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The Effectiveness of Using Digital Educational Games by Arab School Teachers within the Green Line in the Development of Learning Motivation among Basic School Students: Teachers' Perspectives

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Abstract

This study aimed to identify the degree of effectiveness of using digital educational games by Arab school teachers within the Green Line in developing learning motivation among basic stage students from their perspective. To achieve the study's objectives, the descriptive survey method was employed, and a questionnaire was used as the data collection instrument. It was administered to an available sample of (376) male and female teachers. The results showed that the degree of effectiveness of using digital educational games by Arab school teachers within the Green Line in developing learning motivation among basic stage students from their perspective was high. The domains were ranked in the following order: 1) Organization and Activity Management ranked first, with a high degree of effectiveness. 2) Interaction and Communication ranked second, with a high degree of effectiveness.3) Motivation and Encouragement ranked third, with a high degree of effectiveness. 4) Assessment and Feedback ranked fourth, with a high degree of effectiveness. The results also revealed statistically significant differences at the significance level ($\alpha \leq 0.05$) between the mean scores of Arab school teachers within the Green Line regarding their estimates of the effectiveness of using digital educational games in developing learning motivation among basic stage students in the domains of Motivation and Encouragement, Organization and Activity Management, Assessment and Feedback, and in the overall score, except for the domain of Interaction and Communication. These differences were attributed to the gender variable, in favor of females. Furthermore, statistically significant differences were found attributable to the specialization variable across all domains (Motivation and Encouragement, Organization and Activity Management, Interaction and Communication, Assessment and Feedback) and in the overall score, in favor of teachers with scientific specializations. However, the results did not show any statistically significant differences attributable to the variable of years of service among the mean scores of Arab school teachers within the Green Line in any of the domains of the effectiveness of using digital educational games in developing learning motivation among basic stage students, nor in the overall score.

Keywords: *Digital Educational Games, Arab Schools, Teachers, Green Line.*

1. INTRODUCTION

1.1 Theoretical Framework and Previous Studies

The contemporary world is witnessing an unprecedented acceleration in the pace of technological developments, which have profoundly impacted various aspects of life. Education has received a significant share of this influence. Experiences have shown that traditional teaching methods are no longer sufficient to meet the demands of the digital age,

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leading to a decline in students' interest and limited participation in learning. Hence, the need arises for adopting innovative pedagogical approaches based on stimulating learning environments that enable students to engage in active learning and develop their capacities for research, exploration, and critical thinking. This ensures transforming learning into an interactive, enjoyable, and effective experience. In light of these rapid technological transformations, educational institutions have become required to adopt modern teaching strategies that leverage technological capabilities to improve learning environments, making them more interactive, flexible, and appealing to students. Education is no longer confined to indoctrination and knowledge transfer from teacher to learner; it now focuses on making the learner the center of the educational process by involving them in interactive activities that enhance their motivation and stimulate them to research and discover (Wang et al., 2022). Digital technologies are no longer merely auxiliary tools; they have become an essential part of the contemporary learning environment, especially with the widespread proliferation of smart devices and the internet. This has made students more familiar with technology than ever before and has made integrating it into the educational process an urgent pedagogical necessity (Alotaibi, 2024).

Motivation is a pivotal element in the educational process, determining the student's readiness to actively participate in learning and achieve their educational goals. Motivation is divided into two types: **Intrinsic Motivation**, which stems from the student's own desire to learn and discover, and **Extrinsic Motivation**, which arises from external rewards or incentives such as recognition, points, or certificates. Several factors influence motivation levels, including the learning environment, teacher support, the nature of educational challenges, and peer relationships. This makes designing educational activities that align with these factors crucial for fostering self-directed and continuous learning (Pertiwi & Mursyida, 2025). Among the most prominent approaches that have emerged in response to these transformations is the utilization of **digital educational games**. These represent a modern innovation that combines learning and entertainment. They are carefully designed to enable students to acquire concepts and skills through interaction with a stimulating play environment. These games are characterized by their ability to provide an atmosphere of fun, challenge, and immediate interaction, which contributes to arousing students' interest and enhancing their active participation in the learning process (Gui et al., 2023).

The distinction of these games is not limited to their exciting interactive nature; their effectiveness extends to enhancing students' learning motivation. They provide an interactive, stimulating learning environment that encourages participation and interaction and allows students to engage with content in enjoyable ways. This reinforces their interest in the subject matter and motivates them to acquire cognitive and behavioral skills (Al-Shehri, 2024).

Li et al. (2024) confirmed that integrating digital games into curricula can improve students' cognitive achievement levels, enhance their critical thinking and problem-solving skills, and raise their intrinsic and extrinsic motivation for learning. The effectiveness of digital educational games in developing motivation is based on the principles of **Self-Determination Theory (SDT)**, developed by Ryan and Deci. This theory asserts that motivation flourishes when three basic psychological needs are satisfied in an individual: **Autonomy**, **Competence**, and **Relatedness**. When a learner feels they have freedom of choice in performing tasks (Autonomy), that they are capable of successfully accomplishing them (Competence), and that they are part of a supportive learning environment (Relatedness), their motivation increases significantly (Ryan & Deci, 2019; Ishida & Sekiyama, 2024). Well-designed digital

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educational games are characterized by presenting gradually increasing challenges suitable to the learner's level, providing immediate feedback, and encouraging teamwork or constructive competition. This fulfills these psychological needs and leads to increased levels of intrinsic motivation (Wang et al., 2022).

Despite the multiple advantages of digital educational games, study results regarding their effectiveness remain inconsistent. Some research indicates that the impact of these games depends on several factors, including: the quality of pedagogical design, the extent to which the game's content is linked to educational objectives, the teacher's role in guiding the learning process, and the nature of the target age group. Additionally, school culture, teachers' acceptance of modern technologies, and the availability of digital infrastructure play an important role in determining the degree of success of these games in the educational field (Gui et al., 2023). Games that are carefully designed within clear educational frameworks show a significantly positive impact on motivation, whereas random or unguided use of these games may not achieve the desired results (Li et al., 2024).

Low student motivation for learning is one of the most prominent challenges facing educational systems at various stages. It leads to low academic achievement, weak classroom participation, and a decline in independent thinking skills. Moreover, traditional teaching methods—which focus on rote learning and routine assignments—do not always succeed in arousing students' interest or motivating them towards self-directed learning (Alotaibi, 2024). Hence, the importance of adopting innovative teaching strategies, such as digital educational games, which studies have proven capable of raising students' motivation levels and transforming their learning process from a compulsory activity into an enjoyable and stimulating experience that aligns with their psychological and cognitive needs.

Despite the growing global interest in digital educational games and their proven ability to boost student motivation, their application in Arab schools within the Green Line remains limited and requires in-depth field studies that measure their impact on various aspects of learning, including motivation development. From this standpoint, the importance of conducting this research emerges. It seeks to study the effectiveness of using digital educational games in enhancing student learning motivation, considering them a promising educational strategy that can contribute to improving the quality of education and achieving educational goals. Additionally, it aims to enrich Arabic educational literature with original research findings that contribute to developing teaching practices in line with the demands of the digital age.

