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The Reality of Using Digital Education Technologies in Developing Health Awareness Concepts from the Perspective of Early Childhood Teachers in the Najran Region

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ABSTRACT

Background: Recently, there has been a noticeable increase in interest in developing health awareness at the national and global levels, in response to growing health challenges, including the emergence of new health issues and the exacerbation of existing ones. Based on this reality, establishing health awareness from early childhood has become an urgent necessity and an essential preventative strategy. Objective: This research aimed to reveal the reality of using digital education technologies in developing health awareness concepts from the perspective of early childhood teachers in the Najran region. Methods: To achieve the research objectives, the descriptive-analytical method was used, and a questionnaire consisting of 23 items distributed across two axes was used as the data collection tool. The research tool was administered to a sample of 300 teachers selected using simple random sampling. After collecting and analyzing the data, the results showed that the degree of use of digital education technologies in developing health awareness concepts among children, from the perspective of early childhood teachers, was moderate. Results: The results also indicated that the challenges faced by early childhood teachers when using digital education technologies to develop health awareness concepts were high. Conclusion: In light of the findings, the research recommended conducting training courses for teachers on how to integrate technology into developing health awareness concepts among children and Developing Arabic digital content evidence-digital content based scientific evidence and Attractive activities to developing health awareness concepts for children.

Keywords: Digital Education Technologies, Health Awareness Concepts, Early Childhood Teachers.

INTRODUCTION

Early childhood is considered one of the most important stages in a child's life and future health. It is the period in which the first steps toward good health are taken. Furthermore, it is a critical period during which a child can develop serious health problems that affect their future. The role of the teacher is no longer limited to

transmitting knowledge to children through memorization and rote learning. Rather, teachers now have multiple roles, foremost among them raising children's awareness of health concepts and instilling positive behaviors to maintain their health and well-being. **(**Al-Qahtani, 2022)

Health awareness for children has become a specialized area of childhood development. This awareness can be cultivated through a variety of activities that provide children with health knowledge and develop positive health attitudes and habits, which will change their health behavior and help them protect themselves**.** (Al-Falfali & Al-Mawajdeh, 2018). Riyad & Ayiat (2021) define health awareness as children's familiarity with health knowledge and information, the formation of positive attitudes towards healthy behaviors, and encouraging them to maintain their health and accustom them to practicing sound health behaviors.

Salem & et al. (2018) define it as the translation of health knowledge, information, and experiences into behavioral patterns, based on three aspects: the cognitive aspect, which refers to the availability of scientific information about a phenomenon or specific topic; the affective aspect, which is represented by inclinations and attitudes; and finally, the applied skills aspect, which is represented by how to deal with daily life situations that the individual encounters. If all three aspects are complete in an individual, they are characterized as having a comprehensive scientific awareness of the health phenomenon.

Despite the importance of developing health awareness among children in early childhood to achieve the goals of Saudi Arabia's Vision 2030, attention to this development remains below the required level. This has been confirmed by previous studies, such as Al-Baqami (2012) study, which indicated a deficiency in health awareness among kindergarten children in Saudi Arabia.

Al-Amer (2019) confirmed a deficiency in health literacy among children in Al-Ahsa and their exposure to health problems resulting from negative practices in many families, such as poor personal hygiene, lack of cleanliness in their surroundings, and unhealthy food consumption. This has led to many illnesses stemming primarily from children's lack of knowledge about proper health practices that ensure their prevention and maintenance. The researcher also observed a deficiency and lack of interest among some teachers in providing health education to children. A study by Taha, & Bastawisi, (2019) confirmed the lack of attention given by kindergarten teachers in the Abha and Khamis Mushait regions to developing health awareness among kindergarten children. This resulted in many children contracting illnesses, negatively impacting their health. Furthermore, the study highlighted the teachers' limited use of engaging educational activities, such as puppet shows, when presenting health concepts. Hussein (2020) emphasized the necessity of developing health awareness in children, considering it a requirement of modern life and human development. He argued that health awareness enables children to interact with others, their community, and the environment, and fosters a sense of responsibility and the ability to maintain their health.

