

DOI: 10.5281/zenodo.20055288

IMPLEMENTING SMART TECHNOLOGY IN INTERIOR DESIGN QUALITY AND ITS IMPACT ON STUDENTS BEHAVIOR IN EDUCATIONAL ENVIRONMENTS

Saif Mohammad Obeidat^{1*}

¹Associate Professor, Department of Interior Design, College of Arts and Design, Jadara University. Email: s.obeidat@jadara.edu.jo

Received: 02/04/2026
Accepted: 23/04/2026

Corresponding Author: Saif Mohammad Obeidat
(s.obeidat@jadara.edu.jo)

ABSTRACT

This research studies the impact of applying smart technology on interior design quality and students' behavior in educational environments. Failure on applying smart technology will impact the three main parts of the educational process: environments, students, and interior design. What is the impact of smart technology on interior design quality and students' behavior in educational environments? The main objective is to provide information about how smart technology can impact and improve students' behavior and interior design quality in educational environments. Providing information on applying smart technology and how it can improve educational services, efficiency, and performance, also improve students' positive behavior, and finally raise interior design quality functionally and aesthetically in schools. The research used the descriptive analytical approach, where information was collected by questionnaires, personal interviews, and similar case studies. Thereafter, data was analyzed statistically to generalize results in this research. Results show that smart technology have an impact on: (1) developing interior design quality, functionally, and aesthetically in educational environments, (2) raising educational environments efficiency and performance of services in those environments, (3) improving positive level in students' behavior, which increase their academic achievement, finally (4) developing all educational process parts: environments, students, and interior design in general.

KEYWORDS: Educational Environments, Interior Design, Student's Behavior, Smart Technology, Design Quality, | Function and Aesthetic, Efficiency and Performance, Academic Achievement.

1. INTRODUCTION

An educational environment is a physical space that accommodates a variety of educational programs and methods, including modern technologies. The student is the person who is formally involved in learning, those who are the most affected by the implementation of technology. Smart technology is a modern technology that focuses on the relationship between human and interior design with the built environment. Interior design is the process of planning, researching, coordinating, and managing the interior of a building to achieve a healthy and aesthetic environment that is most pleasing to the students who use the educational space. Well-being is best thought of as an adaptive style that requires constant partnership, something that happens in coordination between the interior designer, students, and the learning environment. Physical learning environments point to the influence of physical environments on student's performance. The use of Intelligent technology in educational environments' design affects the amount of time students spend and how well the learn.

1.1. Research Problem

The main problem in this research is that most interior designers do not consider the use of technology in the interior design of educational environments, which will have an impact on the three main elements:

1) Educational environment:

Failure to apply smart technology in educational environments reduces performance, productivity, and space efficiency of educational environments.

2) Student behavior:

Lack of smart technology reduces feelings of safety, comfort, health, privacy, productivity, creativity, and attitudes of students.

3) Interior design Quality:

Failure to apply smart technology affects design quality and reduces design efficiency in educational environments.

1.2. Research Questions

The main question revolved around what is the role of applying smart technologies on the quality of interior design and student behavior in educational environments? While the sub-questions are:

- 1) What is the role of smart technologies in influencing the efficiency, performance, and services of educational environments?
- 2) What is the impact of smart technologies in positively improving students' behavior in

educational environments?

- 3) How does applying smart technologies affect the quality, efficiency, and effectiveness of interior design in educational environments?

1.3. Research Purposes

This research aims to:

1. Provide information about smart technology's importance and its impact on efficiency and performance in educational environments.
2. Provide acknowledge about the importance of smart technologies in positively improving student behavior in educational environments.
3. Provide information about smart technology's importance in raising the quality, efficiency, and performance of interior design in educational spaces.

1.4. Research Importance

Providing information and design solutions through:

1. The application of smart technology which increases the efficiency, performance, and services of educational environments.
2. The application of smart technology which positively improves student behavior in educational settings.
3. The application of smart technology which raises the quality, efficiency, and effectiveness of interior design in educational environments.

1.5. Research Vocabulary

1. Educational Environments:

- In language is a site for learning or study.
- Idiomatically refers to the diverse physical locations, contexts, and cultures in which students learn.

- In research a physical space that supports multiple and diverse educational programs and methods, including current technologies that support students.

