

The Impact Of Smart Devices To Address The Difficulty Of Understanding In Light Of (TPB) Theory From The Perspective Of Secondary School Students

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ABSTRACT

The study aimed to identify the impact of smart devices according to organizational agility management to address the difficulty of understanding in light of the Theory of Planned Behavior (TPB) from the perspective of secondary school students. The study followed the descriptive analytical approach (survey) because it suits the nature of the subject of the field study. The study population in the second semester of the academic year (2023) reached (8646) male and female secondary school students in the city of Hail. To achieve the objectives of the study, the study developed an electronic questionnaire for the sample members, and it was applied after ensuring its validity and reliability on a sample of (350) male and female students. The study reached a set of results, the most important of which are: There is a positive correlation between the student's subjective standards and his intentions to implement behavior that enhances the use of smart devices to address the difficulty of understanding, and there is a direct relationship between the perceived behavioral control to develop the use of smart devices and the behavioral intention in smart devices to practice behaviors that enhance concepts to address the difficulty. Comprehension: The study concluded that lack of confidence and lack of promotion of the trend towards smart devices to enhance the treatment of comprehension difficulties are two of the main obstacles to the use of smart devices in secondary schools. Therefore, removing these obstacles would enhance the concepts of addressing the difficulty of understanding through smart devices and benefiting from them.

Keywords: smart devices, organizational agility, difficulty in understanding, theory of planned behavior (TPB)

Introduction

Education has witnessed qualitative leaps in teaching methods and means used simultaneously with the emergence and development of the digital communication revolution and smart devices, and the accompanying flow of information. In light of this, a variety of digital education systems have emerged based on the employment of smart electronic devices, which are among the most prominent educational means that achieve a positive role for learners, including good educational materials and purposeful educational activities. Traditional smart devices share this feature: such as wooden compositions and cards, as well as smart devices with different devices and programs.

With the technological revolution we are experiencing and the proliferation of desktop and laptop computers, game consoles, tablets, hands-offs, and smartphones; smart devices are becoming more and more present in the lives of young and old alike (Nikolopoulou, 2020). From this point of view, smart devices are an effective tool to promote collaborative learning where students share their knowledge and experiences with each other (Iqbal & Bhatti, 2020). It should be noted that smart devices are important programs to attract the attention

of students through the applications they contain and the distinctive programs, whether interactive drawings, entertainment, electronic games, and others ([Al-Khalidi, 2022](#)).

([Al-Rubaian and Al-Mahtab, 2022](#)) pointed out that the basic model (TAM) is the perceived usefulness (PU). PU is the percentage ratio of the student's belief that the use of technology would enhance the quality of teaching and performance. There is also perceived ease of use (PEU) associated with the measure of student intent to use smart devices. Despite the PU and PEU of TAM, the complex phenomena of technology adoption, particularly those involving its usage in educational and classroom contexts, have not been able to be identified or explained by the theory, according to its detractors ([Raja & Nagasubramani, 2018](#)). According to ([Al-Qaysi, et al., 2020](#)), the purpose of the technology acceptance model is to explain the factors that influence user behaviour with regard to a variety of computing approaches.

On the other hand, ([TPB](#)) is a psychosocial theory that emphasizes the rule of intention before performing the behaviour while also addressing circumstances in which the individual does not control all the factors that affect the actual functioning of the behaviour. It is about the relationship between attitudes and behaviour. According to this new theory, an individual's ability to regulate their behaviour and the intensity of their intention to engage in that behaviour are both inversely correlated with the incidence of real behaviour. ([Bosnjak, et al., 2020](#)).

In the context, organizational agility is the ability of schools to reshape their strategies in their current environment through constant anticipation and adaptation to the requirements of digital communication and modern technological changes ([Harsch & Festing, 2020](#)). Based on the above, it becomes necessary for schools in the city of Hail to employ the use of smart devices to address the difficulty of comprehension among High school students according to ([TPB](#)). Through this use, these schools will be able to deal positively with new scientific developments and benefit from them. Therefore, the responsibilities of schools are increasing in responding to the challenges of these developments related to smart devices and working to develop them and absorb their applications, as schools should be more diverse in their subjects in line with modern education styles. In light of the policies proposed in the educational sphere of the Kingdom of Saudi Arabia related to the need to develop and modernize schools as indicated by the Kingdom of [Saudi Arabia 2030 vision](#), this means that the research identifying the reality of using smart devices to address the difficulty of comprehension among high school students in schools in the city of Hail in light of ([TPB](#)) has its justifications, so that its outputs are capable of creativity, innovation and keeping pace with scientific and technological developments.

