Combining Virtual Learning Stations with Gamification and its Impact on Developing Positive Thinking in History Among Secondary School Students

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Abstract

The current research aims to enhance positive thinking skills among high school students by integrating virtual learning stations and digital game elements. This was achieved through the design of learning environments that combine virtual learning strategies with digital gaming motivators, the development of educational activities focused on fostering positive thinking, and the creation of a teacher's guide outlining effective teaching methodologies using these tools.The research employed a systematic experimental approach by dividing the participants into two groups: an experimental group that utilized the integrated learning platform with digital game elements, and a control group that followed traditional teaching methods. Positive thinking skills were assessed for both groups in pre- and post-tests. The results demonstrated a significant improvement in the experimental group's performance in the post-test, indicating the effectiveness of the combined strategies in developing positive thinking skills.

Based on these findings, several recommendations were proposed, emphasizing the integration of modern strategies with digital technology to enhance history teaching and foster positive thinking skills among high school students. These include conducting training sessions for history teachers on employing innovative strategies, particularly virtual learning stations and digital gaming motivators, and providing the necessary tools and resources to implement these strategies effectively. Furthermore, the study suggests exploring the effectiveness of virtual learning stations in developing historical imagination skills and investigating the role of artificial intelligence programs in history education and their impact on positive thinking development.

Keywords: *Virtual learning stations, digital game elements, positive thinking skills*

Introduction

Distance education and e-learning have become pivotal in the educational process, especially with the global spread of the COVID-19 pandemic, which led to prolonged closures of educational institutions. During this period, reliance on distance education emerged as an essential solution to sustain the learning process. Consequently, educational stakeholders adopted two primary approaches: developing new teaching strategies or combining effective traditional classroom strategies with digital technologies to adapt to the challenges posed by the pandemic.

With the rapid advancements in technology and the proliferation of information, education now bears the responsibility of equipping learners with the skills and abilities necessary to navigate the profound scientific and technological transformations of our era. Achieving this goal requires focusing on learners from an early age, instilling proper thinking habits, encouraging independent information-seeking, and fostering the application of knowledge positively in daily life.

One of the fundamental objectives of teaching history is to cultivate thinking skills among students. Educational institutions must prioritize teaching learners how to analyze study content critically. It is insufficient to merely provide historical facts and information; students must also develop the ability to think historically. This includes analyzing documents, identifying cause-and-effect relationships, deducing motives from actions, and forming independent judgments about people's words and actions. Additionally, students should acquire the skills to collect and analyze information systematically, reflect on historical events, and apply their learnings positively in various contexts (Saliha Laloush, 2012: 217).

Among the various types of thinking emphasized in history education, positive thinking holds particular importance. Positive thinking refers to a cognitive approach that enables individuals to utilize their intellectual abilities effectively, build confidence, and generate innovative ideas. It serves as a crucial tool for addressing the diverse challenges encountered in personal and professional life (Fatima Labseer, 2020: 16).

In light of this, the researcher explored the integration of two modern and highly effective teaching strategies—learning stations and gamification. These strategies, which have already demonstrated their effectiveness in traditional classrooms, were combined with advanced digital technologies to enhance history education and foster positive thinking skills among students.

Research problem
The research question has been identified through the following points:
- **Suggestions of previous studies:** such as (Rajmani Jamal 2019) and (Sattam Al-Harbi 2020) emphasizing the necessity of developing positive thinking skills among high school students.
- **A pilot study** to assess the level of positive thinking skills among first-year high school students in the subject of history. A situational test consisting of 10 scenarios was applied to 20 female students from Kafr El-Sheikh Secondary School for Girls (Old Campus) during the academic year 2021–2022. The results indicated a deficiency in positive thinking skills among first-year high school students and the following table show these results:
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Table (1) Results of the pilot study on positive thinking skills test

Skill	Availability Percentage
Problem-solving	15%
self-leadership of thinking	10%
Positive expectation/ optimism	17%
Healthy cognitive openness	14%
accepting differences with others	12%

The previous table indicate that first-year high school students exhibit a deficiency in positive thinking skills. Specifically, the skill of self-directed thinking is the weakest, with only 10% of students demonstrating this ability. In contrast, positive expectation is the most prevalent skill, with 17% of students displaying it. Consequently, the research problem is defined as the weakness of first-year high school students in positive thinking skills.

