockdown 2020," *Research in World Economy* 11, no. 5 (September 3, 2020): 208, https://doi.org/10.5430/rwe.v11n5p208; Kharoon Nisha Rasool and Parvathy Naidoo, "The Sustainability of Information and Communication Technology (ICT) in Previously Disadvantaged Public Schools in Gauteng, South Africa," *South African Journal of Education* 44, no. 1 (February 29, 2024): 1–14, https://doi.org/10.15700/saje.v44n1a2302; Samantha Anne Hart, "Identifying the Factors Impacting the Uptake of Educational Technology in South African Schools: A Systematic Review," *South African Journal of Education* 43, no. 1 (February 28, 2023): 1–16, https://doi.org/10.15700/saje.v43n1a2174.

[13] Pang Zong Wei et al., "The Influence of Performance Expectancy, Effort Expectancy, and Social Influence on Artificial Intelligence Adoption Behaviour: A Case Study from a Malaysian University," *International Journal of Research and Innovation in Social Science* 9, no. 11 (December 11, 2025): 4818–32, https://doi.org/10.47772/IJRISS.2025.91100379; Zvjezdana Dukic, Dickson K W Chiu, and Patrick Lo, "How Useful Are Smartphones for Learning? Perceptions and Practices of Library and Information Science Students from Hong Kong and Japan," *Library Hi Tech* 33, no. 4 (2015): 545–61; Hager Khechine et al., "UTAUT Model for Blended Learning: The Role of Gender and Age in the Intention to Use Webinars," *Interdisciplinary Journal of E-Learning and Learning Objects* 10, no. 1 (2014): 33–52.