Problem of the Study

Addressing students' comprehension difficulties is one of the concerns of society. Hence, there was a desire from the two researchers to know the impact of smart devices and ways to enhance their concepts and values among the most segments using these games. Therefore, the researchers tried to reveal the contents of these games of knowledge, skills, values and trends, which in turn lead to contribute to addressing the difficulty of comprehension and directing the behavior associated with this concept. As a result, this study was an attempt to reveal the impact of smart devices to address the difficulty of comprehension for male and female students through their impact on raising their self-efficacy, their intentions to practice supportive behaviors which support the use of smart devices and the extent of their control over these desired behaviors in the light of the of (TAM) to address the difficulty of comprehension later. The ([TPB](#)) theory highlights the rule of having an intention before acting, as well as the relationship between actual action and an individual's level of control over both his conduct and the efficacy of his intentions, both of which are directly influenced by the degree of his self-efficacy consequently.

The current study also comes in response to the recommendations of some previous studies to conduct more studies to determine the factors affecting the effectiveness of organizational agility in employing smart devices in education and its relationship to the actual performance of students in using these devices, such as the study of ([Rademakers, et al., 2019](#)) when they pointed out the importance of organizational agility in terms of its dimensions to create a methodological framework that helps in employing smart devices in schools, and the study of ([Wahyuni, et al., 2020](#)) who indicated that organizational agility affects the processes of employing smart devices in education in terms of quality and reliability, and the study of ([Wang, et al., 2019](#)) which revealed the

impact of organizational agility on students' actual performance; It was found that there is a positive, statistically significant relationship between organizational agility and the actual performance of students in using smart devices.

Questions of the study

Based on the above, the main question of the study problem is as follows:

What is the impact of using smart devices according to organizational agility management to address the difficulty of understanding in light of the Theory of Planned Behavior (TPB) from the perspective of secondary school students? The following sub-questions branch out from this question:

1. Is there a positive correlation between using smart devices and the attitude toward putting into practice improved behaviors to use smart technologies to treat comprehension issues are positively correlated?
2. Is there a positive correlation between Using Smart Devices and Subjective Norms are positively correlated?
3. Is there a positive correlation between perceived behavioral control of smart device use and perceived enhanced usefulness of smart devices?
4. Is there a positive correlation between the attitude to develop the use of smart devices and the Behavioral Intention of Smart Devices to practice behaviors that reinforce the concepts of addressing the difficulty of comprehension?
5. Is there a positive correlation between a student's subjective norms and intent to adopt increased behavior to employ smart gadgets to address comprehension problems are positively correlated?
6. Is there a positive correlation between perceived behavioral control to develop the use of smart devices and Behavioral Intention in Smart Devices to practice behaviors that reinforce concepts to address difficult comprehension?
7. Is there a positive correlation between organizational agility requirements and the use of smart devices in schools?

Objectives of the study

1. Identifying the positive correlation between using smart devices and the attitude toward putting into practice improved behaviors to use smart technologies to treat comprehension issues are positively correlated.
2. Identifying the positive correlation between Using Smart Devices and Subjective Norms are positively correlated.
3. Identifying the positive correlation between perceived behavioral control of smart device use and perceived enhanced usefulness of smart devices.
4. Identifying the positive correlation between the attitude to develop the use of smart devices and the Behavioral Intention of Smart Devices to practice behaviors that reinforce the concepts of addressing the difficulty of comprehension.
5. Identifying the positive correlation between a student's subjective norms and intent to adopt increased behavior to employ smart gadgets to address comprehension problems are positively correlated.

6. Identifying a positive correlation between perceived behavioral control to develop the use of smart devices and Behavioral Intention in Smart Devices to practice behaviors that reinforce concepts to address difficult comprehension.
7. Identifying the positive correlation between organizational agility requirements and the use of smart devices in schools.

Significance of the study

1. Finding effective mechanisms and more effective means to address comprehension difficulty.
2. Promoting the objectives of addressing the difficulty of comprehension by formulating clear and precise pedagogical standards for smart devices.
3. Attempting to uncover the impact of smart devices to address the difficulty of comprehension being innovations with a significant impact on the education and science.
4. Making an effort to address the understanding issues among High school pupils in the Saudi Arabian city of Hail.
5. The results of the study may reveal the ability of smart devices to address comprehension difficulty, and influence the direction of students' behavior and future trends towards it.
6. Determining organizational agility requirements and their contribution to employing smart devices in schools.

Delimitations of the study

The objective of the study was to try to detect the impact of using smart devices to address the difficulty of comprehension among High school students in Hail schools in light of the theory of (TPB) theory, and the study was applied in High schools in the city of Hail, Saudi Arabia in 2023.

Terms

Smart Devices: They are a group of mobile phones, tablets and devices that contain programs through which learning skills can be acquired. These devices contain advanced operating systems, the most important of which are Android and IOS (Papastergiou, et al., 2021). They were described by (Nikolopoulou, 2020) as wired or wireless electronic gadgets that might do autonomous processing and connect to other devices to share data.

