University Students' Perceptions at the College of Basic Education Regarding the Use of Interactive Blackboard Technology in Education in Kuwait for the Academic Year 2020/2021

By:

Dr. Ahmad Alfailakawi Dr. Abdul Aziz Dakhil Al-Anzi

Associate professor - College of Basic Education - The Public authority for applied education and training in Kuwait

University Students' Perceptions at the College of Basic Education Regarding the Use of Interactive Blackboard Technology in Education in Kuwait for the Academic Year 2020/2021

Dr. Ahmad Alfailakawi & Dr. Abdulaziz Dakhil Alenizi *

Abstract:
This study aimed to explore the perceptions of university students at the College of Basic Education regarding the use of interactive blackboard technology in education in Kuwait for the academic year 2020/2021. The researcher adopted a descriptive survey approach, randomly selecting a sample of 393 students. A questionnaire consisting of 32 items was designed to measure their perceptions. The results revealed that students' perceptions were highly positive towards the use of interactive blackboard technology, with arithmetic means ranging from 2.95 to 4.17. Additionally, the findings indicated no statistically significant differences at the level of $\alpha \leq 0.05$ attributable to gender.

Keywords: Perceptions, University Students, Interactive Blackboard Technology, Education, College of Basic Education, Kuwait.

* **Dr. Ahmad Alfailakawi & Dr. Abdul Aziz Dakhil Al-Anzi:** Associate professor - College of Basic Education - The Public authority for applied education and training in Kuwait**.**

Introduction

The integration of technological innovations into the educational process has become a priority for educational institutions due to their critical role in developing human potential and fostering societies capable of keeping pace with global changes and advancements. These innovations enhance students' interest and motivation, improve educational outcomes, and bridge individual differences effectively. In the context of such innovations, students transition from being passive recipients of information to active participants, creators, and contributors of knowledge, enabling them to interact meaningfully with their communities and adapt to a rapidly changing world.

Among the key technological innovations is the interactive blackboard, which has revolutionized the educational environment by fostering dynamic interaction between teachers and students. The interactive blackboard, also known as the interactive smartboard, provides an innovative learning tool that empowers teachers with diverse functionalities, facilitating classroom management and engagement. Numerous Arab and international studies (e.g., Abdel Moneim, 2015; Al-Rasheed, 2014; Bahadur, 2013; Abu Rizk, 2012) have underscored the importance and effectiveness of this technology in enhancing educational processes.

The interactive blackboard offers extensive applications, including its use in classrooms to improve teaching methods, as well as in meetings, conferences, workshops, and online communication. Unlike traditional projectors, the interactive blackboard provides a more integrated and interactive approach to presenting educational content. Functioning as an electronic board connected to a computer or data projector, it facilitates real-time interaction, allowing users to write, draw, and manipulate content using touch or digital pens.

Moreover, the interactive blackboard stores written content for future reference, supports high-definition displays, and is equipped with sound and visual features. Teachers can save lessons, incorporate multimedia, and share materials directly with students, fostering collaborative learning. Students can also interact with the board by contributing their

notes and ideas during lessons, enhancing engagement and participation (Preston & Mowbray, 2008).

This technology supports Microsoft Office programs, Internet navigation, and interactive learning tools that enrich educational content with visual and auditory elements, capturing students' attention and addressing diverse learning needs. Additionally, the interactive blackboard reduces teaching time, simplifies complex concepts, and supports differentiated instruction, thereby promoting effective learning and student interaction (Abdel Moneim, 2015; Abu Rizk, 2012).

In light of these advantages, there is an increasing need to assess students' perceptions of the use of interactive blackboards in education. Understanding their perceptions will help educators and policymakers improve the integration of such technology in classrooms, aligning educational practices with the requirements of the labor market, which increasingly demands technological proficiency. Preparing students with essential technological skills has become a fundamental step in equipping them for a competitive and technology-driven global environment.

Adjusted Theoretical Framework

Theoretical Framework

The Genesis of the Interactive Blackboard The concept of the interactive blackboard originated in the mid-1980s when David Martin and Nancy Knowlton sought to create an alternative to traditional blackboards that relied on chalk or markers. Their vision involved connecting a computer to a touch-sensitive display, enabling users to interact directly with the screen rather than relying on keyboards or mice (Abu El Ain, 2011; Marzano & Haystead, 2009).