Research questions
The main research question is: **How can positive thinking skills be enhanced through the integration of the Virtual Learning Stations Strategy and Digital Gamification in the subject of history for first-year high school students?**
1. What are the positive thinking skills that need to be developed among first-year high school students?
2. What would two restructured history curriculum units be like, according to the Virtual Learning Stations Strategy and Digital Gamification to enhance positive thinking skills among first-year high school students?
3. What is the impact of integrating the strategies of virtual learning stations and Digital Gamification on the overall development of positive thinking skills among first-year high school students?
4. What is the impact of integrating the strategies of virtual learning stations and Digital Gamification on the development of each positive thinking skill individually for high school students?

Research Hypotheses
The research seeks to verify the following hypotheses:
There is a statistically significant difference at the level of ($\alpha \leq 0.05$) between the mean scores of the experimental group and the control group in the post-test of overall positive thinking skills, in favor of the experimental group.
There are statistically significant differences at the level of ($\alpha \leq 0.05$) between the mean scores of the experimental group and the control group in the post-test of each positive thinking skill, in favor of the experimental group.

Research Objective
The current research aims to investigate the impact of integrating the Virtual Learning Stations Strategy and Digital Gamification into history teaching on enhancing positive thinking skills among first-year high school students.

Research Significance

The importance of this research lies in highlighting the modern teaching strategies, such as the Virtual Learning Stations Strategy and Digital Gamification, and their potential role in education and providing a theoretical study on positive thinking. the research also help Students to develop their positive thinking skills, provide Teachers with a teacher's guide on implementing the Virtual Learning Stations Strategy and Digital Gamification to foster positive thinking skills, present to Curriculum Planners and Developers a list of positive thinking skills that can inform the enhancement of educational content to promote these skills and open new research avenues related to these teaching strategies and providing research tools applicable to other educational levels.

Literature review:

Virtual learning stations

In the digital age, marked by rapid technological advancements, new thinking and innovative approaches to education are necessary. The widespread use of portable devices with internet access has opened new doors for the future of education. E-learning platforms have emerged as a form of advanced technology that integrates internet connectivity with educational content.

These platforms offer comprehensive systems that provide multiple tools for both students and educators, fostering communication, interaction, and efficient sharing of resources. E-learning platforms are considered innovative solutions that enhance knowledge acquisition, improve skills, and encourage active student participation in the learning process.

Pastore (2013, p. 375) pointed out that virtual learning stations allow students to access digital content via portable devices, engaging them in various educational activities. While physical components may exist, the primary focus of these stations is on their digital nature. Devices like laptops, iPads, and other tablets can be used, or students can integrate their personal devices in a "Bring Your Own Device (BYOD)" model, blending physical content with virtual and augmented realities.

Susan Siraj (2019) described digital scientific stations as a teaching strategy involving several stations designed to facilitate digital activities such as exploratory, visual, and enrichment tasks. These activities, outlined by the teacher, are carried out by students using tablets and the internet, either individually or in small groups, to achieve specific objectives aligned with the nature of the activities and content.

Yara Ibrahim (2021, p. 201) defines interactive learning stations as an educational strategy consisting of multiple interactive stations utilizing laptops, tablets, and the internet. These stations are based on a series of interactive environmental activities designed by the teacher and implemented by students in small groups. Each station involves specific tasks that students complete to engage with the educational content.

From the above, it is evident that virtual learning stations leverage modern technology and integrate it with the learning station strategy, which has been proven effective as one of the active learning methods. This approach enhances learning effectiveness, motivates students, and fosters engagement. Virtual learning stations require the availability of necessary devices and the development of technical skills among both teachers and students to effectively utilize these technologies.

The Importance of Virtual Learning Stations

Pastore, R. (2013, p. 375) highlighted the significance of virtual learning stations as Utilizing virtual learning stations enhances students' learning experiences compared to traditional methods such as merely sitting in front of a blackboard or in a computer lab, enable the integration of digital content with physical content. They help overcome the high costs of equipment and supplies by facilitating activities like dissections, simulations, and mini virtual field trips. Virtual learning stations are cost-effective, as students can use their personal devices. Students experience fewer distractions from peers and technology, as they engage with their own devices.