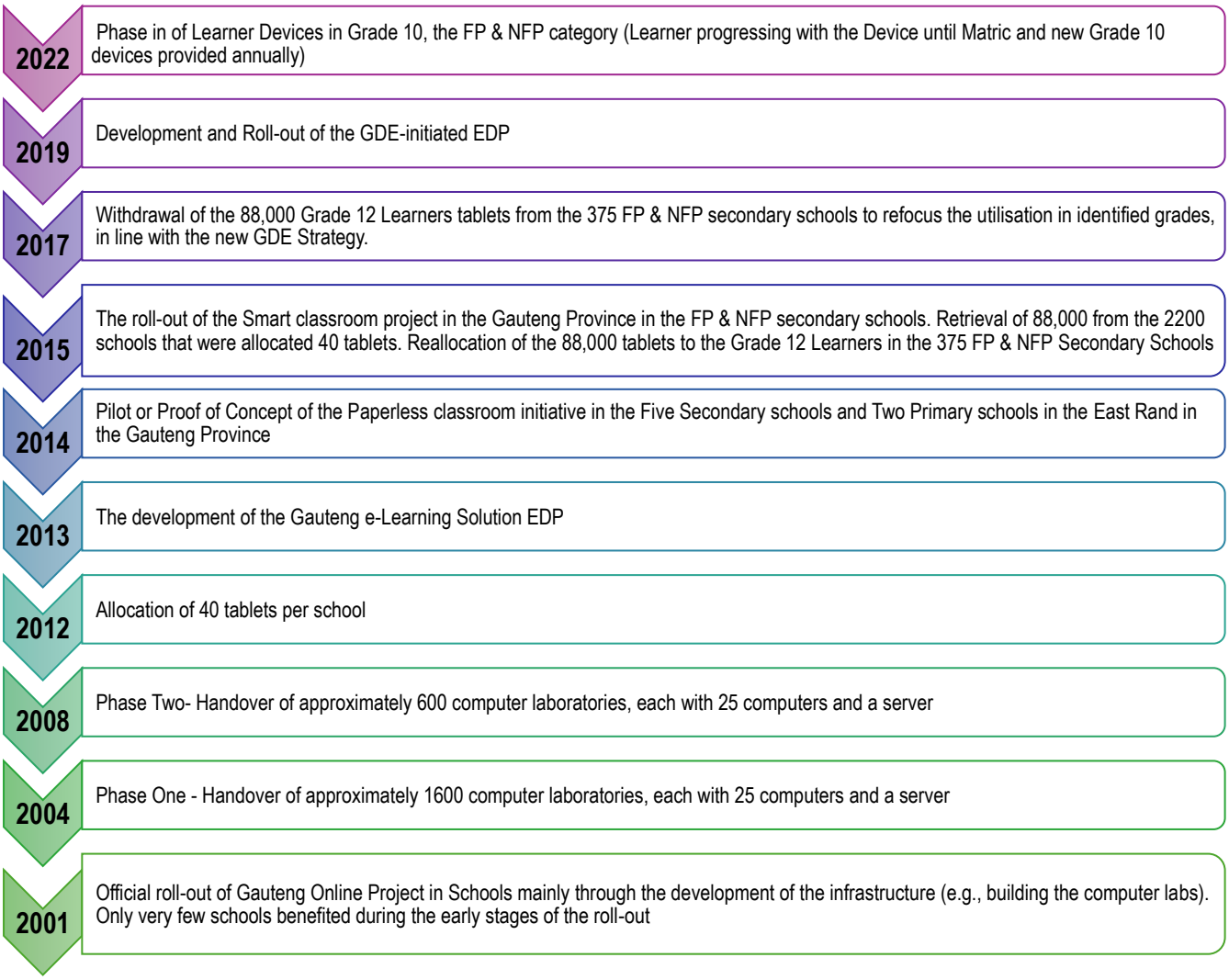


Figure 1: Timeline of the ICT in Education roll-out project in Gauteng Schools

Although these studies offer valuable information, there is still a dearth of learner-centered research from South African secondary schools, especially when it comes to factors influencing learners' intentions to use EDPs. As a result, the Unified Theory of Acceptance and Use of Technology offers a suitable theoretical framework for analysing how learners' perceptions of the EDP's utility (Performance Expectancy) and usability (Effort Expectancy) affect their behavioural intentions to use the platform.

THEORETICAL FRAMEWORK

The Unified Theory of Acceptance and Use of Technology (UTAUT)

One of the most popular frameworks for explaining technology adoption in educational and other contexts is the Unified Theory of Acceptance and Use of Technology (UTAUT) (Blut et al., 2021). Performance expectancy (PE), Effort Expectancy (EE), Social influence (SI), and Facilitating Conditions (FC) are the four main constructs determining behavioural intentions and technology use in the model.[14] This study focuses on Performance Expectancy and Effort Expectancy because these constructs capture the learners' perceptions of the EDP's usefulness and ease of use, which directly align with the research questions, even though all four constructs contribute to technology acceptance. Therefore, UTAUT offers a suitable theoretical framework for analysing learners' behavioural intentions to use the GDE-initiated EDP. Empirical research on performance expectancy and effort expectancy is critically reviewed in the following sections.

[14] Venkatesh et al., "User Acceptance of Information Technology: Toward A Unified View1."

Performance Expectancy: Learners' Perceptions of the Educational Benefits of the EDP

The degree to which learners think that utilising technology would enhance their academic performance is known as performance expectancy.[15] PE expresses the belief that an EDP improves learning efficacy, facilitates access to curricular resources, and promotes academic success in educational settings. PE, a fundamental component of UTAUT, has been repeatedly found to be a significant predictor of behavioural intention.

A widespread consensus shows that learners are more likely to embrace educational technologies when they recognise distinct educational benefits. According to studies, the adoption of digital learning platforms, e-learning systems, and artificial intelligence tools is positively influenced by perceived usefulness because these technologies enhance academic performance, productivity, and learning efficiency.[16] Similar findings from the COVID-19 era reveal that rather than being technologically innovative, learners adopted online learning platforms mainly because they promoted learning continuity.[17]

However, contextual conditions affect PE's influence. Research from underdeveloped nations has established that learners' perceptions of usefulness may be weakened by resource limits, unequal digital access, and infrastructure limitations.[18] However, research from Kenya and Nigeria continues to show that behavioural intention and performance expectancy are positively correlated, indicating that learners are still willing to use educational technologies when they see real academic benefits.[19] Despite this evidence, nothing is known about performance expectancy among South African secondary school learners taking part in the tablet initiative rolled out by the GDE. By investigating whether Grade 10 learners' opinions of the value of the GDE-initiated EDP preloaded on the learners' tablets affect their behavioural intention to utilise it, this study fills that gap.

Effort Expectancy: Learners' Perceptions of the Usability and Accessibility of the EDP

The simplicity of learning and using a technology is referred to as Effort Expectancy (EE).[20] It represents learners' opinions that an EDP is easy to use, accessible, and requires little effort to facilitate learning activities in educational contexts. Easy-to-use technologies are more likely to be adopted and used regularly in UTAUT.

Most of the research indicates that learners' behavioural intentions are positively influenced by simplicity of use, especially in the early phases of technology adoption. User-friendly interfaces, simple navigation, and accessible platform design have been found to boost learner confidence and promote long-term engagement with online learning environments.[21]

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[15] Venkatesh et al., "User Acceptance of Information Technology: Toward A Unified View1."

[16] Wei et al., "The Influence of Performance Expectancy, Effort Expectancy, and Social Influence on Artificial Intelligence Adoption Behaviour: A Case Study from a Malaysian University"; Nosica Rizkalla, Hendy Tannady, and Ricky Bernando, "Analysis of the Influence of Performance Expectancy, Effort Expectancy, Social Influence, and Attitude toward Behavior on Intention to Adopt Live.On," *Multidisciplinary Reviews* 6 (February 6, 2024): 2023spe017, https://doi.org/10.31893/multirev.2023spe017; M.S Sari, R Rusman, and L Hanum, "The Implementation of the Problem-Based Learning (PBL) Model on the Topic of Factors Affecting Chemical Equilibrium," *Journal Ilmiah Mahasiswa Pendidikan Kimia*, 2024, 9–2.

[17] Cristina Dimulescu, "E-Learning Platform Usage and Acceptance of Technology after the COVID-19 Pandemic: The Case of Transilvania University," *Sustainability* 15, no. 22 (November 20, 2023): 16120, https://doi.org/10.3390/su152216120.