2. Interior design:

- In language the act of creating and coordinating the interior space.

- Technically preparing the space to perform tasks with the least effort. This includes floors, walls, ceilings, and equipment. Also, the art of treating space and all its dimensions in a way that takes advantage of all design elements in an aesthetic way.

- In research is the process of planning, researching, coordinating, and managing the interior of the educational space to achieve a healthy and aesthetic environment that is more pleasing to students.

3. Students:

- In language from the principle of seeking something, it means seeking something to get it.
- idiomatically a person who belongs to a particular place of learning.
- In research the person who occupies the interior space and who is formally involved in learning. Those who attended school are the most affected by the implementation of technology.

4. Behavior:

- In language an intangible thing, and it is difficult to determine its quantity.
- idiomatically the state of feeling comfortable, healthy, happy, secure, and private.
- In research the reaction of students towards the educational environment is a pattern of relationships that requires continuous partnership, which is something that happens in coordination between students and the educational space.

1.6. Research Limitations

1. Time limit:

- This research study was conducted in the 2025-2026 academic year.
- A group of previous research and studies published between 2015-2025 was used as a useful guide for this research study.

2. Spatial Limit:

- This research study was conducted on a group of public schools in Jordan.
- This research study was written on the application of smart technology in educational environments in Irbid, Jordan.

3. Objective limit:

- Studying how smart technology affects performance, efficiency, and services of educational environments.
- Studying how smart technology improves positive behavior of students in educational environments.
- Studying how smart technology raises quality, efficiency, and effectiveness of interior design in educational environments.

1.7. Research Hypotheses

1. Smart technology develops efficiency, performance, and services of educational environments.
2. Smart technology positively improves students' behavior in educational environments.
3. Smart technology increases quality, efficiency, and effectiveness of interior design in educational environments.

2. PREVIOUS STUDIES

Previous studies came to confirm that there is a definite relationship between smart technology and educational environments in schools (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018); Selvakumar et al., 2024). Previous studies emphasized the need for interior designers to know the importance of employing smart technology in interior design, especially in glossy environments (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018; Ashour & Rashdan, 2023). These studies emphasized the impact of this smart technology on the behavior of students in educational environments, which in turn improves their positive behavior in terms of their comfort, well-being, health, safety, and privacy, leading to improved levels of positive behavior, and this certainly reflects positively on their academic achievement (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018; Kundan et al., 2022). Previous studies also came to confirm that employing smart technology in educational environments' interior design improves the quality of design in general, and this is reflected on performance and efficiency of educational environments, as well as in the cognitive, physical, and psychological behavior of students within those environments (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018; Yang et al., 2023). The previous studies also emphasized the importance of the research problem, in which educational environments need to rebuild the connection with the environment through the adoption of smart technologies to improve students' attitudes and the quality and performance of the educational space and the interior space in general (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018; Touzery & Vesna, 2021). Previous studies emphasize a critical issue, which is that students are naturally attracted to the well-designed educational environment, especially in which smart technology has been employed in its interior design, and its separation from it leads to negative results that affect the physical, psychological, and social aspects of students (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018; Kwok et al., 2017). Finally, the relationship between smart technology, educational environments and students is reciprocal, as the educational environment has direct and indirect effects on students and their behavior during the educational process. The adoption of smart technology in educational environments will provide the students

with a healthy and safe learning environment, making it a better place for creativity, innovation, and development. (Elmashharawi, 2019; Determan, 2019; Jabbarioun, 2019; Woodward, 2018; Miller, 2018; Babu et al., 2025).

3. RESEARCH METHODOLOGY

3.1. Research Method:

Descriptive analytical method that is based on studying the impact of implementing smart technology on the quality of interior design and on the behavior of students in educational environments was used, where data was collected through electronic questionnaires, personal interviews, and notes taken during site visits.

3.2. Study Population:

Students and staff in educational spaces in Irbid, Jordan.

Study Samples: An electronic questionnaire was made for the study. It was published for specified members, and it was filled out by (60) students. The small population of the study was due to the department new launched in Jadara University. First accepting student's enrollment to the program was Fall 2025. The personal interviews were also conducted with (10) faculty members who were randomly selected, interviewed, and their answers were recorded in addition to observations taken during site visits.