Organizational Agility: Organizational agility is a strategic approach to increase the cognitive capacity, so that it helps discover environmental changes and their repercussions on the schools, and find ways to provide an appropriate response to these changes (Walter, 2021).

Comprehension Difficulty: It is the student's inability to understand the meanings of words, phrases and sentences. The difficulty of comprehension is the difficulty of writing (Dysgraphia) this term refers to the student's inability to write or that he cannot think while writing, attention deficit disorder (ADD) represented in distraction of mind and the great sensitivity to external stimuli, and the difficulty of arithmetic (Dyscalculia) represented by the inability to acquire arithmetic skills, in addition to the difficulty of movement (Dyspraxia), which means the student's inability to coordinate and control simple movements such as writing, spelling, or other complex movements as running and jumping (Cheah, 2020).

Theory of Planned Behavior (TPB): it is concerned with the ability of an individual that is commensurate with his motivation to control his behavior in order to achieve and accomplish that behavior (Abbasi, et al., 2021). As (Meng and Choi, 2020) have pointed out, the (TPB) theory stems from the person's ability to control his or her behavior. Commensurate with its self-efficacy, the importance of (TPB) theory lies in the fact that it provides an analysis of human behavior that helps in understanding how a specific behavior is formed.

Methodology

The researcher relied in this study on the descriptive approach for its suitability to the nature of the subject of the study, and this approach helps to shed light on the problem of the study, through the description and analysis of the impact of smart devices in addressing the difficulty of comprehension on the Behavioral Intention in Smart Devices of High school students in the light of (TAM) and ([TPB](#)) theory.

Study Sample

The total study population consisted of (8646) High school students in the city of Hail in the academic year (2023). This number is issued by the statistics of the Hail Education Department, and they are distributed over (53) High schools. The study sample included (350) male and female students who were selected by random simple stratified method and they represent 40% of the original community targeted by the study ([Stephen Thompson's equation, 2022](#)).

Study Instrument

The researcher used the questionnaire as a suitable instrument for the nature of the study. ([Dabab and Barwais, 2019](#)). The questionnaire included (25) items for five variables (Perceived Usefulness in smart devices - attitude - Subjective Norms - Perceived Behavioral Control - Behavioral Intention in Smart Devices) to measure the impact of smart devices to address the difficulty of comprehension on the Behavioral Intention in Smart Devices of High school students in light of ([TPB](#)) theory.

Literature Review

The tremendous progress the world has witnessed in the field of information technology, has led to the development of many digital communication mechanisms and more technological means represented by smart devices. Smart devices represent a technological revolution that has transformed the last features of traditional life into modernity, and educational systems have benefited from the development in the field of smart devices.

It is worth noting that smart devices have created a gap in the reality of educational systems, as these systems have witnessed a positive reflection on the educational process in schools and the ways school leaders deal with teachers and collaborating machines in the educational system. ([Oleksiuk & Oleksiuk, 2020](#)) pointed out that the development of smart device employment environments necessitated the educational system to look for all means to improve the educational process.

On the other hand, the organizational agility approach is one of the modern administrative approaches that showed the weak ability of many educational institutions to find high-quality outputs ([Walter, 2021](#)). From this aspect, the Lehigh Report relative to Lehigh University in Pennsylvania, USA, showed that the rate of changes in the work environment increased by a higher rate than the rates required for competition. The report called for employing new strategies, systems and methods of work that enable institutions, including education, to employ new technology in learning processes. The report emphasized organizational agility because it meets the needs of schools, students, teachers, and administrative staff in processes of change ([Shami and Nastiezaie, 2019](#)).

According to the above considerations, the literature supports the need to apply smart devices and use them to address the difficulty of understanding among students in light of theories that touched on modern technology. The study of ([Guner and Acarturk, 2020](#)) indicated that the TAM technology acceptance model is based on variables related to the perceived usefulness of and ease of use. ([Al-Khalidi, 2022](#)) study also showed that employing smart devices increases students' cognitive processes in different subjects. In the same context, the study of ([Oleksiuk and Oleksiuk, 2020](#)) Smart devices help in the processes of interpreting behavior. On the other hand, the study of ([Al-Rubaian and Al-Mahtab, 2022](#)) confirmed that smart devices help measure the student's intention for actual use in the educational process. The results of the ([Nikolopoulou, 2020](#)) study also indicated that smart devices have an impact on enhancing the educational process for students.

On the other hand, previous studies show the importance of organizational agility and its link in the processes of employing technology, as the (Rademakers, et al., 2019) study indicated the importance of organizational agility in terms of its dimensions to form a systematic framework that helps in employing smart devices in schools. The results of the (Wahyuni, et al., 2020) study also showed that organizational agility has a clear impact on the processes of characterizing the application of technology mechanisms in education. In the same context, the study of (Wahyuni, et al., 2020) indicated that organizational agility affects the recruitment processes of smart devices in terms of quality, reliability and flexibility of recruitment processes. While the study of (Wang, et al., 2019) showed the impact of organizational agility on performance, one of the results of the study is that there is a significant positive relationship between organizational agility and the actual performance of students in the use of smart devices.