Several studies conducted in other countries have indicated a low level of health awareness and related information among kindergarten children. These include studies by Ahmed, & Farrag (2013) and Balboush, & Tawfiq (2014). A study by Erekat (2018) also pointed to deficiencies in health awareness among kindergarten children, particularly regarding personal hygiene and cleanliness of their surroundings. The study further noted the reliance on traditional educational methods in addressing health awareness concepts.

Kindergartens play a pivotal role in promoting children's healthy development and protecting them from accidents and hazards. Their responsibility is evident in providing activities, practices, and programs that cultivate health concepts, encourage healthy behaviors, and empower children to make decisions about their health (Moussa, 2020). This includes helping them choose healthy food, learning about necessary vaccinations to protect them from diseases, practicing motor and athletic skills, and applying simple rules to protect them from environmental dangers and ensure their safety (Abdel Moneim, & Mushrif, 2011).

Pippi & et al. (2020) emphasized the importance of focusing on a child's health both inside and outside of kindergarten, as understanding and supporting health concepts early on can have a significant impact on children's physical, social, emotional, and cognitive well-being throughout childhood. A study by Alagla (2023) recommended raising children's awareness of health culture concepts and positive attitudes toward maintaining personal health and safety in their early years, given its effective impact on addressing health problems later in life. The study also emphasized moving away from rote memorization and passive learning methods in conveying health information and knowledge.

With the advancements in knowledge and technology within educational environments, it has become clear that traditional strategies relying on direct instruction are no longer effective in teaching kindergarten children, especially regarding topics related to health behaviors. Furthermore, these topics are not adequately addressed within the kindergarten curriculum in Saudi Arabia. (Al-Jarwani & et al., 2025)

Therefore, the need arose to present educational content in engaging and secure technological ways within a digital environment that relies on technology, especially when presenting abstract concepts and information. The use of modern digital learning tools in kindergarten is considered an urgent necessity to keep pace with the information explosion (Ali, 2021).

Digital education is considered a true revolution in the world of education, combining modern technology with traditional teaching methods to provide a more interactive and effective learning experience. Digital education consists of a set of interconnected components that work together to create a rich and diverse learning environment. It is a broad and evolving field that includes a variety of elements and technologies working together to provide an effective and innovative learning experience (Al-KaabI , 2025).

Digital education is defined as education that relies on the use of electronic media for communication between teachers, learners, and the entire educational institution (Edio, 2019).

Al-Harbi (2025) defines it as a set of technological means and tools used in the educational process to enhance learning, improve access to information, and facilitate communication and collaboration between teachers. This includes a variety of tools that can be used in classrooms, distance learning, and various educational activities. Khalf (2022)

considers digital education a type of education that relies on the use of modern electronic media. It provides electronic educational content to kindergarten children in a way that allows them to actively interact with that content, with the teacher, and with their peers. It aims to create an interactive environment rich in electronic applications that include engaging activities to facilitate learning, with communication both inside and outside the classroom. Altaf (2019) indicated that digital education increases the efficiency of the educational situation, as it provides suitable environmental conditions for children of different educational stages and levels, regardless of their age or mental capacity. It also increases achievement levels, supports classroom interaction, and makes the educational experience more realistic and applicable. Several studies have confirmed the importance of using some digital education technologies in developing health concepts among kindergarten children, including the study by El Maghraby (2023), which demonstrated the effectiveness of Electronic Magazine in Developing Health Awareness among Early Childhood Children, and the study by (**Mansi**& et al. 2021) which emphasized the importance of electronic activities, including digital stories and electronic games, in developing health culture concepts in kindergarten children) And Abdul Mumin (2018) study whose results showed the effectiveness of digital stories in developing health concepts in kindergarten children.

This research aims to study The Reality of Using Digital Education Technologies in Developing Health Awareness Concepts: From the Perspective of Early Childhood Teachers in the Najran Region and then poses the following research questions

RQ1: What is the degree of using digital education technologies in developing health awareness concepts among children from the perspective of early childhood teachers in the Najran region?

RQ2: What are the challenges faced by early childhood teachers when using digital education technologies to develop health awareness concepts among children?

METHODOLOGY

Research Design

The research adopted a descriptive-analytical approach, deemed most suitable for the research topic and objective. This is evident in the theoretical study of health awareness concepts and digital education technologies, the review of relevant previous studies, and the description of the procedures followed in developing the research instrument and analyzing and interpreting the results.

Research Population and Sample

The research population consisted of all early childhood teachers in the Najran region during the second semester of the academic year 1446 AH. The research sample comprised (300) teachers, selected using simple random sampling.

Data Collection

The research relied on a questionnaire as the primary data collection instrument. The questionnaire consisted of 23 items, distributed across two dimensions, aiming to reveal the reality of using digital education technologies in developing health awareness concepts from the perspective of early childhood teachers in the Najran region. Each item was evaluated using a five-point Likert scale. The validity and reliability of the questionnaire were verified.

Questionnaire Validity

The questionnaire, in its initial form, was presented to a group of expert reviewers specializing in early childhood and educational technology to gather their opinions on its suitability and appropriateness for achieving

the research objectives, the consistency of its items, and their relevance to the dimension to which they belonged. Based on their opinions and suggestions, the final version of the questionnaire was developed.

The internal consistency of the questionnaire was verified by administering it to a pilot sample of (20) early childhood teachers in the Najran region who were not part of the main sample in this research. Pearson's correlation coefficient was calculated between the scores of each item in the questionnaire and the total score for its respective dimension, using the Statistical Package for the Social Sciences (SPSS 25), as shown in the following table:

Table 1 . Internal consistency validity of the correlation coefficients between each item of the questionnaire

First dimension				Second dimension			
Item No.	Correlation Coefficient	Item No.	Correlation Coefficient	Item No.	Correlation Coefficient	Item No.	Correlation Coefficient
1	0.751**	6	0.673**	12	0.738**	18	0.691**
2	0.718**	7	0.855**	13	0.829**	19	0.841**
3	0.771**	8	0.751**	14	0.836**	20	0.724**
4	0.682**	9	0.792**	15	0.792**	21	0.825**
5	0.691**	10	0.724**	16	0.808**	22	0.718**
		11	0.771**	17	0.828**	23	0.673**
* *Significant at the significance level (0.05)							

The results shown in the previous table indicate that the values of the correlation coefficients between each statement and the total score of the axis are statistically significant at a significance level of (0.05), and all of them are positive values, which means that there is a high degree of internal consistency of the questionnaire statements.

Calculating the Reliability of the Questionnaire:

The reliability of the questionnaire was verified by calculating Cronbach's Alpha coefficient, as shown in the following table:

Table 2. Calculating the reliability of the questionnaire, Cronbach's Alpha coefficient

dimension	Number of phrases	Cronbach's Alpha coefficient
The extent to which digital education technologies are used in developing health.	11	0.925
"Challenges Faced by Early Childhood Teachers When Using Digital Education Technologies"	12	0.933
Total	23	0.929

The table above shows that the values of the alpha coefficient ranged between (0.925) and (0.933), which are acceptable reliability ratios.

RESULTS

To answer the research questions, relevant literature and previous studies on digital education technologies and health awareness concepts were reviewed. The following section presents the results obtained after applying the research instrument.

Answer to the first question: What is the degree of using digital education technologies in developing health awareness concepts among children from the perspective of early childhood teachers in the Najran region?

To answer the previous question, frequencies, percentages, arithmetic means, and standard deviations were calculated for the responses of the research sample to the items in this dimension. The results were as follows:

Table (3). Responses of the research sample regarding the degree of using digital education technologies in developing health awareness concepts

First dimension	mean	Standard deviation	Rank	Degree of Availability
1	3.64	1.03	5	Moderate
2	3.51	1.10	9	Moderate

3	3.57	1.12	8	Moderate
4	2.33	1.09	10	Low
5	3.58	1.09	7	Moderate
6	2.31	2.01	11	Low
7	3.87	1.02	1	high
8	3.69	1.03	3	high
9	3.66	1.05	4	Moderate
10	3.61	1.07	6	Moderate
11	3.73	0.88	2	high
General average	3,62	1.03	Moderate	

The table above shows that the degree to which kindergarten teachers used digital educational technologies to develop health awareness concepts in children was moderate, with mean scores ranging between (3.87) and (3.47), and General average (3.62). The statement "I use interactive digital stories to present health awareness concepts" ranked first with a mean (3.87), followed by "I use educational digital games to distinguish between healthy and unhealthy habits" with a mean (3.73). The statement "I use augmented reality technologies to simplify abstract health concepts such as viruses, the importance of vitamins, and the workings of internal body systems" ranked last with a mean (3.47).