[18] Rekai Zenda and Reuben Dlamini, "Examining Factors That Influence Teachers to Adopt Information and Communication Technology in Rural Secondary Schools: An Empirical Study," *Education and Information Technologies* 28, no. 1 (January 7, 2023): 815–32, https://doi.org/10.1007/s10639-022-11198-y.

[19] Alice A Bamigbola and Utibe Francis Udomah, "Facilitating Conditions, Performance Expectancy and Use of Electronic Devices by Senior Secondary School Students in Ibadan North Local Government Area, Oyo State, Nigeria," *Digital Library Perspectives* 41, no. 3 (2025): 563–86; Ezra Kiprono Maritim and Fred Nyabuti Keraro, "Modelling E-Learning Adoption: The Relationship Between Performance Expectancy and Behavioural Intention Daniel Makini Getuno Egerton University, Kenya," *Technology (IJEDICT)* 21, no. 2 Part 2 (2025): 121–40.

[20] Venkatesh et al., "User Acceptance of Information Technology: Toward A Unified View1."

[21] Rizkalla, Tannady, and Bernando, "Analysis of the Influence of Performance Expectancy, Effort Expectancy, Social Influence, and Attitude toward Behavior on Intention to Adopt Live.On"; B T Ocra, A H Matey, and G Y Koi-Akrofi, "Determinants of Students' Online Learning System Adoption: A PLS-SEM Approach," *African Journal of Applied Research* 12, no. 1 (2026): 24–48; Vanshika Saraf et al., "Understanding Learner Adoption of Generative AI-Powered Ed-Tech Applications by Dissertation-Based Master Students," *Journal of International Education in Business*, February 20, 2026, 1–25, https://doi.org/10.1108/JIEB-08-2024-0103.

Similarly, Gupta et al. discovered that learners' digital competency and usability work together to affect technology adoption.[22] Unlike performance expectancy, the findings regarding effort expectancy are less uniform. According to some studies, digital literacy, technical support, and technology adoption continue to be significant determinants of perceived ease of use, while others contend that its influence diminishes as learners gain technological experience.[23] These variations show that contextual factors and technology design have an impact on usability. Despite extensive research on effort expectancy in higher education, there is still a dearth of empirical data from South African secondary schools. Therefore, this study investigates how Grade 10 learners view the usability of the EDP initiated by the GDE and whether these views affect their behavioural intention to use the platform.

METHODOLOGY

Research Design

This study used a cross-sectional survey design and a quantitative research methodology. The design was deemed suitable for analysing correlations between constructs linked to ICT utilization in secondary school contexts and for investigating learners' perspectives. To achieve the objectives of the study, both descriptive and inferential statistical methods were used. To improve effective technology integration in schools, specific interventions, including educators, school administration, peers, and parents, can be informed by an understanding of whether and to what degree social influence strongly foreshadows learners' ICT use.

Research Context and Participants

The research was carried out in nine South African public secondary schools involved in the Gauteng Department of Education (GDE)'s Grade 10 ICT initiative, wherein Grade 10 learners received tablet devices preloaded with the Educational Digital Platform (EDP). The schools were purposively selected due to their involvement in the GDE ICT initiative and provided learners with hands-on experience of the EDP. Subsequently, a census-based sampling technique was employed, inviting all the Grade 10 learners from each of the schools that participated in the project to complete the questionnaire. Instead of a sampled subset, a census of the accessible population was produced by including all Grade 10 learners in the participating schools.[24]

A total of 1518 learners completed the questionnaire. After data screening, 35 incomplete questionnaires were discarded, yielding 1483 valid responses for the analysis. This sample size increases the findings' robustness and surpasses the minimum requirements for correlational analysis. [25]

Research Instrument

A structured self-administered questionnaire based on validated instruments from the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2) framework was used to collect data (Venkatesh et al. 2012). The questionnaire examined the factors related to ICT adoption, such as performance and effort expectancy. For Likert items on performance expectancy (PE) and effort expectancy (EE), frequency counts, percentage responses, means, and standard deviations were collected using a six-point Likert scale. Respondents used this to rate the statements given on a scale of 1 to 6 in order to evaluate these questions. The items can be used as constructs to predict the acceptance of technology or as

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[22] Puneet Kumar Gupta, Swati Raturi, and Artur Strzelecki, "Determinants of Educational Technology Adoption among University Teachers: Extending the UTAUT Framework," *Discover Education* 5, no. 1 (February 11, 2026): 199, https://doi.org/10.1007/s44217-026-01192-8.

[23] Alemshet Birhanemeskel, Seung Hun Han, and Chul Ho Lee, "ICT Adoption by Vocational Instructors for Educational Purposes in Developing Countries: A Comparative Study of Ethiopia and Tanzania," *Teaching and Teacher Education* 165 (2025): 105141; Rodnie Kgalemelo Mafa and Desmond Wesley Govender, "Exploring Teachers' Technology Adoption: Linking TPACK Knowledge and UTAUT-3 Constructs," *Discover Education* 4, no. 1 (April 17, 2025): 88, https://doi.org/10.1007/s44217-025-00480-z; Naveed Iqbal Chaudhary, Hafiz Abdur Rashid, and Naveed Jhamat, "Role of Distributed Leadership and Readiness to Change Dimensions in Public and Private Schools Regarding Commitment to Change.," *Bulletin of Education and Research* 42, no. 3 (2020): 159–81.