Moreover, virtual learning stations can effectively develop positive thinking skills, particularly in online or distance education contexts. Interactive activities like online quizzes, games, and multimedia presentations promote active participation, fostering a positive attitude toward learning. These stations also serve as versatile platforms for engaging students, promoting collaboration, encouraging self-reflection, and building skills—all contributing to the development of positive thinking attitudes and behaviors within online learning environments.

Types of Virtual Learning Stations

There are various types of learning stations, each designed to align with the nature of the lesson. These can be combined into a model that helps develop the skills students need to master, considering the learners' characteristics, the concepts to be learned, and the appropriate time for each station. Questions are placed at each station for students to answer.

According to studies such as those by Zizi Amr, Teresa Shoukry (2020), and Al-Jawhara Al-Dosari (2020), the following types of learning stations have been identified:

1. Inquiry Station: Students examine phenomena using a systematic scientific approach to understand, explore, or explain them.
2. Reading Station: These stations provide students with access to books, magazines, and various references.
3. Visual Station: Stations offering visual materials targeting the sense of sight, such as images and diagrams.
4. Electronic Station: Stations that use multimedia and presentations delivered via computers.
5. Audio/Visual Station: Stations offering activities that target both auditory and visual senses through videos and films.

6. Consultation Station: Experts (e.g., doctors or engineers) are invited to answer students' questions.
7. Wax Museum Station: A teacher or student dresses as a notable scientific figure related to the lesson, such as a physicist.
8. Yes/No Station: Students ask a set of questions to an expert, and the responses are limited to "yes" or "no."
9. Practical Station: Stations that allow students to engage in experimental and hands-on activities.
10. Computer Simulation Station: Computers are provided for students to perform activities using simulation software.
11. Learning Centers: These centers integrate various scientific stations to achieve interdisciplinary connections.
12. Multiple Intelligences Centers: These centers diversify the learning stations based on the theory of multiple intelligences, with each station focusing on a specific type of intelligence, such as linguistic, kinesthetic, or others, depending on the nature of the lesson and the students' intelligence profiles.

The educational stations in this research were determined based on their alignment with the content of the history curriculum for first-year secondary school students and their compatibility with the program developed in this study. These stations included:

- **The reading station**: it includes some texts and articles on the content of the history lesson
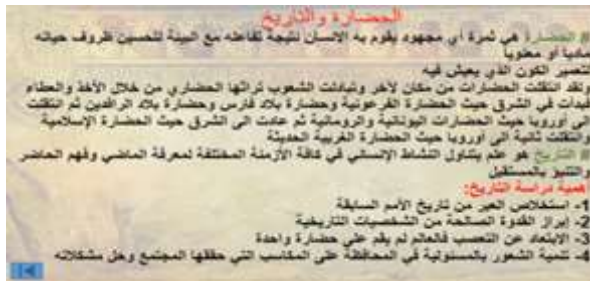
- **The Visual Station**:
The researcher designed it in the form of a virtual exhibition or virtual museum to display a collection of historical images related to the topic being studied.

- **The Audio-Visual Station** :
It included a set of short videos explaining the elements of the lesson.

- **The Assessment Station,** which was introduced by the researcher and primarily relies on digital game incentives.

All these stations are based on modern technology.

Gamification in learning

Digital game incentives (Gamification) are among the most prominent technological developments of the present time, which has led to their integration and utilization across various fields, including education. Gamification is considered a promising strategy because it can enhance essential skills such as problem-solving, collaboration, and communication. The term "Gamification" has been translated into several concepts, including "game-ifying," "playification," "smart gaming mindset," "digital gamification," and "motivational play" (Ahmed DeAbu El-Khair, 2019, p. 27).

Kocakoyun & Ozdamli (2018, p. 51), defined Gamification as the process of involving users in game-like activities, making non-game elements more enjoyable. The goal is to change behaviors, motivate students to engage in learning, and achieve positive outcomes, helping them adapt to new behaviors.

Reda Shenouda and Mona Abdel-Karim (2020, p. 548), Ahlam Ibrahim (2021, p. 524): They define gamification as the process of transferring game elements from the entertainment domain to the educational domain. The purpose is to improve student performance, achieve specific learning objectives, and enhance learner engagement and interaction with educational content.

From these definitions, it is clear that Gamification in education involve the integration of game elements to

enhance motivation, improve performance, and foster engagement in the educational process. Gamification differs from other game-related concepts by focusing on incorporating game mechanics into learning activities rather than turning content and classrooms into educational games.

Advantages of Using gamification in Education

Several studies have highlighted the advantages of using gamification in the educational process, including those by Ahmed Abu El-Khair (2019), Zhakupova, A., et al. (2022, p. 3560), Gil-Aciron, L.A. (2022, p. 118), and Chugh, R. & Turnbull, D. (2023, p. 2). The advantages of gamification include:

Gamification provides an engaging and entertaining learning experience, helping students to learn in a more dynamic and interesting way compared to traditional methods. This reduces negative attitudes toward education and transforms monotonous tasks into appealing challenges, motivating learners. It allows students to have full freedom to choose their learning methods, promoting continuous self-directed learning. This autonomy enhances learning independence, as students take responsibility for completing tasks, leading to greater engagement in the educational process. Gamification fosters the development of social skills such as leadership, teamwork, and positive cooperation. It encourages students to exhibit desirable behaviors and helps develop personal traits like perseverance, creativity, and adaptability. These activities also impact students' emotional experiences and sense of identity, better preparing them to face life's challenges.

Gamification effectively addresses individual differences among students by presenting learning activities progressively, based on each student's abilities and readiness. This personalized approach improves self-esteem and promotes deep learning. It offers real-time feedback to students, helping them to stay engaged in the learning process and providing continuous opportunities for improvement. The use of gamification in final assessments has been shown to produce optimal results. It offers personalized, frequent feedback to students, enabling them to improve their performance. The use of digital game incentives also enhances students' technological skills, contributing to their digital literacy and improving their ability to retain key concepts and knowledge.

From the above, it can be concluded that gamification can eliminate boredom and stagnation that have affected the educational process. By making learning more exciting, enjoyable, and engaging, these incentives motivate students and create a sense of purposeful competition among them. Consequently, this leads to higher educational returns and an increased achievement rate of the desired objectives..

Although gamification offers numerous advantages in the educational process, some studies, such as Rakhmanitae,

A., et al. (2023, p. 223), have highlighted several barriers and challenges that hinder its practical application. The use of gamification requires a significant amount of time to design lesson-specific activities, require technological devices and internet networks, which can be hindered by a lack of financial resources and technical problems also Some gamification applications are overly complex, making them difficult for many learners and teachers to use.

Standards for Designing and producing gamification in Learning Environments

According to Stephen & Marten (2014, p. 108), the design standards are as follows:

- Measurable and Motivational Goals: Goals should be measurable, progressively challenging, and organized into multiple levels that motivate learners.
- Personalized Support: The objectives should align with the learners' personal goals and interests.
- Balanced Activities: Activities should focus on achievement and winning, be interconnected, and gradually increase in complexity.
- Goal-Oriented Activities: Activities should align with the specified goals and be achievable.
- Scientific Accuracy and Artistic Appeal: A balance between scientific rigor and aesthetic design is essential.
- Diverse Reinforcement Styles: Include multiple reinforcement patterns based on gains and losses.
- Challenging and Competitive Elements: The content should include challenges that encourage learner participation, offer forms of competition, and provide multiple ways to engage.
- Cognitive Skill Development: Activities should facilitate the practice of various cognitive processes.
- Ease of Interaction: Minimize physical and technological effort in interactions, ensure flexibility in use, and consider the aesthetic appeal of the interface.

Learner-Centric Content: Content should cater to learners' characteristics and accommodate individual differences

From the above, it is clear that digital game incentives can be a powerful tool for developing positive thinking skills by integrating game strategies into teaching activities. This approach makes learning engaging, interactive, and enjoyable for students, encouraging them to assess their strengths and areas for improvement, celebrate successes, and learn from failures. Furthermore, it motivates students to approach problems positively, emphasizing the importance of perseverance and creativity in finding solutions.

Positive Thinking

Positive thinking is one of the fundamental concepts in positive psychology, a relatively new field. The term "positive thinking" reflects the resolution of internal problems, where a person must be capable of controlling their thoughts, emotions, and actions. It can be said that positive thinking is the key to a fulfilling, satisfying, and

enjoyable life. It is a learnable and trainable way of thinking that is associated with improved mental health and better outcomes in various fields. Additionally, it is linked to resilience and the ability to face pressures and challenges.

Positive thinking skills include the ability to challenge negative thoughts, reframe situations positively, and maintain a positive outlook. These skills also involve fostering a positive mindset, setting goals, and utilizing appropriate learning models and tools. Practicing positive thinking can provide numerous benefits, as optimists, who tend to have a positive outlook, are more likely to succeed in the future and experience less distress.

In this context, some studies indicate that high school students are more vulnerable to psychological stress due to significant physiological, cognitive, and psychological changes. Adolescence is considered a critical period due to the stress of new social roles and responsibilities, in addition to the tension caused by surrounding expectations and judgments. As a result, adolescents are at greater risk compared to other age groups. Many researchers view adolescence as the most stressful period, during which adolescents often experience tension and conflict at home or school, face difficulties in developing self-awareness and self-esteem, and require more help and guidance than others (Hamidi, F., et al., 2020).

Gur, C., et al. (2021, p. 352) define positive thinking as a way of thinking that focuses on what is constructive and aims to produce solutions rather than fixating on the problem. In this mode of thinking, life's difficulties and challenges are not ignored, but efforts are made to develop proposals to address these issues, ultimately enhancing quality of life. Wongsuwan, N., et al. (2023, p. 4) define positive thinking as a thought process that perceives and interprets situations, tendencies, or attitudes toward oneself, others, objects, or events in a positive manner.

From the previous definitions, it is evident that positive thinking is a form of thought closely tied to optimism and is the opposite of negative thinking. It is a phenomenon that enhances enjoyment of life, improves quality of life, and motivates individuals. People who have positive thoughts and view events around them positively tend to gain more positive experiences than others.

The Importance of Positive Thinking

Fofanah, I.D. (2023) highlighted several significant benefits of positive thinking, Positive thinking can help reduce stress and anxiety, improve mood, and enhance self-esteem, It aids in reducing negative thoughts and improving the ability to cope with stressful situations. Positive thinking can decrease fatigue, improve sleep quality, and even lower the risk of certain diseases. It fosters more positive interactions, contributing to better relationships with others and boosts motivation and focus, resulting in improved performance in academic, professional, and athletic endeavors.

It is clear that positive thinking significantly impacts all aspects of an individual's personality. It influences mental health, helps individuals manage life's pressures, and improves social relationships by promoting acceptance of differences among people. Additionally, positive thinking contributes to academic progress and overall well-being.

Positive Thinking Skills

Positive thinking skills represent the abilities that enable individuals to think and act positively when facing challenges, achieving success, and finding satisfaction in life. Among the most important of these skills are those outlined by Samia Abdel Nabi (2021, p. 1431), Muhammad Ayad Al-Mawla and Yasser Mahfouz Al-Dulaimi (2021, p. 188), and Nima Ali et al. (2021, p. 83), which are as follows:

1. Positive Expectations and Optimism: The ability to expect success in various aspects of life and believe in the capacity to achieve one's desires in the future. Optimism involves anticipating positive results in upcoming events and recognizing the possibility of achieving favorable outcomes despite challenges and difficulties.

2. Emotional Regulation and Control of Higher Cognitive Processes: The ability to direct attention and manage memories in a way that enhances psychological well-being and promotes social adaptation.

3. Love for Learning and Healthy Cognitive Openness: This includes a passion for knowledge, a desire to learn, and staying up-to-date with new information that supports mental health. It embodies a positive attitude toward learning, which serves as the driving force for academic success. This skill reflects an individual's commitment to achieving educational goals, overcoming fatigue, and finding enjoyment in the process.

4. General Satisfaction with Life: Feeling content with oneself and achieving broad life goals, such as living standards, personal accomplishments, and educational achievements.

5. Positive Acceptance of Differences: Embracing social behaviors and attitudes that reflect understanding and acceptance of diversity, encouraging an appreciation of differences without bias.

6. Tolerance and Adaptability: Positive thinkers accept the challenges and difficulties of life without resorting to complaints or frustration about circumstances beyond their control.

7. Positive Emotions: This refers to the ability to experience emotions that revolve around happiness, empathy, and peace. It involves personal qualities and social-emotional skills that help individuals understand others' feelings, contributing to improved psychological and social well-being.

8. