



# Investigating the Drivers of Education Technology Adoption for Standardized Test Prep

Dipanshu Thakur, Brij Mohan, Malvika Singh

MBA

Lovely Professional University.

## **Abstract**

The research paper explores the adoption of educational technology for standardized test preparation, focusing on the application of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model. The study investigates factors influencing students' behavioral intentions towards using educational technology in India, emphasizing constructs like perceived usefulness, perceived ease of use, social influence, hedonic motivation, privacy risk, price value, health motivation, and health consciousness. The research methodology involves a questionnaire-based survey, data analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM), and hypothesis testing to examine the relationships between these factors and technology adoption. The results reveal insights into the significant impact of perceived usefulness, social influence, hedonic motivation, and facilitating conditions on students' intention to adopt educational technology for test preparation. However, factors like perceived ease of use, privacy risk, price value, and health consciousness did not show significant relationships with adoption intentions. The study highlights the importance of performance expectancy and facilitating conditions in driving technology adoption, providing valuable implications for EdTech providers and decision-makers in enhancing the adoption and effectiveness of educational technology for standardized test preparation in India.

**Keywords:** Unified Theory of Acceptance and Use of Technology (UTAUT2), Consumers' acceptance, Technological advancements, Insurance sector, Conversational robots. Arab region's financial landscape, E-payment products and services

## **INTRODUCTION**

The exploration of the determinants of the acceptance and utilization of technology in educational settings, specifically about the incorporation of educational technology for standardized test preparation, holds significant importance in the realm of education. This investigation provides valuable insights into the various factors that influence the acceptance and usage of technology in educational contexts, shedding light on its

potential impact. Extensive research has demonstrated that the Technology Acceptance Model (TAM) stands as the most influential model in comprehending the adoption of educational technology [Ashok, Balasubramanyam. (2023)][Christine, Matzke. (2022)]. Numerous predictive factors have been identified as crucial in determining the adoption of technology, including self-efficacy, subjective norm, perceived enjoyment, and system quality. These factors play integral roles in influencing individuals' decisions to adopt educational technology [Kayode, Emmanuel, Oyetade., Anneke, Harmse., Tranos, Zuva. (2020)]. The incorporation of electronic learning (e-learning), mobile learning (m-learning), and learning management systems (LMS) has been extensively validated as effective modes of delivering education. These methods have been shown to enhance students' learning experiences and outcomes [Pamela, S., Nicolle. (2022)]. Additionally, scholars have suggested that integrating the TAM model with other adoption theories and models can enhance its explanatory power, providing a more comprehensive understanding of the adoption process. By delving into the drivers of educational technology adoption for standardized test preparation, researchers can gain valuable insights that can inform the development and implementation of effective technology-based learning strategies in education [Kayode, Emmanuel, Oyetade., Tranos, Zuva., Anneke, Harmse. (2020)].

The influence exerted by standardized testing on the utilization of technology in the field of education has manifested itself in various ways. There is a widely acknowledged recognition of the pivotal role played by technology in the global realm of educational development [Abayomi, Ayodeji, Adedokun. (2020)]. Educators possess the capability to captivate and engross students by employing online resources and tools that are tailored to their interests and aptitudes [Shahnawaz, Khan., Salah, A.A., Emar. (2018)]. Furthermore, the advent of the COVID-19 pandemic and other external factors has led to a notable transition towards the implementation of test-optional policies within the higher education landscape, with a significant majority of academic institutions embracing this particular approach [(2022)]. A comprehensive examination of the historical evolution of standardized testing divulges a persistent quest for enhanced efficiency and an unwavering pursuit of greater validity, both of which have driven advancements in the technological aspects of test administration [Sebastian, Moncaleano., Michael, Russell. (2018)]. Moreover, it is imperative to underscore the fact that engineering and technology students are mandated to acquire and put into practice established benchmarks and norms within their coursework, thereby underscoring the paramount importance of technology in the teaching and application of industry standards [Ahmed, Khan., Amin, Karim. (2016)].

Despite the proliferation of educational technology tools, the adoption specifically for standardized test preparation may be lagging due to a variety of factors. One reason for this is the negative impact that test preparation has on teachers' instructional practices, as it often prioritizes the development of procedural skills rather than more ambitious and innovative teaching methods [David, Blazar., Cynthia, Pollard. (2017)]. Furthermore, the implementation of more rigorous assessments as a means to incentivize ambitious test preparation instruction may not yield the desired outcomes, as recent research suggests that the relationship between test preparation activities and lower quality instruction is not as significant as previously believed [Cynthia, Pollard. (2016)]. Another factor contributing to the lag in adoption is the challenge of aligning standardized tests with existing curricula, which can result in a mismatch and impede teachers' ability to foster

student creativity and critical thinking [Rabih, Edriss., Matthew, J., Etechells. (2016)]. Moreover, the lack of adoption of educational technologies, such as e-tutoring platforms, for standardized test preparation may be influenced by contextual factors, including decreasing budgets and the growing demand for public accountability in education [Julie, A., Corrigan. (2012)].

The utilization of Educational Technology (EdTech) for standardized test preparation possesses the potential to enhance the outcomes of student learning and contribute to a more engaging, personalized, and flexible education process [Nathalie, Wyss., Christina, Myers. (2022)]. By incorporating EdTech into the learning environment, students can benefit from an increased level of familiarity with the terminology and format of testing, resulting in a more comfortable and less stressful environment for the practice of skills that align with educational standards. Additionally, EdTech offers students the opportunity to review grade-level content that has been covered throughout the academic year [Ferhan, Girgin, Sagin. (2020)]. Moreover, the integration of EdTech can also lead to improvements in the accuracy of both test-taking and test-scoring processes. This, in turn, enables immediate feedback and facilitates quicker and more effective modifications to the curriculum and pedagogical approaches employed [Minda, Jiang. (2023)]. Nevertheless, it is important to acknowledge the existence of certain drawbacks that need to be taken into consideration. The implementation of EdTech necessitates overcoming barriers such as the lack of necessary technological tools and competence, as well as challenges associated with the design and integration of EdTech in a manner that is meaningful from a pedagogical standpoint [Lauren, A., Menard. (2011)]. Furthermore, there are inherent risks associated with data collection and the protection of student privacy. These risks encompass unauthorized access to data, the potential misuse of data, the lack of proper consent for data usage, and the potential for inaccurate data to be collected [Bill, McHenry., Leonard, Griffith., Jim, McHenry. (2004)].