This may be attributed to the ease of use of interactive e-stories and e-games for kindergarten teachers. Furthermore, they are available in Arabic, making their use less burdensome, as some are ready for immediate download and use on tablets or smart boards. Interactive e-stories and e-games are applications designed for children, resulting in very simple and clear interfaces. It is touch-based and swipe-based, making its use by teachers intuitive and requiring minimal training. This is especially true when compared to more complex technologies like augmented reality. This technology has not yet been integrated into daily classroom practices and methodology. Furthermore, there is a lack of Arabic content on health awareness concepts presented using this technology, and some teachers are not yet qualified to use it.

This finding aligns with the results of the study by Mansi& et al. (2021), which emphasized the vital role of electronic activities, including digital stories and games, in developing personal, nutritional, and physical health habits among kindergarten children. It also aligns with the findings of the study by Elshennawy (2018), which concluded that digital stories play an effective role in imparting health concepts to kindergarten children and recommended integrating digital applications to support the development of health concepts in kindergarten. This result also agrees with the study by Al-Mudir (2023), which emphasized the importance of pop-up stories in developing health awareness among kindergarten children.

The answer of the Second Question: What are the challenges faced by early childhood teachers when using digital education technologies to develop health awareness concepts among children?

To answer previous question Frequencies, percentages, arithmetic means, and standard deviations were calculated for the responses of the research sample to the items in this dimension, and the results were as follows:

Table 4. Responses of the research sample regarding the challenges of using digital education technologies to develop health awareness concepts among children

First dimension	mean	Standard deviation	Rank	Degree of Availability
1	3.73	0.82	8	high
2	3.85	1.00	3	high
3	3.77	0.98	5	high
4	3.75	1.04	7	high
5	3.61	1.07	10	Moderate
6	3.76	1.02	6	high
7	3.44	1.12	12	Moderate
8	3.49	1.09	11	Moderate
9	3.52	0.92	9	Moderate
10	3.87	1.03	2	high
11	3.81	!.00	4	high
12	3.94	0.99	1	high

General average	3.71	0,95	high

The table above shows that the challenges faced by early childhood teachers when using digital education technologies to develop health awareness concepts in children were of a high degree, with mean scores ranging between (3.94) and (3.44) and General average (3.71).

The scarcity of specialized training courses on how to integrate technology with health awareness concepts ranked first, with a mean (3.94). This was followed by the lack of sufficient and appropriate Arabic digital content for developing health awareness concepts in kindergarten children, with a mean (3.87). The last challenge ranked last Children's attention is diverted when using digital devices and they focus on playing instead of healthy content. with a mean (3.44).

The previous result may be attributed to several reasons, most notably the lack of support, training, and appropriate qualification for female teachers to develop their skills in integrating digital education technologies into daily activities. While teachers may receive courses in "educational technologies," they rarely receive specialized training on "how to employ digital educational applications to develop various concepts in children." The training is often general and theoretical, leaving teachers unable to apply it in specific teaching situations Most high-quality health applications (explaining viruses, heart function, or nutrition) are in English. Explaining or translating these concepts into Arabic during play distracts the child and increases the teacher's workload, leading them to avoid using them altogether.

This finding aligns with the findings of Qadri (2025), which concluded that the most significant obstacle to early childhood teachers' use of digital media is the lack of training programs designed to develop their technical skills. The study recommended enhancing teachers' professional development in the digital field and providing appropriate digital educational content for kindergarten children. It also aligns with the findings of Khalf (2022), which identified inadequate technical equipment, a lack of technological devices, and slow internet speeds as major challenges facing teachers in early childhood institutions. This study emphasized the need to integrate technology into early childhood education as a tool to support and improve children's learning. Furthermore, it aligns with the findings of Al-Shuaibi (2015), which concluded that teachers' limited English language proficiency restricts their use of available English-language digital educational applications.

RECOMMENDATIONS

Conducting training courses for teachers on how to integrate technology into developing health awareness concepts among children

Developing Arabic digital content evidence-digital content based scientific evidence and Attractive activities to developing health awareness concepts for children.

Proposals

Effectiveness of a program based on digital educational technologies in developing food culture concepts among kindergarten children.

The effectiveness of a digital learning technology program for developing historical concepts in kindergarten children.

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