After extensive experimentation, the first interactive blackboard was designed in 1991 by SMART Technologies, a leading educational technology company in Canada and the United States. By 1998, the technology had evolved to be compatible with both computers and notebooks, and features such as audio recording were introduced in 2001. The most significant developments occurred in 2008, with the introduction of smart cameras and collaborative learning software,

expanding the interactive blackboard's applications in Middle Eastern educational institutions (Rashidi, 2012).

Defining the Concept of the Interactive Blackboard The interactive blackboard is a modern educational tool that combines the functionality of a traditional whiteboard with the capabilities of touch-sensitive technology. Connected to a computer or used as a standalone device, it facilitates dynamic interactions, allowing users to display, manipulate, and save content in real time.

- **Saraya (2009)** defines the interactive blackboard as "a sensitive white electronic display handled through touch or a digital pen, connected to a computer and projector, enabling the display of educational programs and content stored on the computer or accessed online."
- **Haystead & Marzano (2009)** describe it as "a large display device attached to a computer and projector, enabling users to control the displayed content using special pens or touch input."
- **Campbell (2010)** views the interactive blackboard as "a large white screen connected to a computer, designed to facilitate touch or pen input, offering clear visuals for all class participants."

Based on these definitions, the researcher conceptualizes the interactive blackboard as an advanced, interactive educational tool designed to enhance learning through real-time engagement, multimedia integration, and interactive features.

Benefits of Using Interactive Blackboard in Education The use of interactive blackboards provides significant benefits in the educational process, as outlined by Shenton & Pagett (2007) and Preston & Mowbray (2008):

1. **Time Efficiency**: Teachers can prepare lessons in advance, annotate during instruction, and eliminate the need for multiple teaching aids.
2. **Faculty Resource Optimization**: Interactive blackboards address faculty shortages by enabling remote teaching across multiple locations through organized schedules.
3. **Engaging Presentations**: Teachers can use multimedia applications, such as PowerPoint and animations, to make lessons dynamic and interactive.

4. **Lesson Recording and Playback**: Lessons can be recorded and revisited, ensuring absent students have access to the content.
5. **Distance Learning**: The technology supports virtual classrooms, enabling real-time interaction during seminars, workshops, and conferences.
6. **Accessibility for Special Needs**: The touch functionality and adaptive features make the technology inclusive for students with disabilities.

Uses of Interactive Blackboard in Education

The interactive blackboard's versatility enables its use in various educational applications (Salama & Dell, 2005):

- Magnifying computer displays for group presentations.
- Writing and illustrating concepts with digital pens.
- Delivering remote lessons and saving notes for future reference.
- Teaching language and computer skills interactively.
- Utilizing educational games and animations to enhance learning.
- Accessing and sharing online resources directly within lessons.

Defects Affecting the Use of Interactive Blackboard

There are several disadvantages that can affect the implementation of interactive blackboard technology in education (Mandour, 2009):

1. **High Cost of Purchase and Maintenance**: The initial investment and ongoing maintenance expenses are significant, which may strain educational budgets.
2. **Need for Extensive Teacher Training**: Effective utilization requires high-level training; teachers must be proficient in using the technology to maximize its benefits.
3. **Potential Time Wastage**: Teachers lacking adequate skills may find the interactive blackboard inefficient, leading to wasted instructional time.
4. **Reliance on Electricity**: In the event of a power outage, the absence of an alternative teaching plan can negatively impact the learning process.
5. **Overemphasis on Cognitive Skills**: The technology may focus more on cognitive aspects, potentially neglecting the development of practical or manual skills.

6. **Language Compatibility Issues**: Difficulties may arise in accurately converting handwritten input into text, especially for certain languages.
7. **Safety Concerns**: Improper installation and management of electrical connections can pose safety risks within the classroom.
8. **Regular Maintenance Requirements**: Frequent maintenance is necessary, adding to the overall operational costs.
9. **Limited Maintenance Facilities**: There is a scarcity of specialized service centers for interactive blackboard maintenance, leading to potential delays.
10. **Lack of Localization**: The software may not be fully localized, causing difficulties for users not proficient in the default language.