From the above considerations, the results of previous studies show that perceived ease of use correlates with actual use more strongly than the perceived usefulness variable with actual use, which indicates that perceived ease of use variable does not precede the perceived usefulness variable. Previous studies have also shown that there is an impact of smart devices in the process of enhancing learning, in addition to the ability to measure students' intention to learn.

Discussion and results

1- Validity

The significant scores of the correlation coefficient values were used to calculate the correlation coefficients among the total scores for each study dimension. The methodology for determining the validity of internal consistency is demonstrated in the following table.

Table (1) Pearson correlation coefficients

Dimensions	Correlation Coefficient	Significance
Perceived Usefulness in smart devices	0.81**	0.000
Attitude	0.83**	0.000
Subjective Norms	0.73**	0.000
Behavioral Control	0.88**	0.000
Behavioral Intent	0.85**	0.000
Organizational agility	0.79**	0.000

Source: Collected and calculated from questionnaire forms using [SPSS](#).

Table (1): displays strong and statistically significant Pearson's correlation coefficients at the significance level (0.01). This demonstrates the validity of the dimensions' internal consistency.

2- Reliability

The reliability coefficients for the questionnaire are displayed in the following table, which was created using Cronbach's Alpha.

Table (2): Cronbach's Alpha

Dimensions	Cronbach's Alpha
Perceived Usefulness in smart devices	0.85
Attitude	0.81
Subjective Norms	0.79
Perceived Behavioral Control	0.82
Behavioral Intent	0.84
Organizational agility	0.88
Total Reliability	0.90

Source: Collected and calculated from questionnaire forms using [SPSS](#).

Table (2) makes it evident that the overall Cronbach's alpha reliability coefficient was (0.97), which is a high reliability coefficient. This shows that the research tool has a high level of reliability and can be trusted in

the study's field application.

Model Specifications

In order to address the difficulty of comprehension on the Behavioral Intention in Smart Devices of the students in High schools in light of the theory of planned behavior, a complete structural model on the impact of smart devices was drawn based on the reliability results of the measurement models. In order to understand how smart devices can help with comprehension issues, the models have proposed a direct causal relationship between the underlying variables of perceived usefulness in smart devices and attitude, subjective norms, and perceived behavioral control over those subjective variables.

Step One: Structural equation modeling to test a confirmatory factor analysis of the impact of smart devices to address the difficulty of comprehension on the Behavioral Intention in Smart Devices of High school students.

The outcomes were carefully assessed. This was accomplished by evaluating the results of the analysis against a list of suggested criteria. The results showed chi-squared $\chi^2 = 1011.26$, freedom value = 260, TLI value = 0.905 and CFI = 0.92, the result was above 90 score, and RMSEA = 0.094 was an acceptable value.

Step Two: The proposed structural model for the impact of smart devices to address the difficulty of comprehension on the Behavioral Intention in Smart Devices of High school students. By using Structural Equation Modeling (SEM) (Amos, version 20.0) and relying on the gathered data, the hypothesized model was estimated (Pallant, 2020). The sufficiency of the necessary indicators and the accuracy of the parameter estimates were used to assess the model's output. The squared multiple correlation (SMC) was further examined.

The outcomes were thoroughly investigated. This was accomplished by evaluating the results of the analysis against a list of suggested criteria. The outcomes revealed a value of chi-squared $\chi^2 = 1084.893$, degree of freedom value = 0.291, TLI value = 0.899 and CFI = 0.912, the result was above the score of 90, and the value of RMSEA = 0.098 which is an acceptable value (Hair, et al., 2010).

Step Three: The final structural model of the impact of smart devices to address the difficulty of comprehension on the Behavioral Intention in Smart Devices of High school students.

The results showed a value of *chi-squared* $\chi^2 = 1085.898$, degree of freedom value = 0.295, TLI value = 0.917 and CFI = 0.925, the result was above the score of 90, and the value of RMSEA = 0.098 which is an acceptable value. Additionally, RMSEA demonstrated a justifiable error of judgement. The statistical findings confirmed that the data and the presumptive model were consistent, so confirming that the structural model adequately explains the data. Individual parameters were assessed, and shared competencies for the track were estimated because the model was sufficient (Gefen, et al., 2000). The study's hypothetical model was used to assess the estimation of track relationships. The study of the structural equation model is shown in Table (3).

Table (3) structural Model of the Impact of Smart Devices

Parameter	Standardized Estimate	Critical Ratio
Direct effects	-	-
PUEG --> AT	0.053	11.882
PUEG --> PBC	0.039	0.095
PUEG --> SN	0.042	2.477
SN --> BIUEG	0.068	7.140
PBC --> BIUEG	0.128	3.250
AT --> BIUEG	0.039	-2.590

Note: PUEG (Perceived Usefulness in smart devices), AT (Attitude), PBC (Perceived Behavioral Control), SN (Subjective Norms), BIUEG (Behavioral Intention in Smart Devices).

Gefen, D., et al. (2000). Structural equation modeling and regression: Guidelines for research practice, Communications of the association for information systems, 4(1), 1-70.
<http://dx.doi.org/10.17705/1CAIS.00407>

Research Questions

To answer the research questions, the following hypotheses were tested:

Hypothesis (H1): There is a positive correlation between the Perceived Usefulness of using smart devices and the attitude towards implementing enhanced behaviors to use smart devices to address comprehension difficulties.

Multiple linear Regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (4) Results of the Multiple Linear Regression Test

Dependent Variable	Model		ANOVA		Coefficient				
Perceived Usefulness in smart devices	R	R ²	F	Sig F*	Perceived Usefulness	B	S E	T	P value
	0.787	0.818	86.421	0.000	Reinforcing behaviors	0.561	0.167	5.886	0.000

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

It is clear from Table (4) that the PU of using smart devices has greatly affected the attitudes towards implementing enhanced behaviors to use smart devices to address the difficulty of comprehension in the future. Referring to the previous table (3), it is clear that there is a direct positive effect of 0.043. It was also clear that the joint efficiency was statistically significant ($CR > 1.96$) ([Hair, et al., 2010](#)). Thus, the Perceived Usefulness of using smart devices is an important indicator of the attitude towards implementing enhanced behaviors that smart devices will use to address the difficulty of comprehension in the future. Therefore, hypothesis (H1) was accepted ([Heck, et al., 2014](#)).

Hypothesis (H2): There is a positive correlation between the Perceived Usefulness of using smart devices and the Subjective Norms. Multiple linear regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (5) multiple linear regression test

Dependent Variable	Model		ANOVA		Coefficient				
Perceived Usefulness in smart devices	R	R ²	F	Sig F*	Perceived Usefulness	B	S E	T	P value
	0.723	0.713	81.885	0.000	Subjective Norms	0.487	0.081	6.816	0.000

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

It is clear from Table (5) that the benefit of using smart devices has an impact on the subjective norms of High school students with a designed benefit with a unified positive effect. Referring to the previous table (3), it is clear that the joint efficiency is statistically significant ($CR > 1.96$) ([Hair, et al., 2010](#)). Thus, the perceived usefulness of using smart devices is a great indicator of the subjective norms of high school students towards enhancing the processing of comprehension difficulties. Therefore, hypothesis (H0.2) was accepted ([Heck, et al., 2013](#)).

Hypothesis (H3): There is a positive correlation between the Perceived Usefulness of smart devices and enhanced behavioral control of smart device use to address future comprehension difficulties. Multiple linear regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (6) results of the multiple linear regression test

Dependent Variable	Model		ANOVA		Coefficient				
Perceived Usefulness in smart devices	R	R ²	F	Sig F*	Perceived Usefulness	B	S E	T	P value
	0.284	0.311	28.685	0.074	Enhanced Perceived	0.118	0.071	6.355	0.272

**behavioral
control**

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

With a unified direct impact of 0.028, Table (6) clearly shows that there is a slight correlation between the PU of utilizing smart gadgets and Enhanced Perceived Behavioral Control. The estimated parameter value for the hypothesized association between the PU of using smart devices and Enhanced Perceived Behavioral Control is less than 0.30. Referring to the previous Table (3), it is clear that the joint efficiency was non-statistically significant ($CR > 1.96$) ([Gefen, et al., 2000](#)). This means that the PU of using smart devices, and the enhanced perceived behavioral control of smart device use behaviors, cannot predict the behavioral intention to use smart devices to promote the solutions of difficult comprehension problems. Therefore, hypothesis (H3) is not supported:

Hypothesis (H4): There is a positive correlation between the attitude to develop the use of smart devices and the Behavioral Intention in Smart Devices to practice behaviors that reinforce the concepts of addressing the difficulty of comprehension ([Heck, et al., 2022](#)).

Multiple linear regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (7) results of the multiple linear regression test

Dependent Variable	Model		ANOVA		Coefficient				
Perceived Usefulness in smart devices	R	R ²	F	Sig F*	Perceived Usefulness	B	S E	T	P value
	0.285	0.712	23.411	0.389	Behavioral Intention	0.318	0.207	7.389	0.489

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

Table (7) shows a high negative relationship between attitude and behavioral intentions with a unified direct effect. There was also a significant effect of the hypothetical relationship between perceived behavioral control for the development of the use of smart devices and behavioral intentions to use behaviors that reinforce concepts of addressing comprehension difficulty from 0.061. Referring to the previous Table (3), it is clear that the joint efficiency was statistically significant ($CR > 1.96$) and therefore, hypothesis (H4) was rejected because the results showed a negative relationship ([Gefen, et al., 2000](#)).