1.1.1 Previous Studies: Presented chronologically from oldest to most recent as follows:

Sabirli & Çoklar (2020) conducted a study aimed at exploring the impact of digital educational games on the academic achievement, motivation, and attitudes of primary school students regarding their access to lesson content. The study sample consisted of (90) students from a public primary school in Turkey. A quasi-experimental method was used, implementing an experiment on two different teaching units (in the classroom, and numbers) in the English subject. Results showed that digital educational games contributed to improving students' access to lesson content and enhanced their motivation to learn English, while showing little to no impact on their attitudes towards the subject's educational content.

Abu 'Abah & Al-Mahanna (2022) conducted a study aiming to reveal the relationship between electronic educational games and the learning motivation of primary stage students in e-learning platforms from female teachers' perspectives, and to identify the level of learning

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motivation among primary stage students in e-learning platforms. To achieve the study's objectives, the descriptive correlational method was used, and a questionnaire was employed as the data collection tool. The study sample consisted of (304) female teachers from lower elementary grades, selected via snowball sampling. The results showed a statistically significant positive correlation at the (0.01) level between teachers' use of electronic educational games and the learning motivation of their primary stage students in e-learning platforms. The more primary stage teachers practiced using electronic educational games in e-learning platforms, the more their students' learning motivation increased.

Hamdan (2025) conducted a study aiming to explore the effectiveness of employing digital games in improving achievement and developing learning motivation among first-grade primary students in mathematics. A qualitative approach was used, conducting open interviews with a purposive sample of seven parents of students at Al-Mutabanni Governmental Primary School within the Green Line. The study results showed that digital games contributed to improving students' academic performance by providing an interactive and engaging learning environment, increasing answer speed and students' confidence in solving mathematical problems. They played a significant role in motivating students through rewards and interactive challenges that enhanced their desire to learn. The results also indicated the importance of integrating digital games with teacher and parental support to achieve the best educational outcomes. On the other hand, the need emerged to develop game designs to include flexible levels that consider variations in student abilities and reduce time-related challenges that might affect their motivation.

Al-Rahoomi (2025) conducted a study aiming to identify the role of digital educational games in enhancing learning motivation and academic achievement among middle school students. The descriptive-analytical critical method was used, relying on reviewing educational literature and previous studies, and analyzing the reality of employing these games in the Arab educational environment, with a focus on strengths and shortcomings. The study showed that employing digital educational games in middle school education holds significant potential for enhancing student motivation and improving their academic achievement. However, these potentials are not achieved automatically or consistently; they depend on several factors that must be available to realize an actual positive impact. The most important of these factors is the presence of clear educational planning for using games, so that they are an integrated part of the teaching strategy, not merely a peripheral or entertainment activity.

Rahmi et al. (2025) conducted an exploratory study aiming to analyze the impact of gamification on raising students' learning motivation levels and revealing its most used and effective elements in educational contexts. The study relied on the descriptive-analytical method (exploratory review), searching five global databases: Emerald, Scopus, Sage, Garuda, and Google Scholar. The sample included (25) scientific studies selected based on specific criteria. Results showed that gamification contributes positively to enhancing student motivation and engagement in learning. However, the effectiveness of its elements varies depending on the educational context and learner characteristics. Elements such as points, levels, and leaderboards emerged as the most common components in educational applications, yet their impact on intrinsic motivation remains debatable.

The study by Yllana-Prieto et al. (2025) aimed to trial an educational model called BrEscapeRm, which combines the Escape Room and Breakout approaches, to teach STEM content in a science course for students in a basic-stage teacher preparation program. The study adopted the applied descriptive-analytical method. The activity was implemented on a sample

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of teacher preparation students in Spain, numbering (66) students equally distributed into three groups. Their perceptions of the experience were measured after completion. Results showed that students found the BrEscapeRm experience enjoyable, exciting, motivating, and engaging, which helped enhance their motivation and engagement in the learning process. Results indicated that students displayed high concentration during all stages of the activity, with feelings of enjoyment and satisfaction at its conclusion. However, some reservations emerged regarding tasks related to mathematical calculations and scientific concepts. The study confirmed that such activities can form an effective tool in raising motivation levels and active student participation in learning STEM topics in basic education.

The study by Isik & Kaban (2025) aimed to reveal the impact of employing digital educational games in the "Escape Room" style on improving academic achievement and motivation towards learning mathematics among primary school students, compared to traditional teaching. An Explanatory Sequential Mixed-Methods Research Design was adopted (quasi-experimental with a two-group design (experimental and control), and qualitative). Two main instruments were used: an achievement test to measure mathematics proficiency level, and a learning motivation scale. The sample consisted of (45) third-grade primary students from a Turkish school in Istanbul, selected randomly and then divided into two groups: an experimental group of (23) students and a control group of (22) students. Interviews were conducted with members of the experimental group. Results showed that students in the experimental group, who learned via digital games, achieved higher scores on the achievement test and exhibited a higher level of motivation towards learning mathematics compared to their peers in the control group. The study concluded that integrating interactive digital games constitutes an effective approach to enhancing motivation for learning mathematics in elementary grades.

The study by Liu et al. (2025) sought to design and develop a digital educational game to enhance digital citizenship learning among middle school students and explore its impact on their academic achievement, learning motivation, and cognitive load during the educational process. A mixed-methods approach was used. Quantitative data were collected through tests and scales related to achievement and motivation, and qualitative data were collected using analysis of student behavior during gameplay to explain learning patterns. The study sample consisted of (80) seventh-grade students, selected conveniently and equally divided into an experimental group that participated in learning via the digital game and a control group that learned via the traditional method. Results showed that using the digital game in teaching digital citizenship contributed to enhancing student achievement, reducing cognitive load, and increasing motivation, especially among students with low motivation. The study revealed differences in behavioral patterns between high-progress and low-progress groups during gameplay.

1.1.2 Commentary on Previous Studies

This study is distinguished by its investigation of Arab schools in the Northern District within the Green Line—a geographical area not previously studied, to the researcher's knowledge. Despite the methodological similarity with most other studies in using the descriptive approach, this study is unique in its focus on basic stage teachers as an age group not sufficiently addressed in previous studies, and on the variables of gender, years of service, and specialization and their relationship to the use of digital educational games in teaching. The researcher benefited from previous studies in enriching the theoretical framework, defining

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the study problem, developing the study instrument with its domains and items, interpreting and comparing results, and accessing sources and references relevant to the current study.

2. STUDY PROBLEM AND QUESTIONS

Education today is witnessing rapid pedagogical and digital transformations, with educational games emerging as an innovative tool to enhance interaction, motivation, and learning quality. However, the educational reality in Arab society within the Green Line reveals prominent challenges, especially at the basic stage. These include low student motivation for learning, weak academic achievement levels, alongside the non-systematic use of these games by some teachers without clear pedagogical planning, which reduces their educational effectiveness. Through her work as a teacher in schools in the North within the Green Line and her direct communication with colleagues, the researcher observed a noticeable decline in students' enthusiasm for learning due to teachers' reliance on traditional teaching methods and strategies lacking elements of excitement and appeal. This may negatively affect students' learning motivation, prompting the Ministry of Education to direct increasing attention towards motivating teachers to employ modern strategies based on interaction and technology, foremost among them educational games, given their role in breaking classroom stagnation and creating a stimulating learning environment that considers learners' needs and keeps pace with contemporary requirements. Hence, the need arises to study the effectiveness of using digital educational games in student learning motivation, considering them among modern teaching methods that combine interaction and fun, and are distinguished by their ability to satisfy learners' psychological and cognitive needs according to the principles of Self-Determination Theory. In light of the above, this study came in response to this urgent educational need and as a contribution to developing contemporary teaching practices to suit the requirements of the modern school environment. More specifically, the study attempted to answer the following two questions:

2.1 Study Questions:

1) What is the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line from the perspective of their teachers?
2) Are there statistically significant differences at the ($\alpha \leq 0.05$) level between the mean scores of teachers' estimates regarding the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line, attributable to the study variables (gender, academic qualification, years of service, specialization)?