[24] Ilker Etikan, Sulaiman Abubakar Musa, and Rukayya Sunusi Alkassim, "Comparison of Convenience Sampling and Purposive Sampling," *American Journal of Theoretical and Applied Statistics* 5, no. 1 (2016): 1–4.

[25] Barbara G Tabachnick, Linda S Fidell, and Jodie B Ullman, "Using Multivariate Statistics," 1996; Andrew L. Comrey and Howard B. Lee, *A First Course in Factor Analysis* (Psychology Press, 2013), https://doi.org/10.4324/9781315827506.

independent behavioural variables. According to Morgan et al., the scales were combined into "Agree/Strongly Agree" and "Disagree/Strongly Disagree" to facilitate interpretation. [26]

Data Collection Procedure

Data collection was done during regular school hours with the guidance and direction of the School Management Team (SMT). Learners were made aware of the study's objectives, given the assurance of anonymity and secrecy, and told that participation was entirely voluntary. Data protection and informed consent ethics were closely adhered to.

Data reliability

Using SPSS software version 29, Cronbach's alpha was used in this study to assess the reliability and consistency of the multiple-item scale. Dependability of the entire scale (see Appendix A Total-Items Statistics for more information). To determine whether the items in this questionnaire assess the same variable, a Cronbach's alpha analysis was performed using the undented survey instruments from 1483 individuals. Table 1 shows a high reliability of the entire scale with a Cronbach's alpha of 0,891

Table 1: Reliability of the Entire Scale

Cronbach's Alpha	N of Items
0.891	28

Furthermore, Table 2 shows that all constructs had Cronbach's alpha values between 0.657 and 0.779. Therefore, it was determined that all constructs had achieved internal consistency.

Table 2: Reliability of the sub-scales

Constructs	Cronbach's Alpha	N of Items
Performance Expectancy (PE)	0.753	4
Effort Expectancy (EE)	0.657	4
Behavioural Intentions (BI)	0.779	3

Data Analysis

IBM SPSS Statistics was used for data analysis. Learners' behavioural intentions to use the educational technology were summed up using descriptive statistics. According to the theory-driven findings drawn from the UTAUT framework, a one-tailed significance test was used. The $p < 0.001$ level was used to determine statistical significance. To put it another way, Pearson correlation analysis looked at the connection between behavioral intention and

Morgan, Susan, Jenny Miller, and Lily Arasaratnam. "Signing cards, saving lives: An evaluation of the worksite organ donation promotion project." *Communication Monographs* 69, no. 3 (2002): 253-273.performance expectancy, and behavioural intention and effort expectancy. A one-tailed significance test was performed at $p < 0.001$.

PRESENTATION OF FINDINGS

The descriptive statistics for the performance and effort expectancy constructs are shown in this section.

Performance Expectancy (PE)

The accompanying table, Table 3, shows how Grade 10 learners perceive the benefits of the GDE-initiated EDP for their academic work. This includes their opinions on the EDP's relevance to their education (PE1), how it might improve their performance in a particular field (PE2), how it can simplify their work (PE3), and how it might encourage learners to study independently (PE4).

[26] Susan Morgan, Jenny Miller, and Lily Arasaratnam, "Signing Cards, Saving Lives: An Evaluation of the Worksite Organ Donation Promotion Project," *Communication Monographs* 69, no. 3 (September 21, 2002): 253–73, https://doi.org/10.1080/03637750216540.

Table 3: EDP Performance Expectancy of learners towards the use of the GDE-initiated

		Strongly Disagree or disagree	Slightly Disagree	Slightly Agree	Agree/ Strongly Agree	Mean	Std Dev
PE1	Count	134	39	129	1190	4.87	1.246
	Row N %	9.0%	2.6%	8.1%	80.2%		
PE2	Count	114	52	208	1109	4.86	1.204
	Row N %	7.7%	3.5%	14.0%	74.8%		
PE3	Count	93	47	218	1125	4.87	1.120
	Row N %	6.3%	3.2%	14.7%	75.9%		
PE4	Count	100	50	168	1165	4.94	1.148
	Row N %	6.7%	3.4%	11.3%	78.6%		

The data analysis revealed that all of the observable Likert item variables had higher mean values (far above 4), as indicated in Table 3. This suggests that the respondents were more in favour of the benefits of using the GDE-initiated EDP. Furthermore, 1190 (80.2%) of the respondents agreed or strongly agreed that the EDP, which was initiated by the GDE, is beneficial for their learning; 1165 (78.6%) agreed that using the EDP helps them study independently; 1125 (75.9%) agreed or strongly agreed that using the EDP improves their understanding of their work; and 1109 (74.8%) agreed or strongly agreed that using the EDP improves their performance in a particular topic or subject.