Strengths of Using Interactive Blackboard

The interactive blackboard offers several strengths in educational settings, particularly from the student's perspective (Saraya, 2009):

1. **Engaging Presentation of Content**: Facilitates clear and captivating communication of scientific material.
2. **Enhanced Attention Through Multimedia**: Employs sound and high-definition images to capture students' interest, transforming into a giant computer screen equipped with speakers and microphones.
3. **Visual Appeal with Expressive Colors**: Uses vibrant colors and realistic visuals to aid comprehension and maintain focus.
4. **Expansion of Learner Experiences**: Stimulates interest by presenting subjects in interesting ways, satisfying the need for diverse and enjoyable learning experiences.
5. **Interactive Learning Environment**: Encourages active participation, improving learning quality and student performance.
6. **Easy Content Access**: Allows saving and retrieving lesson content, with the capability to send materials via email.
7. **Increased Participation and Confidence**: Promotes collaboration, enhances group discussions, and boosts self-confidence.
8. **Simplification of Complex Concepts**: Aids in explaining difficult topics, enhancing attention and focus.

9. **Reduction of Boredom**: Actively engages students, reducing passivity and encouraging participation.

The use of interactive smart boards significantly enhances communication within the educational process, contributing to the development of an informed and productive generation.

The Impact of Using Interactive Blackboard on Education and Student Perceptions

Numerous studies have highlighted the effectiveness of teaching through the interactive blackboard and its positive impact on student learning due to its innovative features (Kennewell, 2007).

- **Hennessy (2007)** stated that teaching strategies involving interactive blackboards enhance student participation in scientific courses, influencing their perceptions toward using this technology.
- Studies by **Türel (2009), Morgan (2008), and Whitchurch (2006)** reported positive outcomes, noting improvements in teacher-student interaction, creative learning, language acquisition, self-motivation, and scientific literacy.
- **Al-Rasheed (2014)** concluded that students exhibited highly positive attitudes after being taught using interactive blackboards, suggesting strengthened learning processes.
- **Al-Hamidan (2013)** highlighted the impact on student perceptions and academic achievement.
- **Marzano and Haystead (2009)** observed significant effects on educational orientations and achievement across various lessons.
- Conversely, **Ishtaiwa and Shana (2011)** found that some student teachers faced challenges due to a lack of skills and time constraints, using the technology mainly as a presentation tool rather than an integrated educational instrument.

These findings indicate the evolution of educational processes, emphasizing the importance of integrating advanced technologies like interactive blackboards to meet diverse learning objectives and prepare future scholars.

Problem Statement and Research Questions

Technological advancements have restructured educational strategies, making technology more accessible to students. This poses

challenges for educators in competing with external technological entertainment and convincing students of traditional methods' relevance. The interactive blackboard emerges as a solution, creating an engaging environment that encourages participation.

However, there is a challenge in integrating this technology into Kuwaiti university education, with limited implementation observed. Therefore, this study explores the perceptions of university students at the College of Basic Education regarding the use of interactive blackboard technology.

Research Questions:

1. **What are the perceptions of university students at the College of Basic Education regarding the use of interactive blackboard technology in education in Kuwait?**
2. **Are there statistically significant differences at the level of $\alpha \leq 0.05$ in these perceptions attributable to gender (male, female)?**

Study Objectives

The primary objective of this study is to:

- **Measure and identify the perceptions of university students at the College of Basic Education regarding the use of interactive blackboard technology in education in Kuwait.**

Importance of the Study

The study is significant for several reasons:

1. **Filling a Research Gap**: Addresses the lack of studies on university students' perceptions of interactive blackboard technology in Kuwait.
2. **Enhancing Education**: Contributes to improving the educational process by understanding student perceptions, enhancing motivation, and keeping pace with contemporary changes.
3. **Objective Assessment**: Provides a scientific and objective analysis of students' perceptions at the College of Basic Education.
4. **Informing Policymakers**: Assists authorities and decision-makers in implementing interactive blackboard technology based on scientific evidence.

5. **Foundation for Future Research**: Offers a basis for further studies, introducing variables related to the employment and use of interactive blackboards in education.

Study Limitations

1. **Subject Matter**: Focuses on investigating the perceptions of university students regarding interactive blackboard technology in education.
2. **Population and Time Frame**: Limited to students at the College of Basic Education, Public Authority for Applied Education and Training in Kuwait, during the first semester of the 2020/2021 academic year.

Operational Definitions

1. **Perception (Attitude)**:
   - *Theoretical Definition*: Readiness and inclination toward a particular topic, leading to responses of acceptance or rejection (Abu Orad, 2006, p. 26).
   - *Operational Definition*: A state of emotional or mental preparedness that directly influences university students' responses to the use of interactive blackboard technology, manifesting in positive or negative attitudes.
2. **Interactive Blackboard**:
   - *Theoretical Definition*: "A flat, white electronic display connected to a computer or special base, facilitating the learning process" (Al-Hamidan, 2013, p. 8).
   - *Operational Definition*: A sensitive, touch-operated interactive whiteboard connected to a computer, used to display various applications from the computer screen, allowing control over the computer through the board itself. The latest generation does not require an LCD projector, as the display is integrated into the interactive blackboard screen.

Previous Studies

This section reviews previous Arab and international studies related to university students' perceptions toward the use of interactive blackboard technology in education, organized chronologically from the oldest to the most recent.

Smith, Hardman, and Higgins Study (2006) :This study aimed to identify the impact of the interactive blackboard on increasing interaction between teachers and students in reading, writing, and numeracy classes. The findings suggested that the interactive blackboard enhances classroom interaction, although the degree of impact varied depending on the subject matter.

Afifi (2007) : Afifi conducted a study to develop faculty members' skills in using smart boards in teaching and to assess their attitudes toward its use and the integration of technology in teaching. The sample included 25 faculty members from colleges of teachers and education. The study utilized a training program, attitude scale, knowledge test, and observation checklist. Results indicated significant improvements in both cognitive skills related to smart board usage and positive attitudes toward its integration in teaching following the training program.

Marzano and Haystead (2009) :This study investigated how smart boards affect students' academic achievement. The sample comprised 85 teachers and 170 classrooms where teachers used smart boards to teach various lessons, which were later taught to different student groups without the technology. The results demonstrated that the use of interactive blackboards positively impacted student achievement across multiple subjects.

Campbell and Mechling (2009) : The study examined the effectiveness of teaching in arranging small computer-aided groups using educational technology and smart boards over a fixed period for three students with learning disabilities. A repeated measures design was employed to assess the acquisition of phonetic sounds and prose information. Findings indicated that the program was effective in teaching letter sounds, and students gained additional unintended knowledge, highlighting the benefits of interactive technology in special education settings.

Ishtaiwa and Shana (2011) : This study aimed to describe how student teachers used interactive blackboards to teach Arabic and to reveal their views on its impact on teaching and learning within practical education programs in UAE schools. The results showed that student teachers rarely used interactive blackboards due to obstacles such as lack of

availability in schools, insufficient knowledge and skills, and time constraints. When used, the technology served more as a presentation tool rather than an integrated educational instrument that could lead to significant changes in teaching and learning Arabic.

Abu Rizk (2012) : The study investigated the impact of using interactive blackboard technology on developing lesson planning skills among student teachers enrolled in a professional diploma in teaching at Al Ain University of Science and Technology. Additionally, it aimed to identify their attitudes toward the technology and the challenges faced when using it. The sample consisted of 32 student teachers divided into experimental and control groups. Results indicated significant improvements in daily lesson planning skills for the experimental group and positive attitudes toward the interactive blackboard, despite encountering some problems and obstacles during its use.

Al-Abdali (2012) : This study sought to reveal the effectiveness of using smart boards on the achievement of fifth-grade students in mathematics and their attitudes toward it in Al-Qurayyat Governorate. Using an educational test and an attitude questionnaire, the study involved 43 students divided into control and experimental groups. Findings showed that the use of smart boards significantly improved students' mathematics achievement and that students had positive attitudes toward the technology, except for two items where attitudes were negative.