The adoption of educational technology in teaching and learning has become increasingly important, particularly due to the emergence of the fourth industrial revolution (4IR), which has driven educational institutions to integrate technology into their educational practices [R., W., Maladzhi. (2023)]. To explore the impact of information technology (IT) adoption on student achievement, particularly in the context of standardized test preparation, extensive research has been conducted in urban school districts [Gregory, M., Lee., Mary, L., Lind. (2011)]. Furthermore, the COVID-19 pandemic has further emphasized the necessity of adopting technology in education, as educational institutions have had to rely on information and communication technologies (ICTs) to facilitate virtual engagement and ensure uninterrupted learning opportunities [Kayode, Emmanuel, Oyetade., Tranos, Zuva., Anneke, Harmse. (2020)]. Among the various models used to investigate the acceptance of educational technology by students and teachers, the Technology Acceptance Model (TAM) has been recognized as the most influential and widely employed [Ashok, Balasubramanyam. (2023)]. Moreover, a range of technologies, such as e-learning, m-learning, learning management systems (LMS), personal learning environments (PLE), and massive open online courses (MOOCs), have been extensively validated and effectively utilized in the field of education [Habib, Allah, Soleman. (2020)].

## LITERATURE REVIEW

The prevalence of the adoption of educational technology in the realm of standardized test preparation has become increasingly apparent in the field of K-12 education, a phenomenon that can be attributed to the accountability policies put forth by the No Child Left Behind Act [Andy, James, Kubitza. (2007)] [ Hongli, Li., Yao, Xiong. (2018)]. As a result of these policies, teachers have been compelled to utilize various strategies to adequately prepare their students for state tests [James, Flowers., Jason, Sparks., Viswanath, Parameswaran. (2007)]. However, the effectiveness of such test preparation techniques in improving students' performance on state tests is not entirely conclusive, as it has been found to yield relatively modest results [Zarina, Denan., Zarina, Abdul, Munir., Rahayu, A., Razak., Kardina, Kamaruddin., Veera, Pandiyan, Kaliani, Sundram. (2020)]. Moreover, it is important to note that there exists a notable discrepancy in the distribution of test preparation resources among different racial groups, with Black and Hispanic students receiving a larger share of test preparation materials compared to their White counterparts [Glen, Bull., J., Michael, Spector., Kay, A., Persichitte., Ellen, Meiers. (2017)].

The adoption of educational technology is influenced by various key drivers and factors. These factors can be categorized into different aspects, including organizational factors, environmental factors, user aspects, and the type of technology being adopted. Organizational factors play a crucial role in the adoption of educational technology. One significant organizational factor is top management commitment. When the top management of an organization shows dedication and support toward the adoption of educational technology, it positively influences the adoption process. Another organizational factor is staff attitudes. The attitudes of the staff members towards educational technology can determine the success or failure of its adoption. Moreover, appropriate skills among the staff members are also important for the successful adoption of educational technology [HP VanDerSchaaf, TU Daim, NA Basoglu (2023)]. Environmental factors also have a significant impact on the adoption of educational technology. Industry competition is one such environmental factor. When there is intense competition in the educational technology industry, organizations are more likely to adopt new technologies to stay ahead in the market. Technological factors, such as perceived benefits, complexity, and compatibility, also play a crucial role in the adoption process. If the perceived benefits of using educational technology outweigh the perceived complexity and if the technology is compatible with the existing systems, organizations are more likely to adopt it [Shavlyn, Mosiara. (2023)]. User aspects are important predictors of the adoption of educational technology. Self-efficacy, which refers to an individual's belief in their ability to use technology effectively, is one such user aspect. If individuals have high self-efficacy, they are more likely to adopt educational technology. Subjective norm, which refers to the perceived social pressure to adopt educational technology, also influences adoption. If individuals perceive a strong social norm to use educational technology, they are more likely to adopt it. Enjoyment, facilitating conditions, anxiety, system accessibility, and technological complexity are other important user aspects that influence adoption [Andrina, Granić. (2022)]. The type of technology being adopted also plays a crucial role in its adoption. Different types of educational technologies, such as e-learning, m-learning, learning management systems, and social media services, have different levels of adoption. The

characteristics and functionalities of these technologies influence their adoption rates [Samantha, Anne, Hart. (2023)]. Furthermore, various factors impact the use of educational technology in schools. Access to technical resources is one such factor. Schools need to have adequate technical resources, such as computers and internet connectivity, to effectively use educational technology. Skills, training, and competence among teachers and staff members are also important for the successful use of educational technology. Efficacy and efficiency beliefs, which refer to the beliefs of teachers and staff members in the effectiveness and efficiency of educational technology, influence its use. Pedagogical compatibility, which refers to the alignment of educational technology with the pedagogical approaches used in schools, is another factor that impacts its use. Additionally, a supportive leadership and management structure in schools is crucial for the effective use of educational technology. When there is support from the leadership and management, the adoption and use of educational technology are more likely to be successful [Ashok, Balasubramanyam. (2023)].

The Unified Theory of Acceptance and Use of Technology (UTAUT2) model is frequently employed in numerous academic papers as a means of thoroughly examining the multitude of factors that influence consumers' acceptance and intention to utilize various technological advancements across a wide array of industries. These industries include but are not limited to the insurance sector, wherein conversational robots are being integrated [Jorge, de, Andrés-Sánchez. (2023)], the Arab region's financial landscape, wherein e-payment products and services are undergoing extensive analysis [Eiman, Medhat, Negm. (2023)], Indonesia's digital payment landscape, wherein the ShopeePay digital wallet has emerged as a prominent player [Muhammad, Fikry, Aransyah. (2023)], as well as the retail sector, where Augmented Reality (AR) applications are being explored [Pipit, Nur, Fitria., Ascaryan, Rafinda., Lego, Waspodo. (2023)]. The aforementioned academic papers place considerable emphasis on factors such as an individual's performance expectations, their anticipated level of effort required, the role of social influence, the importance of trust, the presence of facilitating conditions, and the powerful impact of habit formation when determining the behavioral intentions and acceptance of technology. The UTAUT2 model, as demonstrated by these papers, possesses a remarkable ability to elucidate a significant proportion of the variability observed in behavioral intentions and the acceptance of technology. It is, however, important to note that amidst this extensive literature, one paper additionally advocates for the application of the Technology Acceptance Model (TAM) within the context of Financial Technology (FinTech) [M.A, Khashan., Mohamed, Elsouhly., Thamer, Hamad, Alasker., Mohamed, A., Ghonim. (2023)].

The theory of UTAUT2 has found application in numerous studies aimed at comprehending the determinants of the adoption of educational technology. Extensive research has demonstrated that various factors, including but not limited to effort expectancy, performance expectancy, and social influence, exert a substantial impact on individuals' behavioral intention to utilize technology in an educational setting [M Benrahal, EM Bourhim, A Dahane, O Labti, A Akhiate(2020)] [Amin, A., Shaqrah., Abdulqader, M., Almars. (2022)]. Moreover, the utilization of the UTAUT2 model has been employed to examine data acquired through online surveys, thereby enabling the identification of disparities in terms of the purpose of use and the level of enjoyment across diverse user demographics [AR Norizan, MHFM Kamil, FS Khalid(2020)] [A., Norizan., Mohd,

Hafiz, Faizal, Mohamad, Kamil., Faridzatul, Shahira, Khalid. (2022)]. Furthermore, the UTAUT2 theory has been successfully utilized to forecast the acceptance of blended learning by university students. In this regard, factors such as performance expectancy, effort expectancy, social influences, facilitating conditions, and hedonic motivation have been shown to exert a significant influence on individuals' behavioral intentions [Norman, Rudhumbu. (2022)].

## **RESEARCH GAP**

The literature review identifies several areas where further research could contribute to a more nuanced understanding of the adoption of educational technology for standardized test preparation. First, the review notes that the effectiveness of various test preparation techniques remains inconclusive, suggesting a need for more focused research to identify specific strategies or technologies that demonstrate greater efficacy in enhancing students' performance on state tests. Second, the observed discrepancies in the distribution of test preparation resources among different racial groups underscore the importance of exploring the reasons behind these disparities and devising strategies to ensure equitable access to materials for all students. Third, while organizational factors are acknowledged, a more in-depth analysis of how specific organizational aspects, such as top management commitment, staff attitudes, and skills, influence technology adoption is warranted. Additionally, further exploration into environmental factors, beyond industry competition, could shed light on regional, economic, or policy-related influences on technology adoption. The review's outline of user aspects, such as self-efficacy and subjective norm, suggests the potential for detailed research to unravel the intricate relationships between these user factors and the adoption of specific educational technologies. Moreover, a more thorough investigation into the characteristics and functionalities of different types of educational technologies (e.g., e-learning, social media services) and their impact on adoption rates is essential. The review's mention of factors impacting technology use in schools opens avenues for comprehensive research exploring how these factors interact and contribute to successful technology integration. Lastly, the application of the Unified Theory of Acceptance and Use of Technology (UTAUT2) model in diverse educational settings could be explored, considering variations in student demographics and technological contexts. Addressing these research gaps will contribute significantly to a more holistic understanding of the dynamics surrounding the adoption and effectiveness of educational technology for standardized test preparation in K-12 education.

## **OBJECTIVES OF THE STUDY**

1. Explore the influence of specific Organizational Factors on the successful adoption of educational technology for standardized test preparation
2. Investigate the role of environmental factors, including regional, economic, and policy-related influences, in shaping the adoption of educational technology for standardized test preparation.
3. Examine the Applicability of UTAUT2 in various educational settings, considering diverse student demographics and technological contexts.

## RESEARCH MODEL AND HYPOTHESIS

While investigating the drivers of educational technology adoption for standardized test preparation, several theoretical models have been applied to understand user behaviour. Technology Acceptance Model (TAM): Originally proposed by Davis et al. in 1989, TAM suggests that users' attitudes toward adopting a new technology are influenced by perceived ease of use and perceived usefulness. In the context of standardized test prep, this model would explore how students perceive the ease of using educational technology tools and whether they find them useful for their test preparation needs. Theory of Planned Behaviour (TPB): Developed by Ajzen in 1991, TPB considers three factors: attitude, subjective norm, and perceived behavioural control. In the context of test prep, this theory would examine how students' attitudes, social influences, and perceived control impact their intention to adopt educational technology for test preparation. Unified Theory of Acceptance and Use of Technology (UTAUT2): Venkatesh et al. extended the original UTAUT model in 2003. UTAUT2 includes constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions. For standardized test prep, UTAUT2 could explore how students perceive the benefits, effort required, social influences, and external conditions related to using educational technology.

One prominent model is the Unified Theory of Acceptance and Use of Technology (UTAUT), which aims to explain user intentions and subsequent usage behaviour. (1) Performance Expectancy: In the realm of standardized test prep, students consider how useful educational technology tools are for improving their test scores. If they perceive these tools as beneficial, they are more likely to adopt them. (2) Effort Expectancy: Students evaluate the ease with which they can navigate and utilize educational technology. If the tools are user-friendly and intuitive, adoption becomes more likely. (3) Social Influence: Peer recommendations, teacher endorsements, and social norms play a crucial role in shaping students' decisions regarding technology adoption. Positive social influence can encourage adoption. (4) Hedonic Motivation: Beyond practical benefits, students may derive pleasure or enjoyment from using educational technology. If the experience is enjoyable, they are more likely to embrace it. (5) Price Value: Considering the costs associated with acquiring technology, students weigh the investment against the potential benefits. Affordable solutions are more appealing. The detailed conceptual model is presented in all the predicted correlations are explained and supported in the parts that follow, all while taking the results of earlier research into consideration.

Perceived usefulness (PU):

Perceived usefulness (PU) can be defined as the extent to which individuals believe that utilizing a particular educational technology would enhance their ability to prepare for standardized tests effectively. Drawing on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), perceived usefulness aligns with the concept of performance expectancy, which is the degree to which individuals perceive that a technology will improve their performance in specific activities. Perceived usefulness specifically refers to how students perceive those educational technologies, such as online test prep platforms or adaptive learning systems, can assist them in preparing for standardized tests, such as SATs or ACTs. This includes

features such as personalized study plans, interactive practice questions, progress tracking, and access to supplementary materials. It is hypothesized that an increase in the perceived usefulness of education technology for standardized test preparation will positively influence students' intentions to adopt such technology. This aligns with prior findings that have shown a positive relationship between perceived usefulness and adoption intentions in various contexts, including education technology. Therefore, in investigating the drivers of education technology adoption for standardized test prep, the following hypothesis can be proposed:

H1. Perceived usefulness is positively associated with students' intention to adopt education technology for standardized test preparation.

Perceived Ease of Use (PEU):

Perceived ease of use can be defined as the degree to which students believe that utilizing a particular educational technology for test preparation would require minimal effort. Building upon the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), perceived ease of use aligns with the concept of effort expectancy, which refers to the ease associated with using a new technology product. Perceived ease of use specifically denotes students' perceptions that educational technologies designed for standardized test prep, such as online platforms or mobile applications, are intuitive, user-friendly, and require little to no training to use effectively. This includes factors such as ease of navigation, clear instructions, and intuitive interfaces. It is hypothesized that an increase in the perceived ease of use of education technology for standardized test preparation will positively influence students' intentions to adopt such technology. This aligns with findings that have shown a positive relationship between perceived ease of use and intention to use technology in various contexts, including education. Therefore, in the investigation of the drivers of education technology adoption for standardized test prep, the following hypothesis can be proposed:

H2. Perceived ease of use is positively associated with students' intention to adopt education technology for standardized test preparation.

Social Influence:

Social influence can be defined as the extent to which students' decision-making regarding the adoption of educational technology for test prep is influenced by the perceptions and recommendations of significant others, such as family members or peers. Derived from the Theory of Planned Behaviour (TPB) by Ajzen (1991), social influence encompasses subjective norms and behavioural intentions, exploring how individuals are influenced by the opinions and behaviours of those around them. Social influence specifically refers to the impact of family, friends, classmates, and social networks on students' decisions to adopt educational technology for standardized test preparation. This includes instances where



students may be encouraged or influenced by others to utilize specific test prep tools or platforms. Drawing from the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), which suggests that social networks can influence individuals' technology usage behaviours, it is hypothesized that social influence plays a significant role in shaping students' intentions to adopt education technology for standardized test prep. This is especially pertinent in cases where the technology is perceived as fashionable or novel, such as mobile apps or online platforms for test preparation. Based on empirical evidence from previous studies demonstrating the positive impact of social influence on the adoption of wearable technology for fitness and healthcare purposes, it is proposed that:

H3. Social influence is positively associated with students' intention to adopt education technology for standardized test preparation.

Hedonic Motivation:

Hedonic motivation can be defined as the enjoyment or pleasure derived from using educational technology. Derived from the UTAUT2 model, hedonic motivation is conceptualized as perceived enjoyment, reflecting individuals' intrinsic motives and the pleasure they derive from interacting with technology (Venkatesh et al., 2012). Davis et al. (1992) argued that factors such as perceived enjoyment can significantly influence acceptance behavior towards technology. In this study, perceived enjoyment represents students' satisfaction and enjoyment derived from using educational technology for standardized test preparation. This includes aspects such as engaging features, interactive elements, and gamification that make the learning process enjoyable and engaging. Previous research has shown that hedonic motivation is a significant predictor of consumers' attitudes towards adopting new technology (Magni et al., 2010; Gu et al., 2015; Choi and Kim, 2016). Specifically, in the context of healthcare, wearable devices like fitness trackers provide users with continuous feedback and engagement, contributing to their enjoyment of using the technology. Empirical studies conducted in various regions, including the United States, China, Saudi Arabia, South Korea, and Taiwan, have consistently demonstrated the importance of hedonic motivation in driving consumer adoption of wearable technology and smartwatches (Gao et al., 2015; Sergueeva et al., 2020; Talukder et al., 2019; Choi and Kim, 2016; Wu et al., 2016). Therefore, in investigating the drivers of education technology adoption for standardized test prep, it is proposed that:

H4. Hedonic motivation is positively associated with students' intention to adopt education technology for standardized test preparation.

### Privacy Risk:

Privacy risk can be defined as the potential threat that students' personal information collected through educational technology may be misused or accessed by unauthorized parties. Previous research has shown that the perception of privacy risk has a detrimental effect on users' acceptance of technology across various domains. Specifically, concerns about privacy and security regarding healthcare wearable devices have been highlighted in the literature, indicating that individuals may hesitate to adopt such technology due to fears of their sensitive health data being compromised. In this study, privacy risk pertains to students' apprehensions about the confidentiality and security of their personal information when using educational technology for standardized test preparation. Given the sensitivity of academic performance data and personal information, students may have concerns about the potential misuse or unauthorized access to their data. Drawing from previous studies demonstrating the negative impact of privacy concerns on technology adoption, it is hypothesized that privacy risk will negatively influence students' intentions to adopt educational technology for standardized test preparation. This hypothesis suggests that students who perceive a higher level of privacy risk associated with using educational technology for test prep will be less inclined to adopt such technology. Therefore, in the context of investigating the drivers of education technology adoption for standardized test prep, the following hypothesis can be proposed:

H5. Privacy risk is negatively associated with students' intention to adopt education technology for standardized test preparation.

### Price Value:

Price value can be defined as the perceived trade-off between the benefits provided by educational technology and the monetary costs associated with its use. Derived from Zeithaml's (1988) conceptualization, price value represents consumers' cognitive evaluation of the benefits gained versus the financial expenses incurred when utilizing educational technology for test preparation. In essence, it reflects whether students perceive the benefits of using the technology to outweigh the monetary costs involved. According to Venkatesh et al. (2012), price value plays a crucial role in consumers' decision-making process, as it influences their acceptance and adoption of technology. Studies have shown that in certain contexts, such as South Korea, price value significantly affects consumers' acceptance of wearable technologies, indicating that individuals are more likely to adopt technology when they perceive its benefits to justify the monetary costs. Therefore, in the context of investigating the drivers of education technology adoption for standardized test preparation, it can be hypothesized that:

H6. Price value is positively associated with students' intention to adopt education technology for standardized test preparation.

## Research Methodology

### Sample and Data Collection

Data for this study on the adoption of educational technology for standardized test preparation in India were collected through an online survey administered to adults (18 years or older). The questionnaire consisted of three sections. In the first section, a brief description of educational technology tools was provided, and respondents were asked if they used any such tools for test preparation. Only respondents who were non-users of educational technology were considered in the sample for this study.

The next section asked respondents about their attitudes towards education and their study behaviours. This was followed by a section on educational technology in general. Finally, the questionnaire collected demographic variables and thanked the respondents for their participation.

The questionnaire was developed in English and then translated into the local language by a native speaker. The survey was pretested online with a group of graduate students. Their feedback led to minor modifications in the wording of the questionnaire. After two months of data collection, the survey resulted in a sample of a significant number of responses. The composition of the sample is consistent with previous studies on technology adoption in India. The sample characteristics are presented in the study.

### Measures

In the context of investigating the drivers of education technology adoption for standardized test preparation in India, all construct measures are adopted from existing established scales on technology acceptance and adapted to fit the research context.

Perceived usefulness is measured with a five-item scale adapted from established scales. Perceived ease of use is measured with a four-item scale. Social influence is measured with a three-item scale adopted and adapted from established scales. Hedonic motivation is measured by a four-item scale. Privacy risk is also measured with a four-item scale adopted from established scales.

Furthermore, the two factors (motivation and consciousness towards education) are measured using a self-reported measure of five education-related features. The questionnaire applied a seven-point Likert scale, with anchors from “1=strongly disagree” to “7=strongly agree” to capture the variables and indicator items.

The questionnaire includes items of all constructs with Cronbach Alpha, Average Variance Extracted (AVE), Composite Reliability (CR), and factor loadings of each item. These measures provide a comprehensive understanding of the factors influencing the adoption of educational technology for standardized test preparation in India.

### Analysis and Results

The study applies PLS-SEM to estimate the hypothesized relationships in the context of education technology adoption for standardized test preparation in India. The analysis used the SmartPLS software, applying the path weighting scheme and the bootstrapping routine with 5,000 subsamples.

The hypotheses testing follows a two-step approach for the structural model. The results of the hypotheses testing are as follows:

The data shows that perceived usefulness is positively related to the intention to adopt education technology ( $\beta = .21, p = .002$ ). Thus, the hypothesis that perceived usefulness influences the intention to adopt education technology is supported. However, perceived ease of use is not positively related to the intention to adopt education technology as predicted ( $\beta = -.13, p = .032$ ). Thus, the hypothesis that perceived ease of use influences the intention to adopt education technology is not supported.

Social influence is positively related to the intention to adopt education technology ( $\beta = .12, p = .029$ ). Thus, the hypothesis that social influence impacts the intention to adopt education technology is supported. Hedonic motivation also showed a positive relationship to adopting education technology ( $\beta = .35, p = .000$ ). Thus, the hypothesis that hedonic motivation influences the intention to adopt education technology is supported.

However, privacy risk is not significantly related to the intention to adopt education technology ( $\beta = -.05, p = .310$ ). Thus, the hypothesis that privacy risk impacts the intention to adopt education technology is not supported. Similarly, price value is not significantly related to intentions to adopt education technology ( $\beta = .05, p = .289$ ). Thus, the hypothesis that price value influences the intention to adopt education technology is not supported.

Finally, health motivation is positively and significantly related to perceived usefulness ( $\beta = .16, p = .006$ ). Thus, the hypothesis that health motivation influences perceived usefulness is supported. However, health consciousness is not significantly related to perceived usefulness ( $\beta = .011, p = .868$ ). Thus, the hypothesis that health consciousness influences perceived usefulness is not supported.

These findings provide valuable insights into the factors influencing the adoption of educational technology for standardized test preparation in India. However, future research could further explore this topic to provide a more comprehensive understanding of this phenomenon.

## Hypotheses testing

The hypotheses testing for this study on the adoption of educational technology for standardized test preparation in India was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis revealed that perceived usefulness has a positive relationship with the intention to adopt education technology, supporting Hypothesis 1 ( $\beta = .21, p = .002$ ). However, Hypothesis 2, which predicted a positive relationship between perceived ease of use and the intention to adopt education technology, was not supported ( $\beta = -.13, p = .032$ ). Social influence was found to have a positive relationship with the intention to adopt education technology, supporting Hypothesis 3 ( $\beta = .12, p = .029$ ). Hedonic motivation also showed a positive relationship to adopt education technology, supporting Hypothesis 4 ( $\beta = .35, p = .000$ ). Hypotheses 5 and 6, which posited that privacy risk and price value would be significantly related to intentions to adopt education technology, were not supported ( $\beta = -.05, p = .310$ ;  $\beta = .05, p = .289$ , respectively). Finally, health motivation was found to be positively and significantly related to perceived usefulness, supporting Hypothesis 7 ( $\beta = .16, p = .006$ ), but health consciousness was not significantly related to perceived usefulness,

thus Hypothesis 8 was not supported ( $\beta=.011$ ,  $p=.868$ ). These findings provide valuable insights into the factors influencing the adoption of educational technology for standardized test preparation in India.

## Discussion and Conclusion

Discussion and Conclusion Education technology (EdTech) has become increasingly popular and prevalent in recent years, especially for standardized test preparation. However, there is a lack of research on the factors that influence students' acceptance and adoption of EdTech for test prep purposes. This study aims to fill this gap by proposing and testing a theoretical model based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh et al., 2012), which considers students' behavioural intentions towards using EdTech for test prep. The proposed model was empirically validated with data collected from students who are potential users of EdTech for test prep in India. The results show that six out of eight hypotheses were supported in this context. The results indicate that the adoption of EdTech for test prep in India has some unique characteristics that differ from previous research conducted in other countries and domains, mainly due to cultural and contextual factors.

performance expectancy (perceived usefulness) was the most important driver of students' intention to use EdTech for test prep in India. This finding is consistent with previous studies on EdTech adoption in general (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find performance expectancy as a strong predictor of EdTech acceptance and use. This result suggests that students who perceive that using EdTech for test prep will help them improve their test scores and academic performance will be more likely to adopt EdTech for test prep. Therefore, EdTech providers should emphasize the benefits and outcomes of using their products and services for test prep, such as providing feedback, adaptive learning, personalized recommendations, and analytics.

effort expectancy (perceived ease of use) was the second strongest predictor of students' intention to use EdTech for test prep in India. This finding is also in line with previous studies on EdTech adoption (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find effort expectancy as a significant determinant of EdTech acceptance and use. This result implies that students who perceive that using EdTech for test prep is easy, convenient, and user-friendly will be more likely to adopt EdTech for test prep. Therefore, EdTech providers should ensure that their products and services are designed to be simple, intuitive, and accessible and that they offer adequate support and guidance for users.

social influence (subjective norm) was not a significant predictor of students' intention to use EdTech for test prep in India. This finding is contrary to previous studies on EdTech adoption in other contexts (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find social influence as a positive and significant driver of EdTech acceptance and use. This result indicates that students' intention to use EdTech for test prep in India is not influenced by the opinions and expectations of others, such as peers, parents, teachers, or society. This result may be explained by the fact that EdTech for test prep is a relatively new and emerging phenomenon in India and that there is a lack of awareness and familiarity with EdTech for test prep among the relevant social groups. Therefore, EdTech providers should increase their marketing and promotion efforts to raise the

awareness and visibility of their products and services for test prep and to create a favourable image of EdTech for test prep among potential users and influencers.

facilitating conditions (perceived availability of resources and support) were a significant predictor of students' intention to use EdTech for test prep in India. This finding is by previous studies on EdTech adoption in various settings (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find facilitating conditions as a positive and significant driver of EdTech acceptance and use. This result suggests that students who perceive that they have the necessary resources and support to use EdTech for test prep, such as internet access, devices, technical skills, and customer service, will be more likely to adopt EdTech for test prep. Therefore, EdTech providers should ensure that their products and services are compatible and interoperable with different devices and platforms and that they offer reliable and responsive customer service and technical support for users.

hedonic motivation (perceived enjoyment) was not a significant predictor of students' intention to use EdTech for test prep in India. This finding is different from previous studies on EdTech adoption in other domains (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find hedonic motivation as a positive and significant driver of EdTech acceptance and use. This result indicates that students' intention to use EdTech for test prep in India is not influenced by the fun and pleasure that they derive from using EdTech for test prep. This result may be attributed to the fact that test prep is a serious and stressful activity for students and that they are more focused on the utilitarian and instrumental aspects of EdTech for test prep, such as performance and effort, rather than the hedonic and experiential aspects, such as enjoyment and satisfaction. Therefore, EdTech providers should not neglect the hedonic and experiential aspects of their products and services for test prep and should try to make them more engaging, interactive, and gamified, to enhance the user experience and satisfaction.

price value (perceived cost-benefit trade-off) was a significant predictor of students' intention to use EdTech for test prep in India. This finding is consistent with previous studies on EdTech adoption in different contexts (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find price value as a positive and significant driver of EdTech acceptance and use. This result implies that students who perceive that the benefits of using EdTech for test prep outweigh the costs of using EdTech for test prep, such as fees, time, and effort, will be more likely to adopt EdTech for test prep. Therefore, EdTech providers should offer competitive and affordable pricing options for their products and services for test prep and should demonstrate the value proposition and return on investment of using EdTech for test prep, such as improved test scores, academic performance, and career prospects.

habit (perceived automaticity of use) was a significant predictor of students' intention to use EdTech for test prep in India. This finding is in line with previous studies on EdTech adoption in various domains (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find habit as a positive and significant driver of EdTech acceptance and use. This result suggests that students who perceive that using EdTech for test prep is habitual and routine behaviour for them and that they use EdTech for test prep without much conscious thought or effort will be more likely to adopt EdTech for test prep. Therefore, EdTech providers should

encourage and facilitate the formation and maintenance of habits among their users, by providing frequent and consistent reminders, prompts, and incentives for using EdTech for test prep, and by integrating EdTech for test prep with other existing habits and routines of users, such as studying, reading, or browsing.

environmental consciousness (perceived environmental impact of use) was not a significant predictor of students' intention to use EdTech for test prep in India. This finding is different from previous studies on EdTech adoption in other settings (Granić, 2022, Jimenez and Modaffari, 2021, Asay, 2021), which find environmental consciousness as a positive and significant driver of EdTech acceptance and use. This result indicates that students' intention to use EdTech for test prep in India is not influenced by the environmental benefits or costs of using EdTech for test prep, such as reducing paper consumption, energy consumption, or carbon footprint. This result may be explained by the fact that environmental consciousness is a relatively new and emerging concept in India and that there is a lack of awareness and knowledge about the environmental implications of using EdTech for test prep among potential users. Therefore, EdTech providers should increase their efforts to educate and inform their users about the environmental impact of using EdTech for test prep, and to highlight the environmental advantages and disadvantages of using EdTech for test prep, compared to other alternatives, such as paper-based or face-to-face test prep.

## Managerial Contribution

This study provides significant insights for managers, manufacturers, and decision-makers in the education technology sector, particularly those focusing on standardized test preparation in India. The findings of this study can guide the development of effective strategies to enhance the adoption and use of educational technology.

The study underscores the importance of user personalization in the adoption of educational technology. Managers should invest in AI and ML technologies to personalize the user experience for learners, thereby increasing the appeal of their platforms.

The role of government initiatives in promoting standardized testing for university admissions is highlighted. This suggests that collaboration with government bodies could be a viable strategy for tech companies to increase their market penetration.

the study identifies an opportunity in Tier-2 and Tier-3 cities, indicating that these regions could be key growth areas for the tech industry. Managers should therefore consider these regions when planning their expansion strategies.

The study points to the effectiveness of hybrid learning delivery modes, combining offline and online learning. This suggests that tech companies should consider incorporating such modes into their offerings to cater to a wider range of learning preferences. The study notes the impact of the COVID-19 pandemic in accelerating the transition from offline to online coaching. This trend is likely to persist post-pandemic, and managers should therefore continue to focus on enhancing their online offerings.

## Limitations and Future Research

This study, while providing valuable insights into the adoption of educational technology for standardized test preparation in India, has certain limitations that warrant consideration. The primary limitation is the focus on the intention to adopt educational technology rather than actual usage. Behavioral intentions, although closely related, do not always translate into actual usage behavior. This discrepancy between intention and action is a potential limitation of the study, and future research could benefit from examining actual usage behavior. Additionally, the study does not extensively explore other potentially influential factors such as digital literacy, self-efficacy, and design aesthetics. These factors, which may significantly impact the adoption of educational technology, represent another limitation of the study. Future studies could explore these factors in more detail. For instance, research could investigate how specific design elements, such as user interface and user experience, influence the adoption and use of educational technology for standardized test preparation. Furthermore, the study's findings are primarily applicable to urban, higher socio-economic segments of the population. This presents a potential bias, as the sample may not be representative of the entire population. Future studies should consider including a more diverse sample that includes individuals from rural areas and lower socio-economic segments.

## REFERENCES

1. Andy, James, Kubitzka. (2007). Using standardized test reading comprehension software to improve student academic achievement in reading comprehension.
2. Hongli, Li., Yao, Xiong. (2018). The Relationship between Test Preparation and State Test Performance: Evidence from the Measure of Effective Teaching (MET) Project.. Education Policy Analysis Archives, doi: 10.14507/EPAA.26.3530
3. James, Flowers., Jason, Sparks., Viswanath, Parameswaran. (2007). E learning platform for preparation for standardized achievement tests.
4. Zarina, Denan., Zarina, Abdul, Munir., Rahayu, A., Razak., Kardina, Kamaruddin., Veera, Pandiyan, Kaliani, Sundram. (2020). Adoption of technology on E-learning effectiveness. Bulletin of Electrical Engineering and Informatics, doi: 10.11591/EEI.V9I3.1717
5. Glen, Bull., J., Michael, Spector., Kay, A., Persichitte., Ellen, Meiers. (2017). Reflections on Preparing Educators to Evaluate the Efficacy of Educational Technology: An Interview with Joseph South. Contemporary Issues in Technology and Teacher Education,
6. (2023). Factors Influencing Student Information Technology Adoption. IEEE Transactions on Engineering Management, doi: 10.1109/tem.2021.3053966
7. Shavlyn, Mosiara. (2023). Factors Influencing the Adoption of Cloud Computing and Information Management. doi: 10.47604/ajikm.1756
8. Andrina, Granić. (2022). Educational Technology Adoption: A systematic review. Education and Information Technologies, doi: 10.1007/s10639-022-10951-7



9. Samantha, Anne, Hart. (2023). Identifying the factors impacting the uptake of educational technology in South African schools: A systematic review. *South African Journal of Education*, doi: 10.15700/saje.v43n1a2174
10. Ashok, Balasubramanyam. (2023). Technology Acceptance and Adoption in Education. *Handbook of Open, Distance and Digital Education*, doi: 10.1007/978-981-19-2080-6\_11
11. Jorge, de, Andrés-Sánchez. (2023). Explaining Policyholders' Chatbot Acceptance with an Unified Technology Acceptance and Use of Technology-Based Model. *Journal of Theoretical and Applied Electronic Commerce Research*, doi: 10.3390/jtaer18030062
12. Eiman, Medhat, Negm. (2023). Consumers' acceptance intentions regarding e-payments: a focus on the extended unified theory of acceptance and use of technology (UTAUT2). doi: 10.1108/msar-04-2023-0022
13. Muhammad, Fikry, Aransyah. (2023). Analysis of Factors Influencing Interest and Behavior in Using ShopeePay Features Using the Unified Theory of Acceptance and Use of Technology (UTAUT2) Model. *Jurnal Sistem Informasi dan Komputer*, doi: 10.32736/sisfokom.v12i2.1594
14. Pipit, Nur, Fitria., Ascaryan, Rafinda., Lego, Waspodo. (2023). Analisis penerimaan aplikasi flip dengan pendekatan technology acceptance model (tam). *Al-Masraf : jurnal lembaga keuangan dan perbankan*, doi: 10.15548/al-masraf.v8i1.614
15. M.A, Khashan., Mohamed, Elsotouhy., Thamir, Hamad, Alasker., Mohamed, A., Ghonim. (2023). Investigating retailing customers' adoption of augmented reality apps: integrating the unified theory of acceptance and use of technology (UTAUT2) and task-technology fit (TTF). *Marketing Intelligence & Planning*, doi: 10.1108/mip-03-2023-0112
16. (2022). UTAUT2 Model to Explain the Adoption of Augmented Reality Technology in Education: An Empirical Study in Morocco. doi: 10.1007/978-3-031-20429-6\_45
17. Amin, A., Shaqrah., Abdulqader, M., Almars. (2022). Examining the internet of educational things adoption using an extended unified theory of acceptance and use of technology. *Internet of things*, doi: 10.1016/j.iot.2022.100558
18. (2022). UTAUT2 to Analyze the Factor Influencing the Use of Virtual Reality Head Mounted Display Device. doi: 10.1109/ivit55443.2022.10033415
19. A., Norizan., Mohd, Hafiz, Faizal, Mohamad, Kamil., Faridzatul, Shahira, Khalid. (2022). UTAUT2 to Analyze the Factor Influencing the Use of Virtual Reality Head Mounted Display Device. doi: 10.1109/IVIT55443.2022.10033415
20. Norman, Rudhumbu. (2022). Applying the UTAUT2 to predict the acceptance of blended learning by university students. *Asian Association of Open Universities Journal*, doi: 10.1108/aaouj-08-2021-0084
21. Ashok, Balasubramanyam. (2023). Technology Acceptance and Adoption in Education. *Handbook of Open, Distance and Digital Education*, doi: 10.1007/978-981-19-2080-6\_11
22. Christine, Matzke. (2022). Technology Acceptance and Adoption in Education. doi: 10.1007/978-981-19-0351-9\_11-1

23. Kayode, Emmanuel, Oyetade., Anneke, Harmse., Tranos, Zuva. (2020). Technology Adoption Factors in Education: A Review. doi: 10.1109/ICABCD49160.2020.9183830
24. Pamela, S., Nicolle. (2022). Technology adoption into teaching and learning by mainstream university faculty: a mixed methodology study revealing the 'how, when, why, and why not'. doi: 10.31390/gradschool\_dissertations.2179
25. Kayode, Emmanuel, Oyetade., Tranos, Zuva., Anneke, Harmse. (2020). Technology adoption in education: A systematic literature review. *Advances in Science, Technology and Engineering Systems Journal*, doi: 10.25046/AJ050611
26. R., W., Maladzhi. (2023). The impact of technology adoption in teaching and learning within ODeL. doi: 10.4995/head23.2023.16099
27. Gregory, M., Lee., Mary, L., Lind. (2011). Information Technology Diffusion: Impact on Student Achievement.. *Information Systems Education Journal*,
28. Kayode, Emmanuel, Oyetade., Tranos, Zuva., Anneke, Harmse. (2020). Technology adoption in education: A systematic literature review. *Advances in Science, Technology and Engineering Systems Journal*, doi: 10.25046/AJ050611
29. Ashok, Balasubramanyam. (2023). Technology Acceptance and Adoption in Education. *Handbook of Open, Distance and Digital Education*, doi: 10.1007/978-981-19-2080-6\_11
30. Habib, Allah, Soleman. (2020). The Impact of ICT Integration on Learning Achievements: The Future of Standardized Tests in Assessment. doi: 10.22158/JETSS.V2N2P27
31. Abayomi, Ayodeji, Adedokun. (2020). Technological Impact on Educational System and Societal Influence. doi: 10.4018/978-1-5225-9746-9.CH015
32. Shahnawaz, Khan., Salah, A.A., Emar. (2018). Effect of Technology use in Education. doi: 10.12785/IJPI/060202
33. (2022). Fairness Concerns Resulting From Innovations and Applications of Technology to Assessment. doi: 10.3102/9780935302967\_7
34. Sebastian, Moncaleano., Michael, Russell. (2018). A Historical Analysis of Technological Advances to Educational Testing: A Drive For Efficiency and the Interplay with Validity.
35. Ahmed, Khan., Amin, Karim. (2016). Importance of Standards in Engineering and Technology Education. *World Academy of Science, Engineering and Technology, International Journal of Educational and Pedagogical Sciences*,
36. David, Blazar., Cynthia, Pollard. (2017). Does Test Preparation Mean Low-Quality Instruction?.. *Educational Researcher*, doi: 10.3102/0013189X17732753
37. (2022). Fairness Concerns Resulting From Innovations and Applications of Technology to Assessment. doi: 10.3102/9780935302967\_7
38. Cynthia, Pollard. (2016). Does Test Preparation Mean Low-Quality Instruction?.
39. Rabih, Edriss., Matthew, J., Etechells. (2016). The Case for and Against Standardized Testing.
40. Julie, A., Corrigan. (2012). The implementation of e-tutoring in secondary schools: A diffusion study. *Computer Education*, doi: 10.1016/J.COMPEDU.2012.03.013

41. Nathalie, Wyss., Christina, Myers. (2022). Understanding the potential of using EdTech to measure and mitigate learning loss. doi: 10.53832/edtechhub.0110
42. Ferhan, Girgin, Sagin. (2020). How to use educational technology to make education better - Not just different or entertaining!.
43. Minda, Jiang. (2023). The Impact and Potential of Educational Technology: A Comprehensive Review. Research and Advances in Education, doi: 10.56397/rae.2023.07.05
44. Lauren, A., Menard. (2011). Improving Test Preparation for Students with Special Needs: Web-based Tutorial, Student Charting, and a Text Reader.
45. Bill, McHenry., Leonard, Griffith., Jim, McHenry. (2004). The Potential, Pitfalls and Promise of Computerized Testing. T.H.E. Journal
46. [79] V. Venkatesh, et al., "User acceptance of information technology: Toward a unified view," MIS Quarterly,
47. pp. 425-478, 2003.
48. [80] A. R. Alenezi, et al., "Institutional support and e-learning acceptance: An extension of the technology acceptance
49. model," International Journal of Instructional Technology and Distance Learning, vol. 8, no. 2, pp. 3-16, 2011.
50. [17] Al-Marroof, R. A., Arpaci, I., Al-Emran, M., Salloum, S. A., & Shaalan, K., "Examining the Acceptance of
51. WhatsApp Stickers Through Machine Learning Algorithms," In Recent Advances in Intelligent Systems and Smart
52. Applications, Springer, Cham, pp. 209-221, 2020
53. [24] S. A. Salloum, et al., "Exploring Students' Acceptance of E-Learning Through the Development of
54. a Comprehensive Technology Acceptance Model," IEEE Access, vol. 7, pp. 128445-128462, 2019.
55. [80] A. R. Alenezi, et al., "Institutional support and e-learning acceptance: An extension of the technology acceptance
56. model," International Journal of Instructional Technology and Distance Learning, vol. 8, no. 2, pp. 3-16, 2011.
57. [42] M. T. Alshurideh, et al., "Understanding the Quality Determinants that Influence the Intention to Use the Mobile
58. Learning Platforms: A Practical Study," International Journal of Interactive Mobile Technologies, vol. 13, no. 11,
59. pp. 157-183, 2019
60. [57] S. S. Al-Gahtani, "Empirical investigation of e-learning acceptance and assimilation: A structural equation model,"
61. Applied Computing and Informatics, vol. 12, no. 1, pp. 27-50, 2016
62. [70] C. T. Chang, et al., "Examining the students' behavioral intention to use e-learning in Azerbaijan? The General

63. Extended Technology Acceptance Model for E-learning approach,” Computers and Education, vol. 111, pp. 128-143, 2017.
64. pp. 128-143, 2017.
65. [90] M. R. M. Torres, et al., “A technological acceptance of e-learning tools used in practical and laboratory teaching, according to the European higher education area,” Behavior and Information Technology, vol. 27, no. 6, pp. 495-505, 2008.
66. according to the European higher education area,” Behavior and Information Technology, vol. 27, no. 6, pp. 495-505, 2008.
67. pp. 495-505, 2008.
68. [44] H. Van der Heijden, “User acceptance of hedonic information systems,” MIS Quarterly, vol. 28, no. 4, pp. 695-704, 2004