Effort Expectancy (EE)

Table 4 examines the Grade 10 responses from the learners on the amount of worker effort required to use the GDE-initiated EDP for their academics. This includes the learners' perceptions of the EDP's usability (EE1), learnability (EE2), skill development (EE3), and mental effort required to utilise it (EE4). A summary of learners' opinions of the GDE-initiated EDP's usability, learning curve, skill development, and mental effort required to use it is therefore illustrated in this table.

Table 4: Effort Expectancy of learners towards the use of the GDE-initiated EDP

		Strongly Disagree/ Disagree	Slightly Disagree	Slightly Agree	Agree/ Strongly Agree	Mean	Std Deviation
EE1	Count	166	79	289	947	4.57	1.278
	Row N %	11.2%	5.3%	19.5%	64.0%		
EE2	Count	159	86	249	989	4.58	1.260
	Row N %	10.8%	5.8%	16.8 %	66.7%		
EE3	Count	111	95	265	1012	4.70	1.162
	Row N %	7.5%	6.4%	17.9 %	68.3%		
EE4	Count	247	135	230	871	4.28	1.447
	Row N %	16.6%	9.1%	15.5 %	58.8%		

Table 4 analysis makes it evident that 1012 participants, or 68.3%, agreed or strongly agreed that using the GDE-initiated EDP is an easy skill to learn, as indicated by the item. EE3. 989 participants (66.7%) agreed with the statement that it is easy to learn to use the GDE-initiated EDP in response to item EE2, and 947 participants (64.0%) seemed to agree in the evaluation of item EE1. According to the analysis, 871 (58.8%) of the participants believed that typically little mental effort is required for the GDE-initiated EDP. The mean scores were higher than 4, which shows a high level of agreement with the items used to assess the effort expectation construct, providing an explanation for

this. Although the standard deviation of 1.447 appears to be marginally larger than the others, the mean deviates significantly from the standard deviations of 1.278, 1.162, and 1.260.

Inferential statistics

Pearson product-moment correlation analysis was used to analyse the relationship between behavioural intentions and the EDP, Performance Expectancy, and Effort Expectancy to answer research questions 3 and 4. The direction and strength of the relationships between the variables were considered to be best evaluated using the Pearson correlation. Table 5 shows the findings.

Table 5: Relationship Between Performance Expectancy, Effort Expectancy and Behavioural Intention

Variable	Behavioural Intentions	p
Performance Expectancy	0.454	< 0.001
Effort Expectancy	0.361	< 0.001

The findings indicated statistically significant positive correlations between both UTAUT constructs and behavioural intentions. Performance Expectancy demonstrated a moderate positive association with Behavioural Intention ($r = 0.454$, $p < 0.001$), suggesting that learners who regarded the EDP as beneficial for enhancing their learning were more likely to intend to utilise it. Additionally, there was a positive and statistically significant correlation between Effort expectancy and Behavioural Intention ($r = 0.361$, $p < 0.001$), indicating that learners who thought the platform was simple to use had a higher intention to use it.

DISCUSSION

This section uses the UTAUT framework's performance expectancy and effort expectancy constructs to present the results.

Research Question 1: Performance Expectancy - How helpful do students think the EDP preloaded on tablets supplied by GDE is for their learning activities?

The results on performance expectancy show that learners consistently and strongly believe that the GDE-initiated Educational Digital Platform (EDP) improves academic performance. According to the high agreement levels (74.8% - 80.2%) and the mean scores (M=4.86 – 4.94), learners do not simply accept the existence of technology; rather, they perceive it as helpful for their academic work. Furthermore, the relatively low standard deviation values signal that perceived utility is generally shared by learners rather than being limited to those who are tech-savvy, suggesting convergence of opinion.

Performance expectancy is the primary cognitive component that determines the adoption of technology, according to the UTAUT paradigm. The current findings experimentally confirm this theoretical argument, demonstrating that learners' acceptance of the adoption of the GDE-initiated EDP is significantly influenced by their expectations of improved learning outcomes. The idea that users prefer expected performance benefits over new technology is supported by Cheng et al., who discovered similar tendencies and came to the conclusion that performance expectancy was the most important element in university students' adoption of AI.[27] These findings are consistent, suggesting that perceived academic utility serves as a catalyst for widespread adoption of traditional and AI-enabled digital learning platforms.

Recent empirical research provides more support for this interpretation. According to Sari et al., performance expectancy influences adoption when students think technology has a direct impact on competency development and task completion.[28] The high means in this survey indicate that learners are more likely to associate the GDE-initiated platform with actual academic achievement than with

[27] Wei et al., "The Influence of Performance Expectancy, Effort Expectancy, and Social Influence on Artificial Intelligence Adoption Behaviour: A Case Study from a Malaysian University."

[28] Sari, Rusman, and Hanum, "The Implementation of the Problem-Based Learning (PBL) Model on the Topic of Factors Affecting Chemical Equilibrium."

optional digital additional features. Maritim and Keraro further demonstrate that expected performance increases in e-learning contexts strongly predict behavioural intention, suggesting that learners' motivation to use technology is driven more by outcome expectancy than by institutional requirements.[29]

Most importantly, the findings align with the research carried out in poor and digitally disadvantaged countries. According to Zenda and Dlamini, expectation beliefs play a significant role in influencing the adoption of ICT when infrastructure is limited.[30] They argue that when there are obvious performance benefits, users are prepared to tolerate contextual limitations. Therefore, despite some institutional barriers, learners seem to think there is enough academic value to justify continued involvement, as seen by the high level of support reported in this study.

Furthermore, the results are consistent with more comprehensive systematic evidence. According to Feng et al., who conducted a comprehensive review of the literature on the adoption of educational technology, perceived usefulness is the most accurate measure of the acceptability of technology across educational levels.[31] Similarly, Bamigbola and Udomah found that secondary school learners' usage of digital learning resources was significantly impacted by performance expectancy, validating the construct's relevance in school-based contexts similar to the one being studied.[32]

From an interpretive standpoint, the highest mean recorded (PE4: M=4.94) suggests that technology benefits are supported by empirical evidence. Learners appear to evaluate the platform based on their real learning experiences rather than anticipated benefits. This finding supports research by Li and Wang and Vandana et al., which demonstrated that perceived performance enhancement strengthens creative engagement behaviours and sustained adoption.[33] In this study, performance expectancy is used as a measure of perceived pedagogical efficacy and a predictor of adoption.

Collectively, these findings show that performance expectancy operates precisely as UTAUT and its extensions anticipate. The beliefs of learners that the platform enhances productivity, efficiency, and academic success mostly drive their acceptance of GDE-initiated EDP.

Research Question 2: Effort Expectancy - To what degree do learners believe it is easy to use and access the EDP that is preloaded on GDE-provided tablets allocated to learners?

Although learners' appreciation of technology is explained by performance expectancy, effort expectancy clarifies how easy it is to enjoy those advantages. The findings show that usability is generally seen favourably, with agreement levels between 58.8% and 68.3% and mean scores between 4.28 and 4.70. Nonetheless, higher standard deviations (SD = 1.126 – 1.447) show more variation in learner experiences than performance expectancy, suggesting that perceptions of ease of use are less consistent.

In UTAUT, effort expectancy refers to how simple it is to engage with the system. The findings suggest that learners typically find the platform manageable, despite variations in users' usability experiences. This pattern is in line with the findings of Rizkalla et al. (2024), who found that while effort expectancy significantly influences adoption intentions, responses often exhibit greater variability due to differences in user readiness and technology familiarity. According to Pagan and Medina, the highest usability perception (EE3: M = 4.70) indicates that learners generally perceive reasonable interaction demands, supporting the findings that learning management systems are accepted when navigation and interaction processes minimise cognitive effort.[34] Similarly, as demonstrated by Ocra et al. (2026) using

[29] Maritim and Keraro, "Modelling E-Learning Adoption: The Relationship Between Performance Expectancy and Behavioural Intention Daniel Makini Getuno Egerton University, Kenya."

[30] Zenda and Dlamini, "Examining Factors That Influence Teachers to Adopt Information and Communication Technology in Rural Secondary Schools: An Empirical Study."

[31] Jiyuan Feng et al., "Key Factors Influencing Educational Technology Adoption in Higher Education: A Systematic Review," *PLOS Digital Health* 4, no. 4 (2025): e0000764.

[32] Bamigbola and Udomah, "Facilitating Conditions, Performance Expectancy and Use of Electronic Devices by Senior Secondary School Students in Ibadan North Local Government Area, Oyo State, Nigeria."

[33] Xueyao Li, Chenyang Wang, and Zisong Ma, "Influencing Factors of User Acceptance and Adoption of E-Government AI Assistants: An Empirical Study Based on the Extended UTAUT2 Model," *Telematics and Informatics Reports* 21 (March 2026): 100293, https://doi.org/10.1016/j.teler.2026.100293; Vandana Vandana et al., "AI Adoption Drivers and Innovative Work Behaviours," *European Journal of Innovation Management* 29, no. 7 (July 21, 2026): 2122–41, https://doi.org/10.1108/EJIM-03-2025-0327.

[34] Liz Pagán and Ana Medina, "The Acceptance of Moodle Learning Management System in Higher Institution during Covid-19 Pandemic," in *INTED2021 Proceedings* (IATED, 2021), 8024–34.

PLS-SEM analysis, perceived ease of use boosts students' involvement with online learning management systems by lowering psychological barriers to participation.

However, EE4's extremely low score (M=4.28; SD = 1.447) suggests that usability is a problem for certain learners. This discrepancy is significant in theory. The adoption of AI-powered educational technologies, particularly for students with varying degrees of digital competency, depends on intuitive design, according to Saraf et al.[35] Therefore, the heterogeneity shown in this study likely reflects differences in digital literacy, access conditions, or support systems rather than a rejection of the technology itself.

Recent studies support this interpretation. According to Gupta et al. and Mafa and Govender, adoption outcomes are somewhat dependent on training and familiarity since ease of use interacts with users' technological expertise and pedagogical exposure.[36] Similarly, comparative research by Birhanemeskel et al. shows that infrastructural and experiential disparities influence usability perceptions in developing contexts, which may explain the wider response dispersion seen here.[37]

The significance of effort expectations is further supported by recent studies on AI and the adoption of digital systems. According to research by Yavetz and Nakash, and Iqbal and Khan, during the early stages of adoption, people may acknowledge the value of technology while also feeling doubtful or concerned about effort.[38] This theoretical realisation clarifies why, in the current data, effort expectancy ratings are still positive but less consistent
than performance expectancy.

Research Question 3 - Is there a statistically significant correlation between Performance Expectancy and learners' behavioural intention to utilise the Educational Digital Platform?

Performance expectancy and behavioural intention were found to have a statistically significant positive association ($r = 0{,}454$; $p < 0{,}001$), suggesting that learners who thought the EDP was helpful were more likely to use it. PE revealed the highest correlation with behavioural intention of the two UTAUT items investigated.

According to Venkatesh et al., this finding confirms UTAUT's claim that perceived utility is one of the most important factors influencing technology adoption.[39] The result is in line with studies conducted in educational settings. For example, Bahari et al. found that learners' intentions to use online technologies were highly predicted by performance expectancy.[40] According to more recent studies, performance expectancy was one of the best indicators of behavioural intention in digital learning environments.[41]

Additionally, PE is consistently found to be the most potential predictor of behavioural intentions across educational contexts in recent reviews and meta-analysis of technology acceptance research.[42]

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[35] Saraf et al., "Understanding Learner Adoption of Generative AI-Powered Ed-Tech Applications by Dissertation-Based Master Students."

[36] Gupta, Raturi, and Strzelecki, "Determinants of Educational Technology Adoption among University Teachers: Extending the UTAUT Framework"; Mafa and Govender, "Exploring Teachers' Technology Adoption: Linking TPACK Knowledge and UTAUT-3 Constructs."

[37] Birhanemeskel, Han, and Lee, "ICT Adoption by Vocational Instructors for Educational Purposes in Developing Countries: A Comparative Study of Ethiopia and Tanzania."

[38] Gal Yavetz and Maayan Nakash, "Adopting GenAI Applications in the Workplace: Managerial Implications and Insights from ICT Professionals," *EuroMed Journal of Business*, February 3, 2026, 1–19, https://doi.org/10.1108/EMJB-08-2024-0217; Chaudhary, Rashid, and Jhamat, "Role of Distributed Leadership and Readiness to Change Dimensions in Public and Private Schools Regarding Commitment to Change.".

[39] Viswanath Venkatesh et al., "User Acceptance of Information Technology: Toward a Unified View1," *MIS Quarterly* 27, no. 3 (2003): 425–78.

[40] Mahadi Bahari et al., "Predicting the Intention to Use Learning Analytics for Academic Advising in Higher Education," *Sustainability* 15, no. 21 (October 24, 2023): 15190, https://doi.org/10.3390/su152115190.

[41] Pei-Ying Chen and Gwo-Jen Hwang, "An Empirical Examination of the Effect of Self-Regulation and the Unified Theory of Acceptance and Use of Technology (UTAUT) Factors on the Online Learning Behavioural Intention of College Students," *Asia Pacific Journal of Education* 39, no. 1 (January 2, 2019): 79–95, https://doi.org/10.1080/02188791.2019.1575184; Pável Reyes-Mercado et al., "Adoption of Digital Learning Environments during the COVID-19 Pandemic: Merging Technology Readiness Index and UTAUT Model," *Journal of International Education in Business* 16, no. 1 (January 4, 2023): 91–114, https://doi.org/10.1108/JIEB-10-2021-0097.

[42] Kuttimani Tamilmani et al., "The Extended Unified Theory of Acceptance and Use of Technology (UTAUT2): A Systematic Literature Review and Theory Evaluation," *International Journal of Information Management* 57 (April 2021): 102269,

Therefore, the current study supports this claim that when learners perceive clear academic value and learning benefits, they are more likely to use educational technologies.

However, some research has found weaker correlations between behavioural intention and PE, especially in situations where learners have few opportunities to experience the useful benefits of technology or when digital resources are not well incorporated into educational activities.[43] The curriculum-aligned nature of EDP and learners' direct exposure to educational content through the GDE ICT initiative may thus account for the unusually significant association found in this study.

Research Question 4 - Is there a statistically significant correlation between Effort Expectancy and learners' behavioural intention to utilise the Educational Digital Platform?

The results indicated a statistically significant positive correlation between effort expectancy and behavioural intentions ($r = 0.361$, $p < 0.001$). This suggests that learners who perceived the EDP as easy to use were more likely to say that they planned to continue using it. The results corroborate earlier UTAUT studies showing that technology adoption intentions are positively influenced by ease of use. According to studies by Park et al., Van Der Schaaf et al., and Rezvani et al., users are more likely to use digital learning tools if they think they are easy to use.[44]

However, compared to performance expectancy, the correlation between effort expectancy and behavioural intentions was smaller. This result is in line with UTAUT theory and a number of empirical studies that indicated that behavioural intention is more strongly influenced by usefulness than ease of use.[45] If learners feel that a technology provides significant academic advantages, they may be able to handle modest levels of complexity. As a result, learners' intentions to use the EDP seem to be more influenced by views of its usefulness than by ease of use.