Hypothesis (H5): There is a positive correlation between a student's subjective norms and intentions to implement enhanced behavior to use smart devices to address comprehension difficulty.

Multiple linear regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (8) results of the multiple linear regression test

Dependent Variable	Model		ANOVA		Coefficient				
Perceived Usefulness in smart phones	R	R ²	F	Sig F*	Subjective Norms	B	S E	T	P value
	0.767	0.738	84.351	0.000	Reinforced Behavior	0.464	0.067	6.386	0.000

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

It is clear from Table (8) that subjective norms have a clear impact on behavioral intentions to implement enhanced behavior to use smart devices to address comprehension difficulty of with a direct and unified positive

effect. Referring to Table 3, it is clear that the joint efficiency is both statistically and practically significant ($CR > 1.96$). Thus, subjective norms are indicative and have a significant impact on behavioral intentions to implement enhanced behavior to use smart devices to address difficulty understanding (Cronk, 2020).

Therefore, we accept hypothesis (H5). This indicates that an individual's subjective norms and aspirations to adopt enhanced behavior to employ smart gadgets to alleviate comprehension issues are positively correlated.

Hypothesis (H6): There is a positive relationship between perceived behavioral control to develop the use of smart devices and Behavioral Intention in Smart Devices to practice behaviors that reinforce concepts to address difficulty comprehension.

Multiple linear regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (9) results of the multiple linear regression test

Dependent Variable	Model		ANOVA		Coefficient				
	R	R ²	F	Sig F*	perceived behavior	B	S E	T	P value
Perceived Usefulness in smart devices	0.689	0.718	79.812	0.000	Behavioral Intention in Smart Devices	0.513	0.078	7.387	0.000

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

It is clear from Table (9) that there is a relationship between joint efficiency and perceived behavioral control to develop the use of smart devices and behavioral intentions. Referring to the previous Table (3), it is clear that there is statistical significance ($CR > 1.96$) (Hair, et al., 2010). The data indicated that perceived behavioral control to develop the use of smart devices had a positive impact on behavioral intentions to practice behaviors that reinforce concepts of addressing comprehension difficulty.

Therefore, the data support hypothesis (H6). The co-efficient values of the track generated by the final model showed only a slight change in the results. Figure 3 shows the final model after removing the track relationship between PUEG and PBC.

Structural equation modeling (SEM) was used in the analysis to display the data and findings. The 5-point Likert scale's average scores varied from 1.35 to 4.52, with standard deviations between 0.612 and 1.488. Amos software (20.0) was used to apply the two-step structural equation modelling software, and after testing the study hypotheses, confirmatory factor analysis was used to validate the five-variable measurement models. Second, it was discovered that the proposed model for the impact of smart devices to address understanding difficulty on the behavioral intention to use smart devices among High school students in Hail was sufficient and coherent with data from the (350) respondents. This was demonstrated by a proposed structural model using an integrated SEM model. The findings were provided in accordance with the study hypotheses, followed by the variance ratios shown in the model. Hypotheses 1, 2, 4, and 5 were accepted while hypothesis 3 was not supported.

Hypothesis (H7): There is a positive correlation between organizational agility requirements and the use of smart devices in schools.

Multiple linear regressions were employed to examine the validity of the hypothesis, and the outcomes were as follows:

Table (10) Results of the Multiple Linear Regression Test

Dependent Variable	Model		ANOVA		Coefficient				
	R	R ²	F	Sig F*	smart devices	B	S E	T	P value
Perceived Usefulness in									

smart devices									
	0.68	0.715	83.112	0.000	organizational	0.389	0.071	4.889	0.000
	9				agility				

Source: Collected and calculated from questionnaire forms using [SPSS, Amos](#).

It is clear from Table (10) that there is a positive correlation between organizational agility requirements and the use of smart devices in schools. Thus, the organizational agility of using smart devices is an important indicator of the attitude towards implementing enhanced behaviors that smart devices will use to address the difficulty of comprehension in the future. Therefore, hypothesis (H7) was accepted.