A pilot study was conducted with 5 professors in interior design department in Jordan to find out the unclear statements and find out the revisions that needed for the data collection tools. Also, this procedure helps to check data reliability and validity of the study.

3.3. Study Tools:

First: This survey was designed to include six parts as follows:

Part One: Personal information that include questions about gender, age, and grade.

Part Two: Smart technology & Comfort.

Part Three: Smart technology & Privacy.

Part Four: Smart technology & Health.

Part Five: Smart technology & Safety.

Part Six: Smart technology & Welfare.

Second: Personal Interviews: A random group of (10) faculty members were discussed and debated with questions about smart technology's impact on the quality of the interior design and on the behavior of students in educational environments and its effect on health, productivity, and comfort of students in those buildings and whether the smart technology

positively impacts the interaction and performance of students within these buildings.

3.4. Data Collection and Analysis

Data Collection Method: The process of collecting information in this research was done through publishing an electronic questionnaire for specialists (faculty members in the Department of Interior Design/Faculty of Arts and Design - Jadara University). The students were asked to fill the questionnaire out and their responses were recorded. As for the interviews, they took place after setting an appointment with the specialists. Questions were asked and answers were recorded. Finally, site visits were made, and notes were taken.

Data analysis method: The data of the questionnaire was filled into charts and tables designed by the researchers for statistical analysis. The notes from interview questions as well as the notes taken from the site visits were entered and organized into charts and tables, and the results were analyzed by emptying the information into statistical charts and tables to produce the results of this research.

3.5. Accuracy, Correctness, And Reliability Of Data Collecting Tools:

Questionnaire: A linguistic and random review sample was sent to a group of experts along with an evaluation form to audit and review the questionnaire to produce the last version of the questionnaire.

Personal Interviews: A linguistic and random review sample was sent it to a group of experts along with an evaluation form to produce a last version of the interview questions.

3.6. Research Results Analysis

Questionnaire Analysis Results

The results of questionnaire analysis were as follows:

The questionnaire consists of (5) parts, each part consists of (5) questions about the responses (Safety, Comfort, Privacy, Welfare and Health)

Part One: (Smart technology and Comfort)

The results analysis of the first category in the questionnaire was as following (Figure 1)

Question One: 80% of people strongly agreed that smart colors increase students' comfort level in educational spaces, 16.7% agreed, and 3.3% were neutral.

Question Two: 65% of people strongly agreed that smart materials increase students' comfort level in educational spaces, 35% agreed.

Question Three: 75% of people strongly agreed that smart natural light increase students' comfort level in educational spaces, 25% agreed.

Question Four: 58.3% of people strongly agreed that smart furniture increase students' comfort level

in educational spaces, 41.7% agreed.

Question Five: 51.7% of people strongly agreed that smart spatial planning increase students comfort level in educational spaces, 45% agreed, and 3.3% were neutral.

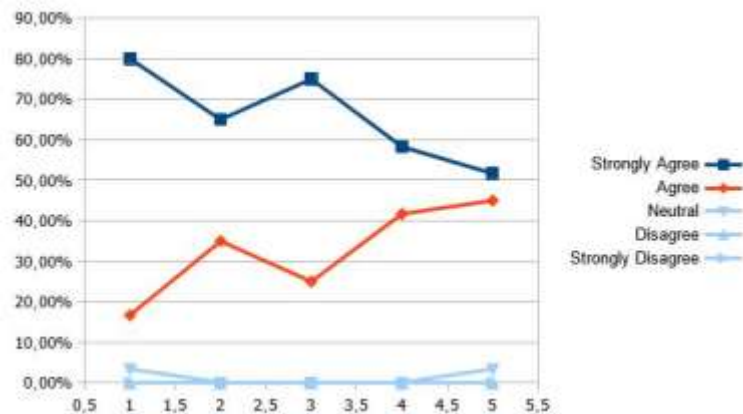


Figure 1. Results Of Smart Technology and Comfort in the Questionnaire.

Part Two: (Smart technology and Privacy):

The results of the second part from questionnaire analysis as follow (Figure 2)

Question One: 70% of people strongly agreed that smart colors increase students' privacy level in educational spaces, 25% agreed, and 5% were

neutral.

Question Two: 45% of people strongly agreed that smart materials increase students' privacy level in educational spaces, 53.3% agreed, and 1.7% strongly disagreed.