3. STUDY OBJECTIVES AND SIGNIFICANCE

3.1 Study Objectives

The current study sought to achieve the following objectives:

To identify the degree of effectiveness of using educational games in developing learning motivation among basic stage students within the Green Line from the perspective of their teachers.

To reveal whether there are statistically significant differences at the ($\alpha \leq 0.05$) level between the mean scores of teachers' estimates regarding the degree of effectiveness of using

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educational games in developing learning motivation among basic stage students within the Green Line, attributable to the study variables (gender, years of service, specialization).

3.2 Significance of the Study

Firstly: Theoretical (Scientific) Significance: It is hoped that this study will enrich Arabic and global educational literature with scientific evidence on the topic of digital educational games and their role in developing student learning motivation. It offers an in-depth understanding of how students interact with digital learning environments and clarifies the relationship between these games and students' motivation levels according to the principles of Self-Determination Theory. It is also hoped that the study will provide a **knowledge base** that can be relied upon in future studies investigating the impact of digital teaching strategies on motivation.

Secondly: Practical (Applied) Significance: It is hoped that the results of the current study will benefit the following:

Educational Policymakers and the Ministry of Education:

The results can help guide educational policies towards integrating digital educational games into curricula, establishing supportive training programs for teachers, and stimulating pedagogical innovation in line with the demands of the digital age.

Educational Supervisors in Green Line Schools:

The results of this study provide them with feedback on the degree of effectiveness of Arab school teachers' use of digital educational games within the educational process, enabling them to work on improving that degree by offering programs and training courses that equip teachers with the necessary skills to handle these games of various types.

School Principals within the Green Line:

The results of this study provide them with a clear understanding of the effectiveness of teachers' use of digital educational games in enhancing student motivation for learning, helping them provide the necessary guidance and support for teachers to develop their teaching practices and improve the quality of learning in schools.

Male and Female Teachers in schools of the Northern District within the Green Line:

The study helps them identify the level of use of digital educational games in classrooms and guides them towards applying innovative pedagogical strategies that raise student motivation, including benefiting from workshops and training programs related to effectively employing digital educational games.

Students:

They benefit directly from the improvement of teaching methods and the systematic employment of digital educational games, which enhances their classroom participation, raises their intrinsic and extrinsic learning motivation, and makes the learning process more enjoyable and interactive.

Researchers:

The results help them build a comprehensive conceptual framework explaining the impact of digital educational games on learners' psychological and cognitive aspects and enable them to conduct subsequent studies on modern interactive methods in education.

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4. STUDY TERMINOLOGY

The study included the following conceptual and operational definitions:

Digital Educational Games: Defined conceptually as "interactive educational activities based on technology, delivered through electronic devices, and designed to achieve specific pedagogical objectives. They aim to enhance students' understanding and comprehension of concepts and knowledge, and develop their motivation towards learning through active interaction within a stimulating digital environment that combines fun and education" (Li, Chen, & Deng, 2024, p. 3).

Operationally defined as: Interactive digital activities or programs employed by male and female teachers in Arab schools within the Green Line in classroom educational situations or via electronic educational platforms, aiming to develop student motivation towards learning. This is achieved by integrating game elements such as challenge, immediate feedback, and reward into the educational content, allowing students an active and enjoyable interaction with study concepts. Their effectiveness was measured by the total score obtained by respondents on the instrument prepared by the researcher for this purpose, which included the following domains: Motivation and Encouragement, Organization and Activity Management, Interaction and Communication, and Assessment and Feedback.

Motivation: Conceptually defined as "the individual's desire to exert maximum possible efforts to achieve organizational goals in order to increase their ability to meet their needs; it is an internal driver that moves an individual's behavior and stimulates them to perform work" (Al-Qaryouti, 2009, p. 52).

Learning Motivation: Conceptually defined as: "The internal psychological process that directs the learner's behavior and sustains their engagement in educational activities, enabling them to achieve the desired educational objectives" (Fan et al., 2025, p. 492).

Operationally defined as: The extent of enthusiasm, interest, and perseverance demonstrated by students in performing educational activities inside the classroom or via digital platforms, as estimated by teachers in basic stage schools within the Green Line. It is an internal sense that directs the learner's behavior towards active and continuous participation in classroom educational activities or via electronic educational platforms, maintaining their enthusiasm and commitment, enabling them to achieve the desired educational goals.

5. SCOPE AND LIMITATIONS OF THE STUDY

5.1 Scope of the Study

The scope is defined as follows:

- **Thematic Scope:** The degree of effectiveness of using digital educational games in developing learning motivation among basic stage students from the perspective of their teachers.
- **Human Scope:** The study was limited to a sample of male and female teachers in Arab schools in the Northern District within the Green Line.
- **Geographical Scope:** The study was applied in Arab schools in the Northern District within the Green Line.

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- **Temporal Scope:** The study was applied in the second semester of the 2024-2025 academic year.

5.2 Study Limitations

These include the objectivity and seriousness of the responses from the study sample members, as well as the validity and reliability of the study instrument.

6. METHODOLOGY AND PROCEDURES

6.1 Study Design

The study relied on the descriptive survey method due to its suitability for its purposes.

6.2 Study Variables

- **First: The Dependent (Main) Variable:** Represented by the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students from the perspective of their teachers.
- **Second: Independent Variables,** including:
  - **Gender,** with two categories (Male, Female).
  - **Years of Service,** with two categories (Less than 10 years, 10 years or more).
  - **Academic Specialization,** with two categories (Scientific, Humanities).

6.3 Study Population

The study population consisted of all male and female teachers working in Arab schools in the Northern District within the Green Line, numbering (18,617) teachers according to the Statistical Directory of the Ministry of Education for the 2024-2025 academic year.

6.4 Study Sample

The study sample was selected from the study population using simple random sampling, totaling (376) male and female teachers. **Table (1)** shows the distribution of the study sample individuals according to its variables.

Table (1): Distribution of Study Sample Individuals According to Variables

Variable	Variable Levels	Frequency	Percentage
Gender	Male	148	39.40%
	Female	228	60.60%
	Total	**376**	**100.00%**
Years of Service	Less than 10 years	112	29.80%
	10 years or more	264	70.20%
	Total	**376**	**100.00%**
Specialization	Scientific	175	46.50%
	Humanities	201	53.50%
	Total	**376**	**100.00%**

6.5 Study Instrument

The researcher developed a questionnaire to collect the necessary data for achieving the study's objectives. It consisted of two parts: **Part One:** Included the respondent's personal data. **Part Two:** Items to measure the degree of effectiveness of using digital educational games by Arab school teachers within the Green Line in developing learning motivation among basic

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stage students from their perspective. To formulate the questionnaire items, reference was made to theoretical literature and relevant previous studies, such as those by: Sabirli & Çoklar (2020); Abu 'Abah & Al-Mahanna (2022); Isik & Kaban (2025); Hamdan (2025). This led to the formulation of **(36)** items distributed across four domains: Motivation and Encouragement (8 items), Organization and Activity Management (8 items), Interaction and Communication (8 items), and Assessment and Feedback (8 items). To verify their validity and reliability, the following procedures were followed:

Content Validity of the Instrument:

To verify content validity, the initial version of the instrument was presented to a group of (10) experts and specialists in the fields of educational administration, foundations of education, measurement and evaluation, and curricula and teaching from Jordanian universities and universities within the Palestinian territories. The aim was to obtain their opinions on the items regarding relevance, linguistic clarity, and appropriateness for the assigned domain, along with any modifications they deemed suitable.

Based on the observations agreed upon by (80%) or more of the reviewers, the suggested modifications were implemented, which involved rephrasing some items. Consequently, the final version of the questionnaire, after rearrangement and renumbering, consisted of **(32)** items, equally distributed among the four domains. To respond to the questionnaire items, a five-point Likert scale was adopted as follows: (Very High = 5 points, High = 4 points, Moderate = 3 points, Low = 2 points, Very Low = 1 point).

Construct Validity of the Instrument:

The questionnaire was administered to a pilot sample of (30) male and female teachers working in schools in the Northern District within the Green Line, who were not part of the target study sample. This was done to calculate Pearson correlation coefficients for the relationship of items with the instrument and with their respective domains. **Table (2)** illustrates this.

Table (2): Pearson Correlation Coefficients of Items with Their Respective Domain and with the Entire Instrument (n=30)

Domain	ITEM	Correlation with		Domain	No	Correlation with		Domain	No	Correlation with	
		Domain	Instrument			Domain	Instrument			Domain	Instrument
Motivation & Encouragement	1	0.90	0.70	Organization & Activity Mgmt. 12	12	0.65	0.65		23	0.83	0.74
	2	0.94	0.78		13	0.84	0.77		24	0.86	0.77
	3	0.90	0.74		14	0.88	0.79	Evaluation and feedback	25	0.86	0.78
	4	0.80	0.73		15	0.90	0.83		26	0.85	0.71
	5	0.79	0.71		16	0.83	0.85		27	0.89	0.75
	6	0.91	0.80	Interaction and communication	17	0.83	0.87		28	0.90	0.72
	7	0.87	0.79		18	0.85	0.77		29	0.92	0.80
	8	0.92	0.81		19	0.88	0.83		30	0.83	0.83
	9	0.68	0.80		20	0.87	0.84		31	0.90	0.77
	10	0.89	0.88		21	0.87	0.85		32	0.83	0.76
	11	0.90	0.82		22	0.90	0.84				

It is observed from the results in Table (2) that the values of Pearson correlation coefficients for items with the domains of (the degree of effectiveness of using digital educational games by Arab school teachers within the Green Line in developing learning motivation among basic stage students) ranged between (0.65) and (0.94). The values of item correlations with the entire instrument ranged between (0.65) and (0.88). These values are considered acceptable (Al-Kilani & Al-Shareefeen, 2011, p. 431); therefore, no items were deleted from the instrument in its two parts.

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In addition to the above, Pearson correlation coefficients were calculated for the relationship of the domains with the instrument, as well as the inter-correlation coefficients among the domains themselves. **Table (3)** illustrates this.

Table (3): Pearson Correlation Coefficients for the Relationship of Domains with the Instrument, and Inter-Correlation Coefficients Among Domains

Relationship	Statistic	Motivation & Encouragement	Organization & Activity Mgmt.	Interaction & Communication	Assessment & Feedback
Organization & Activity Mgmt.	Correlation Coefficient	0.75			
	Statistical Significance	0.00			
Interaction & Communication	Correlation Coefficient	0.72	0.87		
	Statistical Significance	0.00	0.00		
Assessment & Feedback	Correlation Coefficient	0.59	0.79	0.77	
	Statistical Significance	0.00	0.00	0.00	
Total Instrument Score	Correlation Coefficient	0.86	0.95	0.93	0.87
	Statistical Significance	0.00	0.00	0.00	0.00

Statistically significant at the (0.05) level

It is observed from the results in Table (3) that the values of Pearson correlation coefficients for the domains of (the degree of effectiveness of using digital educational games by Arab school teachers within the Green Line in developing learning motivation among basic stage students) with the instrument, and the inter-correlation values among the domains themselves, were appropriate. The correlation values with the entire instrument ranged between (0.86) and (0.95), while the inter-correlations among domains ranged between (0.59) and (0.87). These values are considered suitable for achieving the purposes of the current study (Al-Kilani & Al-Shareefeen, 2011, p. 431).

Reliability of the Study Instrument

To verify the internal consistency reliability of the instrument, Cronbach's Alpha (α) coefficient was calculated based on the data from the initial application to the pilot sample. **Table (4)** shows the internal consistency reliability coefficients for the instrument's domains.

Table (4): Internal Consistency Reliability Coefficients for the Domains of the Study Instrument

Instrument and Its Domains	Internal Consistency Reliability	Number of Items
Motivation and Encouragement	0.96	8
Organization and Activity Management	0.93	8
Interaction and Communication	0.94	8
Assessment and Feedback	0.95	8
Total Instrument Score	**0.92**	**32**

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As observed in Table (4), the Cronbach's Alpha reliability coefficients for the domains of (the degree of effectiveness of using digital educational games by Arab school teachers within the Green Line in developing learning motivation among basic stage students) ranged between (0.93) and (0.96). The total reliability coefficient for the instrument was (0.92). These values indicate the instrument's suitability for the purposes of this study.

6.6 Statistical Criterion

A proportional scaling statistical model was adopted to make judgments about the arithmetic means of the instrument and its domains, and their respective items. This was done by dividing the numerical range (1-5) into five categories to obtain the range for each level, i.e., (5-1/5 = 0.80). Accordingly, the levels were as follows: **Very Low** for means (1 - less than 1.80), **Low** for means (1.80 - less than 2.60), **Moderate** for means (2.60 - less than 3.40), **High** for means (3.40 - less than 4.20), and **Very High** for means (4.20 - 5.00).

6.7 Statistical Treatments

- To answer the first question, the arithmetic means and standard deviations of the Arab school teachers' estimates within the Green Line regarding the degree of effectiveness of their use of digital educational games in developing learning motivation among basic stage students were calculated.
- To answer the second question, a **three-way ANOVA** was used concerning the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students.

7. STUDY RESULTS AND DISCUSSION

Presentation of Results Related to Answering the First Question: The first question stated: "What is the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line from the perspective of their teachers?"

To answer the first question, the arithmetic means and standard deviations of the Arab school teachers' estimates within the Green Line regarding the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students and its domains were calculated. **Table (5)** illustrates this.

Table (5): Arithmetic Means and Standard Deviations of Sample Members' Estimates for the Degree of Effectiveness of Using Digital Educational Games in Developing Learning Motivation Among Basic Stage Students and Its Domains, with Domains Ordered Descending by Their Means

Rank	Domain No.	Instrument and Its Domains	Arithmetic Mean	Standard Deviation	Effectiveness Degree
1	2	Organization & Activity Mgmt.	3.83	0.89	High
2	3	Interaction & Communication	3.82	0.92	High
3	1	Motivation & Encouragement	3.71	0.89	High
4	4	Assessment & Feedback	3.67	0.93	High
		Total Instrument Score	**3.76**	**0.85**	**High**

It is observed from the results in Table (5) that the arithmetic mean of the sample members' estimates for the overall degree of effectiveness of using digital educational games

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in developing learning motivation among basic stage students was **High**, with a mean of **(3.76)** and a standard deviation of **(0.85)**. The domains were ranked in the following order:

1) **Organization and Activity Management** ranked first, with a mean of **(3.83)**, a standard deviation of **(0.89)**, and a **High** degree of effectiveness.
2) **Interaction and Communication** ranked second, with a mean of **(3.82)**, a standard deviation of **(0.92)**, and a **High** degree of effectiveness.
3) **Motivation and Encouragement** ranked third, with a mean of **(3.71)**, a standard deviation of **(0.89)**, and a **High** degree of effectiveness.
4) **Assessment and Feedback** ranked fourth, with a mean of **(3.67)**, a standard deviation of **(0.93)**, and a **High** degree of effectiveness.

This outcome can be attributed, according to the views of teachers in Arab schools within the Green Line, to the role of these games in creating an exciting and interactive learning environment that motivates students to participate and enhances their desire to learn. This is in addition to the continuous support provided by the Ministry of Education through supplying devices and educational software, opening training channels, and organizing workshops. This support has contributed to increasing teachers' awareness of how to leverage digital educational games, enabling them to use them effectively in classrooms and enhancing their positive impact on student learning motivation. Consequently, these estimates reflect teachers' recognition of the value of digital games as an advanced educational tool, supported by infrastructure and official guidance, with a direct impact on students' readiness to learn and the achievement of desired goals. These high estimates also reflect teachers' ability to employ games in diverse educational ways that support active and personalized learning. The teacher's strategy in presenting digital activities suitable for different student levels and encouraging them to participate in interactive challenges and competitions contributes to enhancing student enthusiasm and developing skills of cooperation and positive competition among them, thereby raising their learning motivation. Furthermore, the successful experiences of some teachers in neighboring schools have contributed to sharing experiences and exchanging effective strategies, boosting teachers' confidence in their ability to use digital games and achieve tangible results in motivating students to learn.

The finding of the current study is consistent with the results of studies by: Abu 'Abah & Al-Mahanna (2022); Hamdan (2025); Al-Rahoomi (2025); Rahmi et al. (2025); Yllana-Prieto et al. (2025); Liu et al. (2025), which showed that the more teachers practice using digital educational games, the more students' learning motivation increases.

For further detail, the arithmetic means and standard deviations of the study sample members' estimates for the items within each domain of the instrument were calculated as follows:

1) Domain of Organization and Activity Management

The arithmetic means and standard deviations of Arab school teachers' estimates within the Green Line regarding the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Organization and Activity Management)** were calculated, considering their descending order based on their total arithmetic means, as shown in **Table (6)**.

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Table (6): Arithmetic Means and Standard Deviations for the Degree of Effectiveness of Using Digital Educational Games in Developing Student Learning Motivation for Items in the Domain of (Organization and Activity Management), Ordered Descending by Their Means

Rank	Item No.	Items	Mean	Std. Deviation	Degree of Effectiveness
1	14	I explain the rules of the digital game to ensure all students understand them.	4.06	0.96	High
2	11	I select digital educational games that suit the students' levels and abilities.	4.00	0.97	High
3	10	I ensure that the digital educational game is aligned with the lesson objectives.	3.92	1.00	High
3	15	I provide equal opportunities for students of different levels to participate in digital educational games.	3.92	0.98	High
5	13	I manage the flow of the educational activity when employing digital games.	3.81	0.98	High
6	12	I distribute tasks related to digital educational games among students fairly.	3.80	0.99	High
7	16	I employ digital educational games in a way that ensures minimizing chaos during the session.	3.68	1.02	High
8	9	I use digital educational games as a means to organize class time effectively.	3.47	1.07	High
Total		**Overall Mean for Organization and Activity Management**	**3.83**	**0.89**	**High**

It is observed from the results in Table (6) that the arithmetic mean of Arab school teachers' estimates within the Green Line for the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Organization and Activity Management)** was **(3.83)**, with a standard deviation of **(0.89)**, and a **High** degree of effectiveness.

This result can be attributed, according to the views of the study sample members (teachers in basic education schools in Arab society within the Green Line), to the primary role played by the Ministry of Education in providing technical and technological support. This includes supplying schools with devices and educational software, organizing training programs, and workshops that enhanced teachers' awareness of methods for effective planning and organization of activities. Additionally, the role of educational supervisors in following up with teachers and guiding them on scientific strategies for classroom management and activity organization has helped them improve their performance in this area. School administration has also contributed by creating a supportive educational environment for teachers, encouraging them to innovate in organizing activities, monitoring implementation, and providing feedback, which gave them the confidence and ability to practice these skills effectively. Teachers have demonstrated awareness and skill in utilizing available resources and organizing activities appropriate to their students' levels while enhancing discipline, cooperation, and positive competition among them. This is reflected in their responses, resulting in High estimates for this domain. The highest estimate was for Item (14): "I clarify the rules of the digital game to ensure all students understand," ranking first with a mean of (4.06), a standard deviation of (0.96), and a High degree of effectiveness. This can be attributed, according to the views of teachers in basic education schools within the Green Line, to their understanding of the importance of clarifying the rules of the digital game before

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starting its implementation. This ensures the achievement of the intended educational objectives and avoids any ambiguity or confusion that might hinder student learning or active participation. This behavior reflects the teachers' keenness to organize the digital learning environment in a systematic way that considers individual differences among students and ensures everyone's clear and fair participation. Furthermore, teacher training on managing digital activities by educational supervisors and the school administration's promotion of a culture of participatory and interactive education have helped solidify this pedagogical practice among them, which is reflected in their High estimate for this item. This was followed by Item (11): "I choose digital educational games that align with the students' level and capabilities," ranking second with a mean of (4.00), a standard deviation of (0.97), and a High degree of effectiveness. This result can be attributed to the awareness of teachers in Arab society within the Green Line regarding the importance of considering individual differences among students when selecting digital educational games, ensuring they are suitable for their varying abilities and cognitive levels, which contributes to effective and inclusive learning for all students. The reason for this result may also be the continuous training teachers receive in employing educational technology and the support from educational supervisors in selecting appropriate digital tools for lesson objectives and learner characteristics. Furthermore, the Ministry of Education's directives towards student-centered education and school administration's support for individualized teaching practices have contributed to strengthening this awareness, which is reflected in their High estimate for this item.

Item (9): "I use digital educational games as a means to effectively organize class time," ranked last with a mean of (3.47), a standard deviation of (1.07), and a High degree of effectiveness. This can be attributed, according to the teachers' views, to the fact that using digital educational games to organize class time is not as much of a priority for them as employing them to achieve direct learning objectives. However, their awareness of the importance of time management during the implementation of digital activities and their keenness to achieve a balance between lesson requirements and allocated class time resulted in their estimate for this item being within the **High** degree of effectiveness.

2) Domain of Interaction and Communication

The arithmetic means and standard deviations of Arab school teachers' estimates within the Green Line regarding the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Interaction and Communication)** were calculated, considering their descending order based on their total arithmetic means, as shown in **Table (7)**.

Table (7): Arithmetic Means and Standard Deviations for the Degree of Effectiveness of Using Digital Educational Games in Developing Student Learning Motivation for Items in the Domain of (Interaction and Communication), Ordered Descending by Their Means

Rank	Item No.	Items	Mean	Std. Deviation	Degree of Effectiveness
1	18	I encourage collaboration among students through digital educational games.	3.93	0.97	High
2	19	I encourage students to work in groups through activities based on digital educational games.	3.89	0.98	High
3	24	I use digital educational games to increase the participation of all students in class discussions.	3.87	1.03	High

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4	23	I encourage students to exchange ideas and experiences during the game.	3.86	1.03	High
5	17	I employ digital educational games to increase interaction between myself and the students.	3.80	1.03	High
6	20	I utilize digital educational games to enhance students' dialogue skills.	3.76	1.03	High
7	22	I utilize digital educational games to foster team spirit and shared responsibility.	3.75	0.99	High
8	21	I strive to create a collaborative classroom environment using digital games.	3.73	0.99	High
Total		**Overall Mean for Interaction and Communication**	**3.82**	**0.92**	**High**

It is observed from the results in Table (7) that the arithmetic mean of Arab school teachers' estimates within the Green Line for the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Interaction and Communication)** was **(3.82)**, with a standard deviation of **(0.92)**, and a **High** degree of effectiveness.

This result can be attributed, according to the views of teachers in basic education schools in Arab society within the Green Line, to the prominent role played by the Ministry of Education in promoting a culture of digital interaction and communication in schools. This is achieved through developing technological infrastructures and providing educational platforms that support effective communication between teachers and students. Additionally, the important role of the educational supervisor, who works on following up with teachers and guiding them towards adopting teaching strategies based on dialogue, participation, and the exchange of experiences through innovative technological methods, has contributed to enhancing their competence in managing communication within the classroom. Furthermore, the school administration's keenness to provide an educational environment that encourages positive communication, by supporting classroom and extracurricular activities based on teamwork and cooperation, has had a clear impact in reinforcing these practices. This is reflected in the behavior of teachers, who demonstrated advanced awareness of the importance of building positive relationships with students based on mutual respect, encouraging students to express opinions, take initiative, and participate actively in educational situations. This contributed to enhancing student interaction and supporting a classroom environment characterized by respect and cooperation, which is reflected in the teachers' responses, resulting in **High** estimates for this domain.

The highest estimate was for Item (18): **"I encourage cooperation among students through digital educational games,"** ranking first with a mean of **(3.93)**, a standard deviation of **(0.97)**, and a **High** degree of effectiveness. This result can be attributed, according to the teachers' views, to their recognition of the importance of enhancing cooperation and teamwork skills among students through digital educational games. These games represent an effective means to promote social interaction among students and encourage them to cooperate in accomplishing shared tasks, which contributes to developing teamwork skills and enhancing their sense of belonging.

This was followed by Item (19): **"I encourage students to work collaboratively through activities based on digital educational games,"** ranking second with a mean of **(3.89)**, a standard deviation of **(0.98)**, and a **High** degree of effectiveness. This result can be attributed, according to the teachers' views, to their recognition of the importance of promoting a sense of collective responsibility among students through activities based on digital

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educational games. These games allow them the opportunity for active participation and taking responsibility for parts of the task within the group. This method of organizing activities encourages students towards interdependence, meaning each student performs their role and relies on the contributions of their peers to achieve the collective goal, motivating them to work as a team. This contributes to developing their leadership skills and collective responsibility, which reflects the responses of the study sample members, resulting in a **High** estimate for this item.

Item (21): **"I strive to establish a classroom environment based on cooperation using digital games,"** ranked last with a mean of **(3.73)**, a standard deviation of **(0.99)**, and a **High** degree of effectiveness. This result can be explained in light of the awareness of basic education school teachers within the Green Line regarding the importance of establishing a classroom environment that encourages cooperation among students using digital educational games, while considering their differing levels and individual abilities. Teachers see that organizing the class in a way that allows each student to participate effectively and share responsibility enhances team spirit and motivates students to interact positively with their peers. Although this item ranked last, teachers demonstrated awareness of the necessary methods to develop a collaborative classroom environment, which is reflected in their responses, resulting in a **High** estimate for this item.

3) Domain of Motivation and Encouragement

The arithmetic means and standard deviations of Arab school teachers' estimates within the Green Line regarding the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Motivation and Encouragement)** were calculated, considering their descending order based on their total arithmetic means, as shown in **Table (8)**.

Table (8): Arithmetic Means and Standard Deviations for the Degree of Effectiveness of Using Digital Educational Games in Developing Student Learning Motivation for Items in the Domain of (Motivation and Encouragement), Ordered Descending by Their Means

Rank	Item No.	Item	Arithmetic Mean	Standard Deviation	Effectiveness Degree
1	3	I notice an increase in students' motivation to learn when employing digital educational games in the class.	3.95	0.99	High
2	5	I notice an increase in students' concentration during the use of digital games.	3.93	0.83	High
3	8	I encourage students to actively participate in class using digital educational games.	3.74	1.01	High
3	6	I use digital educational games to make the lesson more fun and engaging for students.	3.74	1.08	High
5	7	I leverage digital educational games to enhance students' self-confidence.	3.72	1.03	High
6	1	I use digital educational games to arouse students' enthusiasm for the lesson.	3.58	1.10	High
7	4	I reward students when they complete digital educational games accurately.	3.53	1.01	High
8	2	I employ digital educational games to encourage positive competition among students.	3.52	1.12	High
		Total for Motivation and Encouragement Domain	3.71	0.89	High

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It is observed from the results in Table (8) that the arithmetic mean of Arab school teachers' estimates within the Green Line for the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Motivation and Encouragement)** was **(3.71)**, with a standard deviation of **(0.89)**, and a **High** degree of effectiveness.

This result indicates teachers' awareness of the importance of using digital educational games as a means to motivate and encourage students to learn. This can be explained by several factors, including: digital educational games provide a fun and interactive learning environment that encourages students to participate and engage positively, breaking the traditional monotony of the classroom. Additionally, through their practical experience, teachers have witnessed the direct impact of games in raising the level of enthusiasm and concentration among students. These games provide challenges suitable for their different abilities, generating a sense of achievement and enjoyment, and fostering positive competition among them. Furthermore, these games give students repeated opportunities for trial and error without fear of making mistakes, thanks to the rapid display of results and immediate feedback, which contributes to sustaining self-motivation and encouraging continuous learning. Hence, teachers' estimates for this domain came with a **High** degree of effectiveness.

The highest estimate was for Item (3): **"I notice an increase in students' motivation to learn when employing digital educational games in the class,"** ranking first with a mean of **(3.95)**, a standard deviation of **(0.99)**, and a **High** degree of effectiveness. The high estimates of teachers for this item can be attributed to their recognition of the clear impact of employing digital educational games in raising students' motivation towards learning. These games contribute to transforming educational situations into enjoyable and stimulating experiences, encouraging students to participate actively due to their interactive and competitive nature. Moreover, the element of suspense and the gradual challenges within the games help keep students focused and interested, which positively reflects on their motivation to learn.

This was followed by Item (5): **"I notice an increase in students' concentration during the use of digital games,"** ranking second with a mean of **(3.93)**, a standard deviation of **(0.83)**, and a **High** degree of effectiveness. This result can be attributed to the fact that digital educational games help attract students' attention and increase their concentration during the lesson, due to the visual, auditory, and kinetic stimuli they include, making the learning process more dynamic and interactive. Teachers see that employing these games contributes to reducing mental distraction and enhances students' continuous motivation to follow educational activities, which explains the high rating this item received.

Item (2): **"I employ digital educational games to encourage positive competition among students,"** ranked last with a mean of **(3.52)**, a standard deviation of **(1.12)**, and a **High** degree of effectiveness. This result can be explained by the fact that teachers recognize the importance of positive competition as a tool to enhance student motivation. However, their caution to avoid practices that might generate unhealthy competition leads them to employ digital educational games carefully to achieve this goal. Additionally, some games may not include a clear system for rewards or comparing student performance, which reduces their effectiveness in encouraging positive competition. Nevertheless, the teachers' awareness of the importance of balancing cooperation and competition in the learning environment kept their estimate for this item within the **High** degree of effectiveness.

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4) Domain of Assessment and Feedback

The arithmetic means and standard deviations of Arab school teachers' estimates within the Green Line regarding the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Assessment and** Feedback**)** were calculated, considering their descending order based on their total arithmetic means, as shown in **Table (9)**.

Table (9): Arithmetic Means and Standard Deviations for the Degree of Effectiveness of Using Digital Educational Games in Developing Student Learning Motivation for Items in the Domain of (Assessment and Feedback), Ordered Descending by Their Means

Rank	Item No.	Item	Arithmetic Mean	Standard Deviation	Effectiveness Degree
1	25	I use digital educational games to assess students' understanding of concepts.	3.75	1.01	High
2	31	I benefit from digital educational games to measure the level of student participation.	3.73	1.00	High
3	26	I use digital educational games to provide immediate feedback to students.	3.72	1.02	High
4	27	I follow students' results through their performance in digital educational games.	3.67	1.07	High
5	30	I direct my observations to students based on their performance in digital educational games.	3.65	1.03	High
6	32	I use the results of digital educational games to assess the extent to which lesson objectives are achieved.	3.63	1.03	High
7	28	I use digital educational games to identify students' areas of weakness.	3.62	1.03	High
8	29	I benefit from the results of digital educational games in monitoring the extent of students' progress.	3.61	1.05	High
		Total for Assessment and Feedback Domain	3.67	0.93	High

It is observed from the results in Table (9) that the arithmetic mean of Arab school teachers' estimates within the Green Line for the degree of effectiveness of their use of digital educational games in developing student learning motivation for the items in the domain of **(Assessment and Feedback)** was **(3.67)**, with a standard deviation of **(0.93)**, and a **High** degree of effectiveness.

This can be attributed to teachers' recognition of the importance of these games as a modern means that contributes to measuring students' learning levels in an interactive and rapid manner. These games allow students to receive immediate feedback that helps them correct their mistakes and improve their performance. They also provide teachers with accurate data on the extent to which educational objectives are achieved and enable them to continuously monitor student progress, enhancing the effectiveness of the assessment process. Furthermore, the availability of digital assessment tools within the gaming environment helps diversify measurement methods away from the traditional test format, which led to the study sample members' responses coming with a **High** degree of effectiveness in this domain. The highest estimate was for Item (25): **"I use digital educational games to assess students' understanding of concepts,"** ranking first with a mean of **(3.75)**, a standard deviation of **(1.01)**, and a **High** degree of effectiveness. This can be attributed, according to the teachers' views, to their understanding that digital educational games are an effective means for assessing students' understanding of study concepts, as they combine fun and testing simultaneously. This makes the assessment process more exciting and less stressful for students. These games allow teachers to observe the extent of students' comprehension of

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concepts through their responses and performance during play, which enhances the validity of assessment tools and increases their effectiveness. This was followed by Item (31): **"I benefit from digital educational games to measure the level of student participation,"** ranking second with a mean of **(3.73)**, a standard deviation of **(1.00)**, and a **High** degree of effectiveness. This result can be attributed to teachers finding in digital educational games a suitable means to measure the level of student participation and interaction during class. These games provide equal opportunities for all students to participate, express their opinions, and make quick decisions within stimulating learning situations. Moreover, the feature of immediate interaction within the games allows teachers to gauge the extent of students' engagement in the educational process, which explains the high estimates for this item.

Item (29): **"I benefit from the results of digital educational games in monitoring the extent of students' progress,"** ranked last with a mean of **(3.61)**, a standard deviation of **(1.05)**, and a **High** degree of effectiveness. This result can be explained by the fact that some teachers are still in the training phase for optimally benefiting from the results of digital educational games in monitoring students' individual long-term progress, as their practices often focus more on the immediate use of games to enhance participation rather than tracking students' academic growth. However, their awareness of the importance of analyzing game results and benefiting from them in developing teaching methods kept their estimate for this item within the **High** degree of effectiveness.

Results Related to Answering the Second Question:

The second question stated: **"Are there statistically significant differences at the ($\alpha \leq 0.05$) level between the mean scores of teachers' estimates regarding the degree of** effectiveness **of using digital educational games in developing learning motivation among basic stage students within the Green Line, attributable to the study variables (gender, years of service, specialization)?"**

To answer this question, the arithmetic means and standard deviations for the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line were calculated according to the variables **(gender, years of service, specialization)**. **Table (10)** illustrates this.

Table (10): Arithmetic Means and Standard Deviations for the Degree of Effectiveness of Using Digital Educational Games in Developing Learning Motivation Among Basic Stage Students Within the Green Line

Variable	Variable Level	Statistic	Domains				Total Score
			Motivation & Encouragement	Organization & Activity Mgmt.	Interaction & Communication	Assessment & Feedback	
Gender	Male	Mean	3.56	3.72	3.76	3.56	3.65
		Std. Deviation	0.92	0.96	0.99	0.96	0.9
	Female	Mean	3.81	3.9	3.86	3.75	3.83
		Std. Deviation	0.86	0.83	0.87	0.91	0.81
Years of Service	Less than 10 years	Mean	3.82	3.85	3.9	3.78	3.84
		Std. Deviation	0.8	0.79	0.77	0.82	0.74
	10 years or more	Mean	3.67	3.82	3.79	3.63	3.73
		Std. Deviation	0.93	0.92	0.97	0.98	0.89

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Specialization	Scientific	Mean	3.82	4.02	3.96	3.81	3.9
		Std. Deviation	0.78	0.73	0.82	0.78	0.71
	Humanities	Mean	3.62	3.67	3.7	3.55	3.64
		Std. Deviation	0.97	0.98	0.98	1.04	0.94

It is observed from the results in Table (10) that there are **apparent differences** between the arithmetic means for the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line, resulting from the different categories of the study variables. To verify the **substantive significance** of these apparent differences between the means, a **Three-Way Analysis of Variance (ANOVA)** was conducted for the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line according to the study variables (gender, years of service, specialization), as shown in **Table (11)**.

Table (11): Results of the Three-Way Analysis of Variance (ANOVA) for Sample Members' Estimates of the Degree of Effectiveness of Using Digital Educational Games in Developing Learning Motivation Among Basic Stage Students Within the Green Line According to Study Variables

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-value	Statistical Significance (Sig.)
Gender	3.667	1	3.667	5.249	*0.02
Years of Experience	0.828	1	0.828	1.185	0.28
Specialization	6.240	1	6.240	8.932	*0.00
Error	259.886	372	0.699		
Total	270.621	375			

It is clear from the results in Table (11) that there are **statistically significant differences** at the ($\alpha \leq 0.05$) level between the arithmetic means of the estimates of Arab school teachers within the Green Line regarding the degree of effectiveness of their use of digital educational games in developing learning motivation among basic stage students. These differences are attributable to the variables of **Gender** and **Specialization**, **in favor of females** and **holders of scientific specializations**. This indicates that these two variables (Gender and Specialization) have an effect on their responses. The results did **not** show statistically significant differences at the ($\alpha \leq 0.05$) level between the arithmetic means of the sample members' estimates for the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line attributable to the variable of **Years of Service**. To delve deeper into the results of the second question, a **Three-Way Multivariate Analysis of Variance (MANOVA)** was conducted on the domains individually, as shown in **Table (12)**.

Table (12): Results of the Three-Way Analysis of Variance (ANOVA) for Sample Members' Estimates of the Degree of Effectiveness of Using Digital Educational Games in Developing Learning Motivation Among Basic Stage Students Within the Green Line on Individual Domains According to Study Variables

Source of Variation	Dependent Variable	Sum of Squares	df	Mean Square	F-value	Sig.
Gender Hotelling's Trace=0.044 **sig= 0.003**	Motivation and Encouragement	6.71	1	6.71	8.71	**0.00***
	Organization and Activity Management	3.55	1	3.55	4.72	**0.03***
	Interaction and Communication	1.31	1	1.31	1.59	0.21
	Evaluation and Feedback	4.17	1	4.17	4.91	**0.03***
Years of Experience	Motivation and Encouragement	2.23	1	2.23	2.90	0.09

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Hotelling's Trace=0.036 **sig= 0.011**	Organization and Activity Management	0.01	1	0.01	0.01	0.92
	Interaction and Communication	0.57	1	0.57	0.69	0.41
	Evaluation and Feedback	1.70	1	1.70	2.00	0.16
Specialization Hotelling's Trace=.060 **sig= .000**	Motivation and Encouragement	3.16	1	3.16	4.10	**0.04***
	Organization and Activity Management	11.37	1	11.37	15.15	**0.00***
	Interaction and Communication	5.97	1	5.97	7.23	**0.01***
	Evaluation and Feedback	5.76	1	5.76	6.78	**0.01***
Error	Motivation and Encouragement	286.60	372	0.77		
	Organization and Activity Management	279.32	372	0.75		
	Interaction and Communication	307.05	372	0.83		
	Evaluation and Feedback	315.90	372	0.85		
Total	Motivation and Encouragement	298.70	375			
	Organization and Activity Management	294.24	375			
	Interaction and Communication	314.89	375			
	Evaluation and Feedback	327.53	375			

It is clear from the results in Table (12) that there are **statistically significant differences** at the ($\alpha \leq 0.05$) level between the arithmetic means of the estimates of Arab school teachers within the Green Line regarding the domains of the degree of effectiveness of their use of digital educational games in developing learning motivation among basic stage students. Specifically, significant differences were found in the domains of:

- **Motivation and Encouragement**
- **Organization and Activity Management**
- **Assessment and Feedback**

(except for the domain of Interaction and Communication) attributable to the **Gender** variable, **in favor of females**.

Furthermore, significant differences attributable to the Specialization variable were found on all domains (Motivation and Encouragement, Organization and Activity Management, Interaction and Communication, Assessment and Feedback), in favor of holders of scientific specializations. This indicates that the two variables (Gender and Specialization) have an effect on their responses on the aforementioned domains. The results did not show statistically significant differences at the ($\alpha \leq 0.05$) level between the arithmetic means of the sample members' estimates on **any domain** of the degree of effectiveness of using digital educational games in developing learning motivation among basic stage students within the Green Line attributable to the variable of **Years of Service**.

Discussion of the Impact of Each Variable Individually:

Gender Variable:

The superiority of females in estimating the effectiveness of using digital games by school teachers in developing learning motivation among basic stage students can be explained by the fact that female teachers often possess a **high pedagogical sense and greater** inclination **towards caring for and motivating students**. They are keen on using diverse methods of encouragement, organizing classroom activities, and providing feedback that suits the needs of this stage, which requires continuous support, precise guidance, and the development of basic skills for students.

The nature of their work tends towards **attention to fine details** in managing learning and providing positive feedback, which positively reflects on their effectiveness in the three domains: Motivation and Encouragement, Organization and Activity Management, and

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Assessment and Feedback, as well as in the total score. The absence of differences in the Interaction and Communication domain indicates that **both genders give similar attention** to building positive human relationships with students, as effective communication skills represent a fundamental professional requirement for all teachers regardless of gender. This matter gains particular importance in the basic stage, which requires continuous communication with students to guide and support their daily learning.

Years of Service Variable:

The absence of statistically significant differences between teachers according to years of service can be explained by the fact that **effective pedagogical practices have become part of the educational culture in schools**. All teachers, whether new or experienced, are committed to employing strategies for motivation, organization, communication, and assessment that meet the needs of basic stage students.

Additionally, **continuous training programs, periodic educational supervision, and the exchange of experiences among teachers** have contributed to narrowing the gap between different experience levels, enabling all teachers to create a stimulating, supportive, and organized learning environment. Consequently, this consistency in practices reflects that **years of service are no longer an influential factor** in the teacher's level of effectiveness in developing student learning motivation.

Specialization Variable:

The existence of statistically significant differences attributable to the specialization variable across all domains and in the total score, in favor of holders of scientific specializations, can be attributed to **the nature of the content of these** specializations, which is characterized by practical and empirical clarity. This necessitates teachers to use stimulating and interactive teaching strategies. Students in the basic stage need continuous guidance and repeated motivation to acquire basic concepts and skills. **Practical methods in teaching scientific subjects**, such as experiments, applied activities, and problem-solving, encourage them to inquire, think critically, and participate actively. Moreover, **continuously monitoring student progress and providing constructive feedback** helps them feel a sense of achievement and enhances their learning motivation. Hence, it appears that **the content and practical methods of scientific specializations** work together to create an exciting and organized learning environment that supports the development of student motivation in all basic learning aspects.

8. RECOMMENDATIONS AND RESEARCH PROPOSALS

In light of the results reached by the study, the following recommendations and research proposals can be made:

Recommendations:

- **Continue effectively employing digital educational games** within classrooms, with a focus on diversifying digital activities to suit the levels and capabilities of all students, aiming to enhance positive interaction and participation.
- **Engage in advanced training programs and workshops** that enable acquiring skills in designing and employing digital educational games in situations that serve educational objectives and enhance student learning motivation.

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- **Enhance the exchange of experiences and pedagogical practices** among male and female teachers by discussing strategies for using digital educational games and analyzing their results on student learning, contributing to disseminating effective practices and developing interactive teaching methods.

Research Proposals:

- Conduct a **comparative study** between Arab and Jewish schools within the Green Line regarding the contribution of using digital educational games to developing learning motivation among basic stage students.
- Conduct an **experimental study** to measure the impact of employing digital educational games on developing creative thinking and problem-solving skills among basic stage students.
- Study the **differences between educational stages** in the effectiveness of digital games on learning motivation, to identify the stage that benefits the most from them.

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