Al-Rasheed (2014) :Al-Rasheed investigated the impact of using interactive blackboards on the achievement of 11th-grade students in biology and their attitudes toward it as an educational tool in Kuwait. The study employed a pre- and post-achievement test and an attitude questionnaire, involving 60 students divided equally into experimental and control groups. Results indicated significant improvements in the experimental group's achievement scores and high positive attitudes toward the use of interactive blackboards. The study also identified the main problems and obstacles faced by students during its use.

Dahlan (2014) : This study aimed to determine the impact of using interactive blackboards on educational achievement and the retention of learning among seventh-grade students in Arabic language courses, as well as their attitudes toward it. Utilizing a quasi-experimental design

with an achievement test and attitude scale, the study involved 70 students divided into control and experimental groups. Results showed significant differences favoring the experimental group in immediate and delayed achievement tests and in attitudes toward the technology. The study recommended providing interactive blackboards in all schools and training teachers in their effective use.

Abdel Moneim (2015) : The study aimed to identify the reality and obstacles of using interactive blackboards by teachers in UNRWA schools and the impact of specialization and years of experience on their responses. A questionnaire was administered to a random sample of 282 teachers out of a population of 616 who had access to interactive blackboards. Results indicated that the degree of use was low, the perceived importance was high, and obstacles were significant. Differences were found favoring teachers of scientific disciplines, while years of experience did not significantly affect responses.

General Commentary on Previous Studies

The reviewed studies demonstrate a clear interest in the integration of interactive blackboard technology in education, highlighting its effectiveness in enhancing student achievement, engagement, and attitudes across various educational levels and subjects. The majority of studies focused on primary and secondary education, with limited research on university students' perceptions.

Several studies (e.g., Marzano & Haystead, 2009; Al-Abdali, 2012; Dahlan, 2014) reported positive impacts on student achievement and attitudes when interactive blackboards were employed. These studies underscore the technology's potential to enrich the learning environment, facilitate interactive instruction, and promote student-centered learning.

Conversely, studies such as Ishtaiwa and Shana (2011) and Abdel Moneim (2015) highlighted challenges and obstacles in the effective use of interactive blackboards, including limited availability, insufficient training, technical difficulties, and lack of integration into teaching practices. These barriers often resulted in underutilization or superficial use of the technology, preventing its full potential from being realized.

Notably, there is a scarcity of studies focusing on university students, particularly within the context of Kuwait. Among the reviewed literature, only the study by Abu Rizk (2012) partially aligns with the current research by involving student teachers and examining attitudes and planning skills related to interactive blackboard usage. However, differences exist in terms of methodology and educational settings.

Contribution of the Current Study

Building on the gaps identified in the previous studies, the current research distinguishes itself by:

- **Focusing on University Students**: Addressing the underrepresented population of university students, specifically those at the College of Basic Education in Kuwait.
- **Exploring Perceptions in Higher Education**: Investigating students' perceptions of interactive blackboard technology within a university setting, which has been less examined in prior research.
- **Contextual Relevance**: Providing insights specific to the Kuwaiti educational context during the academic year 2020/2021, considering the technological advancements and educational reforms in the region.
- **Methodological Approach**: Utilizing a descriptive survey design to capture a comprehensive understanding of students' perceptions and the factors influencing them.

By examining university students' perceptions, the study aims to fill a critical gap in the literature, offering valuable information for educators, policymakers, and stakeholders to enhance the integration of interactive blackboard technology in higher education. The findings may inform strategies to overcome obstacles, optimize technology use, and ultimately improve educational outcomes at the university level.

Methodology and Procedures

Research Methodology

The study adopted the descriptive survey method, which is appropriate for presenting phenomena as they exist in reality. This method aligns with the objectives and variables of the current research, aiming to explore university students' perceptions regarding the use of interactive blackboard technology in education.

Population and Sample

The study population comprised all students enrolled at the College of Basic Education under the Public Authority for Applied Education and Training in Kuwait during the first semester of the academic year 2020/2021. The total number of students was 17,455, including 5,324 male students and 12,131 female students.

A random sample of 393 undergraduate students was selected for the study, consisting of 153 male students (38.9%) and 240 female students (61.1%).

Table 1: Distribution of the Sample by Gender

Gender	Frequency	Percentage
Male	153	38.9%
Female	240	61.1%
Total	**393**	**100%**

Research Instrument

The researcher developed a questionnaire to measure university students' perceptions toward the use of interactive blackboard technology in education. The questionnaire was formulated after reviewing previous research and studies, notably Al-Rasheed (2014). It comprised 32 items designed to assess various aspects of students' perceptions.

Validity of the Instrument

To ensure the construct validity of the questionnaire, correlation coefficients between each item and the total score were calculated using a pilot sample of 40 students not included in the main study. The correlation coefficients ranged from 0.37 to 0.84, indicating acceptable levels of validity.

Table 2: Correlation Coefficients Between Items and Total Score

Item No.	Correlation Coefficient	Item No.	Correlation Coefficient	Item No.	Correlation Coefficient
1	.68**	12	.40**	23	.82**
2	.69**	13	.68**	24	.56**
3	.78**	14	.83**	25	.75**
4	.73**	15	.77**	26	.75**
5	.78**	16	.74**	27	.78**

Item No.	Correlation Coefficient	Item No.	Correlation Coefficient	Item No.	Correlation Coefficient
6	.71**	17	.54**	28	.39**
7	.59**	18	.62**	29	.66**
8	.60**	19	.79**	30	.51**
9	.56**	20	.74**	31	.80**
10	.74**	21	.70**	32	.37*
11	.84**	22	.52**		

Note:
Correlation is significant at the 0.05 level (2-tailed).
Correlation is significant at the 0.01 level (2-tailed).

All correlation coefficients were statistically significant, so all items were retained in the questionnaire.

Reliability of the Instrument

To ensure the reliability of the questionnaire, the test-retest method was employed. The questionnaire was administered twice to a group of 40 students outside the main study sample, with a two-week interval between administrations. The Pearson correlation coefficient between the two sets of scores was 0.91.

Additionally, internal consistency was calculated using Cronbach's alpha, yielding a coefficient of 0.93. These values indicate high reliability suitable for the purposes of this study.

Statistical Standards

A five-point Likert scale was used to measure responses, assigning values as follows:

- **Very High (5) High (4) Moderate (3) Low (2) Very Low (1)**

For interpreting the results, the following ranges were established:

- **1.00 – 2.33**: Low
- **2.34 – 3.67**: Moderate
- **3.68 – 5.00**: High

The interval width was calculated using the formula:

Interval Width=Upper Limit−Lower LimitNumber of Categories=5−13= 1.33\text{Interval Width} = \frac{\text{Upper Limit} - \text{Lower Limit}}{\text{Number of Categories}} = \frac{5 - 1}{3} =

1.33Interval Width=Number of CategoriesUpper Limit−Lower Limit =35−1=1.33

Procedures

To achieve the research objectives, the following steps were undertaken:

1. **Preparation of the Instrument**: The questionnaire was developed and reviewed by experts to ensure content validity. Feedback was incorporated into the final version.
2. **Data Collection**: The researcher distributed the questionnaire to the selected sample of students at the College of Basic Education.
3. **Data Analysis**: Completed questionnaires were collected, and data were entered into the Statistical Package for the Social Sciences (SPSS) software for analysis.
4. **Statistical Treatment**: Appropriate statistical methods were applied, including means, standard deviations, t-tests, and reliability analyses, to interpret the data and answer the research questions.

Results and Discussion

First Research Question

What are the perceptions of university students at the College of Basic Education regarding the use of interactive blackboard technology in education in Kuwait?

To answer this question, means and standard deviations were calculated for each item on the questionnaire. The items were ranked in descending order based on their mean scores.

Table 3: Means and Standard Deviations of Students' Perceptions Ranked Descendingly

Rank	Item No.	Statement	Mean	Std. Deviation	Level
1	2	Education through the use of interactive blackboard technology is more effective than traditional education.	4.17	0.907	High
2	20	Improves students' attitudes toward the educational material presented.	4.16	0.827	High
3	3	Using interactive blackboard technology stimulates students' interest and motivates	4.12	0.908	High

Rank	Item No.	Statement	Mean	Std. Deviation	Level
		them to learn.			
4	22	Enables students to gain self-learning skills.	4.11	0.805	High
5	8	The use of interactive blackboard technology with computers and the Internet excites students to acquire new information.	4.05	1.094	High
32	32	It does not take time to learn how to use an interactive blackboard.	2.95	1.243	Moderate
		Overall Mean	3.87	0.561	High

Note: Only selected items are shown for brevity.

The results indicate that the overall mean score of students' perceptions is 3.87, which falls within the "High" level. This suggests that students have a positive perception of the use of interactive blackboard technology in education.

The highest-rated item was "Education through the use of interactive blackboard technology is more effective than traditional education," with a mean of 4.17. This reflects students' belief in the superiority of interactive blackboard technology over traditional teaching methods in enhancing educational effectiveness.

The lowest-rated item was "It does not take time to learn how to use an interactive blackboard," with a mean of 2.95, which is at the "Moderate" level. This indicates that students perceive some challenges in learning to use the technology, possibly due to a lack of training or exposure.

Discussion

The positive perceptions toward interactive blackboard technology can be attributed to students' recognition of its benefits, such as making lessons more engaging, enhancing understanding, and stimulating interest. The technology's ability to present content in dynamic and interactive ways likely contributes to these positive attitudes.

Despite the overall positive perceptions, the lower rating for the ease of learning to use the interactive blackboard suggests a need for training and support. Providing workshops and tutorials could help students and faculty become more proficient, maximizing the technology's potential.

These findings align with previous research that highlights the advantages of interactive blackboards in education (Afifi, 2007; Abu Rizk, 2012; Al-Abdali, 2012; Al-Rasheed, 2014; Dahlan, 2014).

Second Research Question

Are there statistically significant differences at the level of $\alpha \leq 0.05$ in the perceptions of university students at the College of Basic Education regarding the use of interactive blackboard technology attributable to gender (male, female)?

An independent samples t-test was conducted to examine differences in perceptions based on gender.

Table 4: T-test Results for Gender Differences in Perceptions

Gender	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Male	153	3.89	0.551	0.504	391	0.615
Female	240	3.86	0.568			

The t-test results show no statistically significant differences between male and female students' perceptions ($t = 0.504$, $p = 0.615 > 0.05$). Both groups have similar positive perceptions toward the use of interactive blackboard technology.

Discussion

The absence of significant gender differences suggests that both male and female students equally appreciate the value of interactive blackboard technology in education. This could be due to similar levels of exposure to technology and educational experiences among students at the university.

This finding is consistent with Abu Rizk (2012), who found no significant gender differences in attitudes toward interactive blackboard use. However, it contrasts with Ishtaiwa and Shana (2011), who reported that male students used the technology less than females.

Recommendations

Based on the study findings, the following recommendations are proposed:

1. **Provision of Interactive Blackboards**: Install interactive blackboards in university classrooms to facilitate their use by teachers and students, enhancing the educational process.

2. **Training Programs**: Organize training sessions and workshops for students and faculty to develop skills in using interactive blackboard technology effectively.
3. **Curriculum Integration**: Incorporate the use of interactive blackboards into the curriculum, allowing students to engage with the technology regularly and enhancing their learning experiences.
4. **Leverage Positive Perceptions**: Utilize students' positive attitudes toward interactive blackboard technology to encourage its adoption and integration into teaching and learning activities.
5. **Future Research**: Conduct further studies across different educational stages and with various variables to explore the broader impact of interactive blackboard technology in education.
6. **Faculty Engagement**: Assess faculty members' perceptions and actual use of interactive blackboards to ensure effective implementation and to address any challenges in different teaching environments.

References

Abu Al-Ain, R. (2011). The impact of the interactive blackboard on the achievement of non-native-speaking students in Arabic. Faculty of Arts and Education, Department of Psychological and Educational Sciences.

Abu al-Ward, I. M. (2006). The impact of multimedia software in the acquisition of basic programming skills and the trend towards technology in 10th grade students.

Abu Rizk, I. (2012). The impact of the use of interactive blackboard technology in giving students teachers the skill of planning to teach Arabic language and their attitudes towards it as an educational tool. *International Journal of Educational Research, United Arab Emirates University, 32*, 153–183.

Turf, B. (2009). Interactive blackboards offer small gains for primary school students in the field of self-motivation to learn mathematics. *Journal of Computers and Education, 54*, 379–383.

Hamidan, I. (2013). The impact of the use of smart blackboard on achievement and student attitudes towards the course of social studies. *Education and Psychology, Riyadh, 41*, 5–27.

Dahlan, O. (2014). The impact of the use of the interactive blackboard on educational achievement and the survival of the learning effect of the basic seventh-grade students in the Arabic language and their attitudes towards it. *Lighthouse Magazine, 20(2/B)*, 141–163.

Al-Rasheed, S. (2014). The impact of the use of the interactive blackboard on the achievement of 11th graders in the subject of biology and their attitudes towards it as an educational tool in Kuwait. (Unpublished Master's thesis). University of Jordan, Amman.

Al-Rashidi, S. (2012). Interactive blackboard: special effects training. *Journal of Administrative Development, 137*. Retrieved from http://www.tanmia-idaria.ipa.edu.sa/Article.aspx?Id=135.

Al-Zuabi, S. (2011). The impact of an educational program using the interactive blackboard on the academic achievement of science

subject to students in the fifth grade of primary school in Kuwait. (Unpublished Master's Thesis). Kuwait University, Kuwait.

Saraya, A. (2009). *Education technology and e-learning resources: Theoretical concepts and practical applications, Part II*. Riyadh: Al-Rashed Library.

Salama, A. H., & Al-Dell, S. (2005). *An introduction to education technology*. Riyadh: Alumni House.

Abdeslam, M. (2009). *Teaching methods and techniques: Concepts and applications* (2nd ed.). Riyadh: Al-Rashed Library.

Abdel Moneim, R. (2015). The reality and obstacles to the use of the interactive blackboard from the point of view of the teachers of the schools of the International Relief Agency and its relation to specialization and years of experience in the western area of Gaza governorate in Palestine. *Al-Aqsa University Journal, Humanities Series, 19(2)*, 2070–3147.

Al-Abdali, A. R. (2012). The effectiveness of the use of smart blackboard in the achievement of students of the fifth grade in the subject of mathematics and their attitudes towards it in the province of Al-Qaryat. (Unpublished Master's Thesis). Yarmouk University, Irbid.

Afifi, M. (2007). The effectiveness of a training bag in developing the skills of faculty members in teachers' and education colleges in the use of smart blackboard in teaching and their attitudes towards them. *Journal of Education Technology (Studies and Research)*, Egypt, 45, 189–233.

Ammar, H. (2011). Interactive smart blackboard. *Arab Academy of E-Learning and Training*. Retrieved from http://www.elearning-arab-academy.com/23-elearning-3/immersive-environments/254-activboard.html.

Qandil, Y. A. R. (1999). *Educational means and education technology: Content relationship and classification* (2nd ed.). Riyadh: International Publishing House.

Al-Kasbani, M. (2002). *Educational technology and educational means*. Cairo: Arab Thought House.

Campbell, C. (2010). Interactive whiteboards and the first-year experience: Integrating IWBs into pre-service teacher education. *Australian Journal of Teacher Education, 35(6)*, 67–75.

Haystead, M. W., & Marzano, R. (2009). The impact of interactive whiteboards on student achievement. *Englewood, CO: Marzano Research Laboratory*.

Ishtaiwa, F., & Shana, Z. (2011). The use of interactive whiteboard (IWB) by pre-service teachers to enhance Arabic language teaching and learning. *Learning and Teaching in Higher Education: Gulf Perspectives, 8(2),* 1–18.

Kenwell, S. (2007). The advantages of using an interactive blackboard and its impact on student learning. *Learning, Media, and Technology, 32(3)*, 227–241.

Morgan, L. (2008). Improving student participation: Using the interactive blackboard as an educational tool to improve student participation in secondary school. (Unpublished PhD thesis). Liberty University, USA.

Wichita, S. (2006). Dedicating technology to prepare future scientists. (Unpublished Master's Thesis). Wichita City University, Kansas.

Smith, H., Hardman, F., & Higgins, S. (2006). The impact of interactive whiteboards on teacher-pupil interaction in the national literacy and numeracy strategies. *British Educational Research Journal, 32(3),* 443–457.

Turf, B. (2009). Interactive whiteboards offer small gains for primary school students. *Journal of Computers and Education, 54*, 379–383.