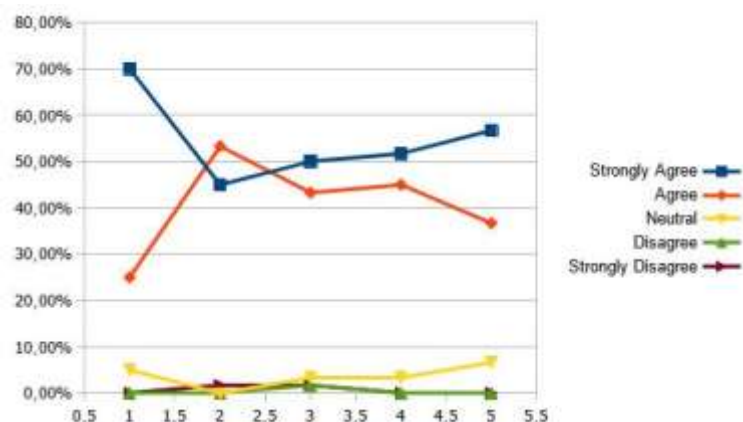


Figure 2. Results Of Smart Technology and Privacy in the Questionnaire

Question Three: 50% of people strongly agreed that smart natural light increase students' privacy level in educational spaces, 43.3% agreed, 3.3% were neutral, 1.7% disagreed, and 1.7% strongly disagreed.

Question Four: 51.7% of people strongly agreed that smart furniture increases students' privacy level in educational spaces, 45% agreed, and 3.3% were neutral.

Question Five: 56.7% of people strongly agreed that smart spatial planning increases students'

privacy level in educational spaces, 36.7% agreed, and 6.6% were neutral.

3.7. Part Three: (Smart Technology and Health):

The results of the third part from questionnaire analysis as follow (Figure 3)

Question One: 70% of people strongly agreed that smart colors increase students' health level in educational spaces, 28.3% agreed, and 1.7% were neutral.

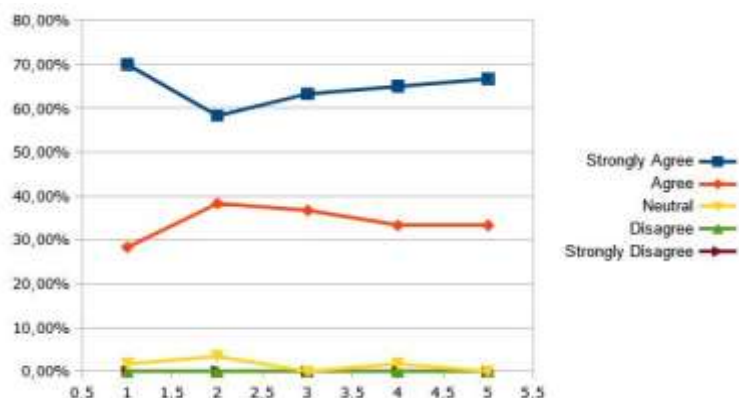


Figure 3. Results Of Smart Technology and Health in the Questionnaire

Question Two: 58.3% of people strongly agreed that smart materials increase students' health level in educational spaces, 38.3% agreed, and 3.4% were neutral.

Question Three: 63.3% of people strongly agreed that smart natural light increases students' health level in educational spaces, 36.7% agreed.

Question Four: 65% of people strongly agreed that smart furniture increases students' health level in educational spaces, 33.3% agreed, and 1.7% were neutral.

Question Five: 66.7% of people strongly agreed that smart spatial planning increases students' health

level in educational spaces, 33.3% agreed.

Part Four: (Smart technology and Safety):

The results of the fourth part from questionnaire analysis as follow (Figure 4)

Question One: 66.7% of people strongly agreed that smart colors increase students' safety level in educational spaces, 30% agreed, 2% were neutral, and 1.3% disagreed.

Question Two: 53.3% of people strongly agreed that smart materials increase students' safety level in educational spaces, 45% agreed, and 1.7% were neutral.

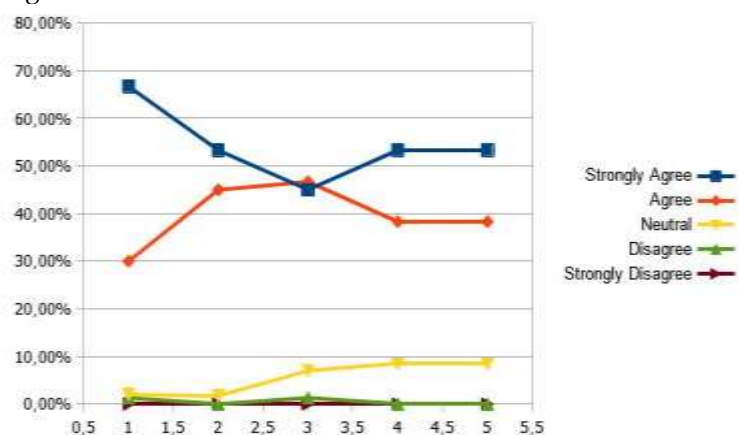


Figure 4. Results Of Smart Technology and Safety in the Questionnaire

Question Three: 45% of people strongly agreed that smart natural light increase students' safety level in educational spaces, 46.7% of, 7% were neutral, and 1.3% disagreed.

Question Four: 53.3% of people strongly agreed that smart furniture increases students' safety level in educational spaces, 38.3% agreed, and 8.4% were neutral.

Question Five: 53.3% of people strongly agreed that smart spatial planning increases students' safety level in educational spaces, 38.3% agreed, and 8.4% were neutral.

Part Five: (Smart technology and Welfare):

The results of the fifth part from questionnaire analysis as follow (Figure 5)

Question One: 78.3% of people strongly agreed that smart colors increase students' welfare level in educational spaces, 21.7% agreed, and 8.4% were neutral.

Question Two: 65% of people strongly agreed that smart materials increase students' welfare level in educational spaces, 31.7% agreed, and 3.3% were neutral.

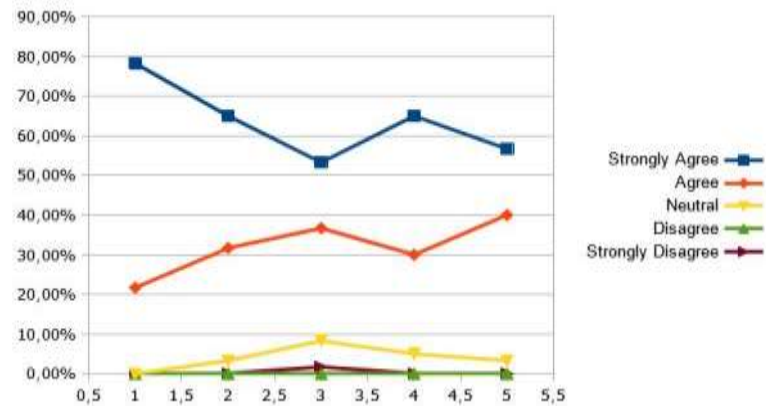


Figure 5. Results Of Smart Technology and Welfare in the Questionnaire

Question Three: 53.3% of people strongly agreed that smart natural light increases students' welfare level in educational spaces, 36.7% agreed, 8.3% were neutral, and 1.7% disagreed.

Question Four: 65% of people strongly agreed that smart furniture increases students' welfare level in educational spaces, 30% agreed, and 5% were

neutral.

Question Five: 56.7% of people strongly agreed that smart spatial planning increases students' welfare level in educational spaces, 40% agreed, and 3.3% were neutral.

Analyzing Personal Interviews Results

Table I. Analyzing Interviews results

No	Question	Comfort	Safety	Privacy	Welfare	Health
1	Do you think smart colors play a role in providing comfort in design? Explain that, and what is the impact of this on students' behavior, comfort, welfare, health, safety, and privacy in educational environments?	10	7	0	9	8
2	Do you think smart materials play a role in providing safety in design? Explain that, and what is the impact of this on students' behavior, comfort, welfare, health, safety, and privacy in educational environments?	8	4	0	6	8
3	Do you think smart natural light plays a role in providing welfare in design? Explain that, and what is the impact of this on students' behavior, comfort, welfare, health, safety, and privacy in educational environments?	9	0	7	9	8
4	Do you think smart furniture plays a role in providing health in design? Explain that, and what is the impact of this on students' behavior, comfort, welfare, health, safety, and privacy in educational environments?	10	0	0	10	9
5	Do you think, smart spatial planning plays a role in providing privacy in design? Explain that, and what is the impact of this on students' behavior, comfort, welfare, health, safety, and privacy in educational environments?	9	9	10	8	0

The results analysis of the personal interviews (Table 1) was as the following:

Question One: 10 professors agreed that smart colors provide comfort in educational environments, 7 agreed that it provides safety, 9 with welfare and 8 with health.

Question Two: 4 professors agreed that smart materials provide safety in educational environments, 8 agreed that it provides comfort, 6

with welfare and 8 with health.

Question Three: 9 professors agreed that smart natural light provides welfare in educational environments, 9 agreed that it provides comfort, 7 with privacy, and 8 with health.

Question Four: 9 professors agreed that smart furniture provides health in educational environments, 10 agreed that it provides comfort, and 10 with welfare.

Question Five: 10 professors agreed that smart spatial planning provides privacy in educational environments, 9 agreed that it provides comfort, and 8 with welfare, and 9 with safety.

4. FINAL RESEARCH FINDINGS

Final Research Findings and Discussion

1st Result: (98%) of questionnaire results approved that implementing smart technology plays a significant role in affecting students' behavior in educational environments, (90%) of interviews and (87%) of studies results approved this as well (Figure 6):



Figure 6: Smart Technology Affects Students' Behavior in Educational Environments. Retrieved From <https://www.pinterest.com/> In 15th, January 2026.

2nd Result: (92%) of questionnaire results approved that implementing smart technology positively affects students' behavior in educational

environments, (88%) of interviews and (91%) of studies results approved this as well (Figure 7):

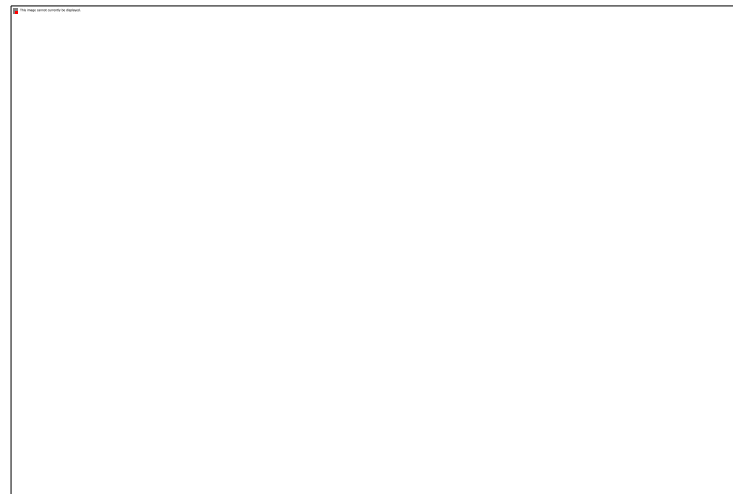


Figure 7: Smart Technology Positively Affects Students' Behavior in Educational Environments. Retrieved From <https://digitallearning.eletsonline.com/> In 15th, January 2026.

3rd Result: (99%) of questionnaires results approved that smart technology affects educational environments' the performance, efficiency, and

services, (92%) of interviews and (90%) of studies results approved this (Figure 8):



Figure 8. Smart Technology Affects Educational Environments Performance, Efficiency, And Services.
Retrieved From <https://Studyinthestates.Dhs.Gov/> In 15th, January 2026.

4th Result: (90%) of questionnaire results approved that implementing smart technology affects interior design's quality in educational

environments, (85%) of interviews and (88%) of studies results approved this as well (Figure 9):

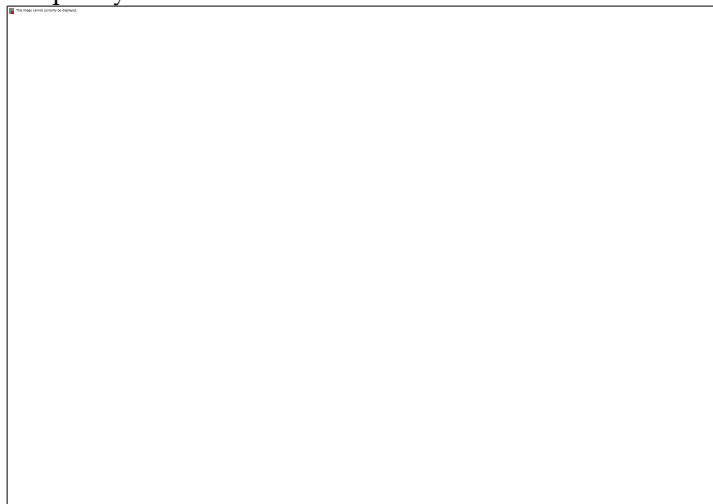


Figure 9: Smart Technology Affects Interior Design Quality in Educational Environments. Retrieved From <https://Rmjn.Com/> In 15th, January 2026.

5th Result: (98%) of questionnaire results approved that smart technology affects students' behaviors and wellbeing, which improves their

psychological well-being, (90%) of interviews and (98%) of studies results approved this as well (Figure 10):

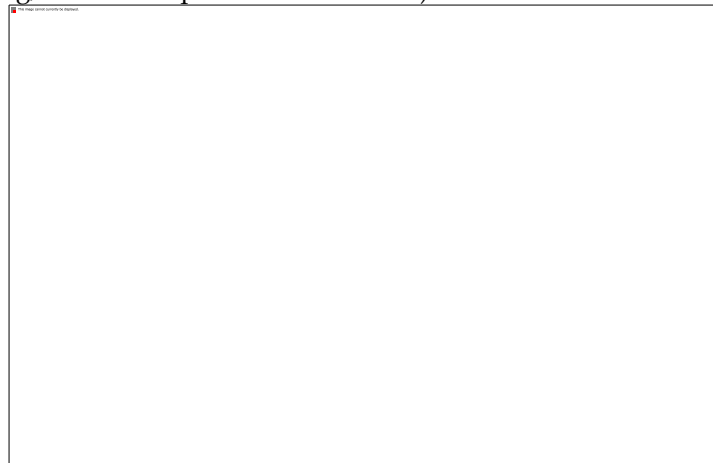


Figure 10. Smart Technology Affects Students' Behaviors and Wellbeing. Retrieved From

<https://Thejournal.Com/> In 15th, January 2026.

6th Result: (88%) of questionnaire results approved that smart technology affects students' behavior in educational environments, increasing

their enjoyment, and improving their psychological well-being, (88%) of interviews and (92%) of studies results approved this as well (Figure 11):



Figure 11. Smart Technology Improves Students Psychological Well-Being. Retrieved From <https://Startime.Com.Au/> In 15th, January 2026.

7th Result: (91%) of questionnaire results approved that smart technology affects students' behavior and health in educational environments, which increases enjoyment, and improves

psychological well-being, (87%) of interviews and (99%) of studies results approved this as well (Figure 12):



Figure 12. Smart Technology Draws a Smile on Students Faces and Increases Their Enjoyment. Retrieved From <https://Etfovoice.Ca/> In 15th, January 2026.

8th Result: (88%) of questionnaire results approved that smart technology affects students' behavior and safety in educational environments,

which increases the feeling of reassurance, (91%) of interviews and (90%) of studies results approved this as well (see Figure 13):

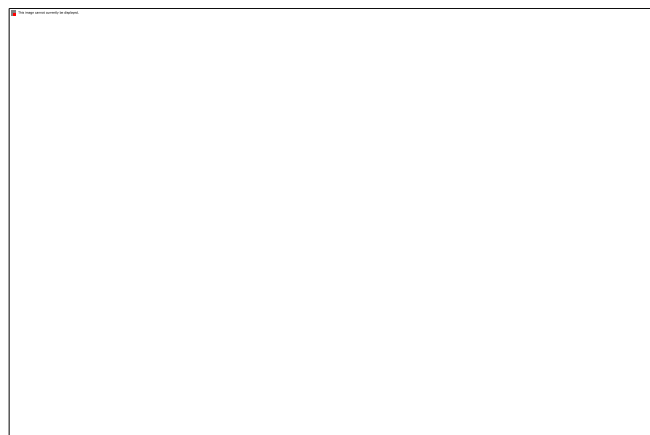


Figure 13. Smart Technology Improves Students' Sense of Independence and Satisfaction. Retrieved From <https://thriveglobal.com/> In 15th, January 2026.

10th Result: (99%) of questionnaire results approved that smart technology affects students' behavior of in educational environments, increasing student's attraction and interest in educational

environments, in addition to improving their sense of loyalty and belonging, (88%) of interviews and (88%) of studies results approved this as well (Figure 14):



Figure 14. Smart Technology Increases Student's Attraction and Interest. Retrieved From <https://trusol-education.com/> In 15th, January 2026.

5. CONCLUSION/RECOMMENDATION

The purpose of this research was to investigate the implementation of smart technology and its impact on students' behavior in educational environments. The findings of the research revealed that smart technology has a positive impact on the behavior of students, improving their sense of comfort, privacy, health, safety, and behavior, as well as improving the performance, efficiency, and services of educational environments, and it also improves the quality of interior design in educational environments.

The researcher recommends the following:

1. The researcher urge that this research must be conducted on a larger sample size.
2. The researcher advocate comparing educational environments in Jordanian universities, even to those in other countries.
3. The researcher recommend that this study should be expanded further.
4. The researcher recommend that interior designers consider many factors when designing educational environments such as comfort, privacy, luxury, safety, and health.

Acknowledgments: Precious thank to the anonymous reviewers for their constructive comments. This work was supported by Jadara University. The author would especially like to thank the personnel of the Research Centre for their support and technical cooperation.

REFERENCES

- Ashour, A & Rashdan, W. (2023). Smart Technologies in Interior Design. *The International Journal of Designed Objects*. 18. 39-59. 10.18848/2325-1379/CGP/v18i01/39-59.
- Babu, P & Rotimi, F & Samarasekara, S & GhaffarianHoseini, A. (2025). SMART technologies that influence construction health and safety factors risk reduction in the current digital era. *Smart and Sustainable Built Environment*. 10.1108/SASBE-09-2024-0400.
- Determan, J. (2019). the impact of biophilic learning environments on student success. Published thesis at Morgan State University in Baltimore, Maryland.
- Elmashharawi, A. (2019). Smart technology for Bringing Educational Environments to Life, *Journal of Design Studio*, (1): 16-21.
- Jabbarioun, H. (2019). Re-thinking smart technology patterns in preschool environments for children. Published thesis at Middle East Technical University in Ankara, Turkey.
- Kwok, W & Lee, P & Lee, R. (2017). Smart Device Use and Perceived Physical and Psychosocial Outcomes among Hong Kong Adolescents. *International Journal of Environmental Research and Public Health*. 14. 205. 10.3390/ijerph14020205.
- Miller, E. (2018). Implementing biophilic attributes in elementary schools. Published thesis at The University of North Carolina in Chapel Hill, North Carolina.
- Selvakumar, P & Hemalatha, C. & Indumathy, I. & P., Nithya & Gandhimathi, S. & Mujrai, Prasanta. (2024). Smart Education and Sustainable Learning Environments. 10.4018/979-8-3693-7723-9.ch023.
- Touzery, S & Dolnicar, V. (2021). Attitudes towards smart technologies among older people and their informal carers in Slovenia. 10.26493/978-961-293-129-2.71-80.
- Woodward, E. (2018). Reconnecting children with nature: biophilic primary school learning environments. Published thesis at Victoria University in Wellington, New Zealand.
- Yang, C & Jou, Y & Lin, M & Silitonga, R & Sukwadi, R. (2023). The Development Model of "Design for Smart Quality". *Journal of Quality*. 30. 10.6220/joq.202306_30(3).0001.

WEBSITES

- <https://arhingreen.rs/5-najcitanijih-tekstova-na-blogu-u-2018-g/>
- <https://blog.interface.com/importance-interior-design-education-environments/>
- <https://de51gn.com/shenzhen-kindergarten-by-vmdpe-design-balances-structured-environments-with-abstract-areas/>
- <https://era.org.uk/the-licence/do-you-currently-hold-an-era-licence/>
- <https://roomtodiscover.com/student-behavior/>
- <https://tall-wood.com/mass-timber-biophilic-design>
- <https://www.arch2o.com/hn-nursery-hibinosekkei-youji-no-shiro/>
- <https://www.pinterest.com/pin/8162843049865275/>
- <https://www.pinterest.fr/pin/399553798196910241/>
- <https://www.researchgate.net/post/>