Results of the study

Through statistical analysis and structural equations modeling (SEM), and the characteristics of the hypothesis testing model, the study reached a set of results as follows:

1. The attitude toward applying enhanced behaviors to use smart devices to alleviate comprehension issues is positively correlated with the perceived usefulness of using them.
2. The Perceived Usefulness of Using Smart Devices and the Subjective Norms are correlated positively.
3. There is no relationship between perceived behavioral control of smart device use to address future comprehension issues and the PU of smart gadgets.
4. There is a positive correlation between the attitude to develop the use of smart devices and the Behavioral Intention in Smart Devices to practice behaviors that reinforce the concepts of addressing the difficulty of comprehension.
5. There is a positive correlation between a student's subjective norms and intentions to implement enhanced behavior to use smart devices to address comprehension difficulty.
6. There is a positive relationship between perceived behavioral control to develop the use of smart devices and Behavioral Intention in Smart Devices to practice behaviors that reinforce concepts to address difficulty comprehension.
7. There is a positive correlation between organizational agility requirements and the use of smart devices in schools.

The research concluded that the lack of trust and lack of promotion of the attitude towards smart devices to enhance the processing of difficult comprehension are major barriers to the use of smart devices in High schools. Therefore, removing these barriers would enhance the concepts of addressing the difficulty of comprehension through smart devices and making use of them. The results seem to support this assumption, as subjective norms and Perceived Behavioral Control were found to influence Behavioral Intention to use smart devices to enhance the processing of difficulty comprehension. Overall, the findings broadened the current comprehension of Behavioral Intention to use Smart Devices beyond the structure of the original planned behavior theory.

Recommendations

Based on the findings of the current study, the researcher recommends the following:

1. The need to use smart devices directed at the stages of public education because of their importance in developing and promoting the concepts of addressing the difficulty of comprehension among learners.
2. Working on training teachers to employ smart devices in their classroom teaching in order to enhance the educational process.
3. Need to provide and develop smart devices, create the appropriate environment for their use, and provide incentives that push teachers to use them in the future.
4. Directing teachers to use smart devices in their school activities to serve the desired goals.

5. Providing the necessary training opportunities to raise the capabilities of teachers on Perceived Behavioral Control, which leads to a positive impact on their intentions to use smart devices and employ them to address the difficulty of comprehension.

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References

- Abbasi, G. A., Kumaravelu, J., Goh, Y. N., & Singh, K. S. D.(2021).Understanding the intention to revisit a destination by expanding the theory of planned behavior (TPB). *Spanish Journal of Marketing-ESIC*, 25(2), 280-307. <http://dx.doi.org/10.1108/SJME-12-2019-0109>
- Al-Khalidi, M.(2022).The effect of using smart devices on Bahraini Kindergarten Children’s behavioral problems as Perceived by Parents, *Arab Childhood Journal*, 23(91), 37-65. <https://search.mandumah.com/Record/1318469/Description>
- Al-Qaysi, N., Mohamad-Nordin, N., & Al-Emran, M.(2020).Employing the technology acceptance model in social media: A systematic review, *Education and Information Technologies*, 25(6), 4961-5002. <https://link.springer.com/article/10.1007/s10639-020-10197-1>
- Al-Rubaian, A., Al-Mahtab, M.(2022).The Effectiveness of an Educational Application on Smart Tablets in Teaching some Reading Skills for Students with Learning Difficulties, *Journal of Educational and Human Studies*, 14(1), 433-447. <https://doi.org/10.21608/jehs.2022.237672>
- Bosnjak, M., Ajzen, I., & Schmidt, P.(2020). The theory of planned behavior: selected recent advances and applications. *Europe's Journal of Psychology*, 16(3), 352-356. <https://doi.org/10.5964/ejop.v16i3.3107>
- Cheah, C. S. (2020). Factors contributing to the difficulties in teaching and learning of computer programming: A literature review. *Contemporary Educational Technology*, 12(2), 1-14. <https://doi.org/10.30935/cedtech/8247>
- Cronk, B.C. (2020): How to Use SPSS®A Step-By-Step Guide to Analysis and Interpretation, 11th Edition. <https://www.routledge.com/How-to-Use-SPSSr-A-Step-By-Step-Guide-to-Analysis-and-Interpretation/Cronk/p/book/9780367355692>
- Dabab, Z., Barwais, W. (2019).Obstacles to digital education in Algerian schools. *Arab Journal of Arts and Human Studies*, 3(7), 153-168. <https://doi.org/10.21608/ajahs.2019.44593>
- Dyscalculia <https://my.clevelandclinic.org/health/diseases/23949-dyscalculia>
- Dyspraxia <https://my.clevelandclinic.org/health/diseases/23294-dysgraphia>
- Guner, H., & Acarturk, C.(2020).The use and acceptance of ICT by senior citizens: a comparison of technology acceptance model (TAM) for elderly and young adults. *Universal Access in the Information Society*, 19(2), 311-330. <https://link.springer.com/article/10.1007/s10209-018-0642-4>
- Gefen, D., et al. (2000). **Structural equation modeling and regression: Guidelines for research practice, Communications of the association for information systems**, 4(1), 1-70. <http://dx.doi.org/10.17705/1CAIS.00407>
- Hair, J., et al.(2010).**Multivariate Data Analysis**. 7th ed., Pearson prentice Hall Publishing: Upper Saddle River, NJ, USA. <https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf>
- Harsch, K., & Festing, M.(2020).Dynamic talent management capabilities and organizational agility—A qualitative exploration. *Human Resource Management*, 59(1), 43-61. <https://doi.org/10.1002/hrm.21972>
- Heck, R. H., Thomas, S. L., Tabata, L. N. (2014): **Multilevel and longitudinal modeling with IBM SPSS** (2nd ed.). Rout ledge Taylor & Francis Group. <https://psycnet.apa.org/record/2013-28625-000>
- Heck, R.H., Thomas, S.L., Tabata, L.N. (2013). **Multilevel and Longitudinal Modeling with IBM SPSS** (2nd ed.). Rout ledge. <https://doi.org/10.4324/9780203701249>

- Heck, R.H., Thomas, S.L., Tabata, L.N. (2022): Multilevel and Longitudinal Modeling with IBM SPSS, 3rd Edition. <https://www.routledge.com/Multilevel-and-Longitudinal-Modeling-with-IBM-SPSS/Heck-Thomas-Tabata/p/book/9780367424619>
- Iqbal, S., & Bhatti, Z. A.(2020).A qualitative exploration of teachers' perspective on smartphones usage in higher education in developing countries. *International Journal of Educational Technology in Higher Education*, 17(1), 1-16. <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-020-00203-4>
- Lesson 2.(2022).Stephen Thompson's equation, confidence Intervals and Sample Size. <https://online.stat.psu.edu/stat506/book/export/html/636>
- Meng, B., & Choi, K.(2019). Tourists' intention to use location-based services (LBS): Converging the theory of planned behavior (TPB) and the elaboration likelihood model (ELM), *International Journal of Contemporary Hospitality Management*, 31(8), 3097-3115. <http://dx.doi.org/10.1108/IJCHM-09-2018-0734>
- Nikolopoulou, K. (2020). Secondary education teachers' perceptions of mobile phone and tablet use in classrooms: benefits, constraints and concerns. *Journal of Computers in Education*, 7(2), 257-275. <http://dx.doi.org/10.1007/s40692-020-00156-7>
- Oleksniuk, V., & Oleksiuk, O.(2020).Exploring the potential of augmented reality for teaching school computer science, *CEUR Workshop Proceedings*. <https://ceur-ws.org/Vol-2731/paper04.pdf>
- Papastergiou, M., Natsis, P., Vernadakis, N., & Antoniou, P.(2021).Introducing tablets and a mobile fitness application into primary school physical education. *Education and Information Technologies*, 26(1), 799-816. <https://link.springer.com/article/10.1007/s10639-020-10289-y>
- Pallant, J. (2020). *SPSS Survival Manual: A step by step guide to data analysis using IBM SPSS (7th ed.)*. Routledge. <https://doi.org/10.4324/9781003117452>
- Rademakers, M., Scheepstra, S., & Stokes, P.(2019).Organizational agility and value creation, *Journal of Creating Value*, 5(2), 106-110. <http://dx.doi.org/10.1177/2394964319880378>
- Raja, R., & Nagasubramani, P. C.(2018).Impact of modern technology in education. *Journal of Applied and Advanced Research*, 3(1), 33-35. <http://dx.doi.org/10.21839/jaar.2018.v3iS1.165>
- Shami, S., & Nastiezaie, N.(2019).The relationship between intellectual capital and organizational agility through the mediating of organizational learning, *The New Educational Review*, 56, 184-194. <https://czasopisma.marszalek.com.pl/images/pliki/tner/201902/tner5615.pdf>
- The Theory of Planned Behavior (TPB) <https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/BehavioralChangeTheories3.html>
- Wahyuni, D., Sudira, P., Agustini, K., & Ariadi, G.(2020).The effect of external learning on vocational high school performance with mediating role of instructional agility and product innovation efficacy in Indonesia. *Management Science Letters*, 10(16), 3931-3940. <http://dx.doi.org/10.5267/j.msl.2020.7.017>
- Walter, A. T. (2021). Organizational agility: ill-defined and somewhat confusing? a systematic literature review and conceptualization, *Management Review Quarterly*, 71(2), 343-391. <https://link.springer.com/article/10.1007/s11301-020-00186-6>
- Wang, H., Huang, J., & Zhang, Z.(2019).The Impact of Deep Learning on Organizational Agility, *ICIS Fortieth International Conference on Information Systems*, Munich. <https://core.ac.uk/download/pdf/301384068.pdf>
- Wang, H. et al. (2019). The Impact of Deep Learning on Organizational Agility, *ICIS* ,26. https://aisel.aisnet.org/icis2019/governance_is/governance_is/26