Therefore, the results suggest that learners' behavioural intentions are significantly influenced by both usefulness and by ease of use. Interventions aimed at optimisingEDP adoption, however, should place a high priority on showcasing the EDP's educational benefits while ensuring that learners receive sufficient support to successfully use the system.

RECOMMENDATIONS

The findings demonstrate that both variables, i.e., performance and expectancy, substantially affect learners' intention to utilise the GDE-initiated EDP. Consequently, the following suggestions are put forth.

Given that performance expectancy demonstrated the most robust positive correlation with behavioural intention, the GDE should focus on augmenting the educational value. This can be accomplished by ensuring that the platform offers curriculum-aligned content, interactive learning activities, formative assessments, and prompt feedback that distinctly illustrate its impact on enhanced learning outcomes. Educators should include the EDP in regular classroom teaching to enable learners to recognise its practical significance in supporting teaching and learning.

The notable correlation between Effort expectancy and behavioural intention indicates that learners are more likely to utilise the EDP when it is user-friendly and accessible. The participating schools should consequently offer frequent learner orientation, digital literacy training, and continuous

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https://doi.org/10.1016/j.ijinfomgt.2020.102269; Yogesh K. Dwivedi et al., "Re-Examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model," *Information Systems Frontiers* 21, no. 3 (June 8, 2019): 719–34, https://doi.org/10.1007/s10796-017-9774-y.

[43] Intan Ayu Permatasari, Putu Nina Madiawati, and Mahir Pradana, "The Influence of Performance Expectations, Effort Expectations, Supportive Conditions, Social Influence, Risk, and Trust on Usage Behavior with Behavioral Intent as a Mediator (Case Study of MYBCA Adoption Among Generation Z)," *East Asian Journal of Multidisciplinary Research* 4, no. 8 (August 25, 2025): 3997–4016, https://doi.org/10.55927/eajmr.v4i8.334.

[44] Jae Hyung Park, Chul Won Lee, and Chanwook Do, "Examining Users' Acceptance Intention of Health Applications Based on the Technology Acceptance Model," in *Healthcare*, vol. 13 (MDPI, 2025), 596; Shahla Rezvani et al., "The Effectiveness of System Quality, Habit, and Effort Expectation on Library Application Use Intention: The Mediating Role of Perceived Usefulness, Perceived Ease of Use, and User Satisfaction," *International Journal of Business Information Systems* 51, no. 4 (2026): 503–20; Hans P VanDerSchaaf, Tugrul U Daim, and Nuri A Basoglu, "Factors Influencing Student Information Technology Adoption," *IEEE Transactions on Engineering Management* 70, no. 2 (2021): 631–43.

[45] Venkatesh et al., "User Acceptance of Information Technology: Toward A Unified View1"; Tamilmani et al., "The Extended Unified Theory of Acceptance and Use of Technology (UTAUT2): A Systematic Literature Review and Theory Evaluation."

technical support to improve learners' confidence in utilsing the platform. The platform's interface and functionality must be continuously refined to guarantee an intuitive and user-friendly learning experience.

Schools should implement systems for regular assessment of learners' experience with the EDP and use learner feedback to drive continuous improvements. Evidence-based improvements are expected to enhance learners' opinions of the platform's usability and its user-friendliness, consequently fostering ongoing behavioural intention and optimise utilisation.

Discussion Summary

This study investigated how learners view the GDE-initiated EDP by looking at how learners' behavioural intention to utilise the platform was influenced by the performance expectancy and the effort expectancy. According to descriptive findings, learners generally believed that the EDP was straightforward to use and helpful to assist in their learning. Further inferential analysis showed that behavioural intention was positively and significantly correlated with both performance and effort expectancy, with performance expectancy showing a higher correlation. According to these results, learners are more likely to accept and continue using the EDP if they believe that it improves their academic performance and is easy to use. To encourage long-term learners' uptake, the study emphasises the significance of concurrently enhancing the educational value and user-friendliness of the digital learning platforms. Collectively, the findings add to the increasing amount of data that support the use of the UTAUT framework in secondary schooling environments and offer useful advice for enhancing the use of educational technology in South African classrooms.

CONCLUSION

This study has examined how learners perceived the use of the GDE-allocated tablet together with the GDE-initiated EDP, using the performance expectancy and effort expectancy constructs from the UTAUT framework. All of the findings point to a consistent adoption trend that supports the UTAUT theory. Learners typically consider the EDP to be user-friendly and strongly value its educational advantages, even though evaluations of its usefulness differ more than those of its educational benefits. This implies that the GDE tablet initiative's success is mostly due to learners' awareness of academic value; nevertheless, additional enhancements to learner support systems and usability could boost engagement even further. Accordingly, the study comes to the conclusion that performance-related expectations, which are bolstered by sufficiently favourable usability determinations to allow for prolonged involvement, are the primary drivers of learners' adoption of the EDP. Improving technical assistance, training, and digital literacy programs could lessen usability inequalities and enable learners to take full advantage of the platform's alleged educational advantages.

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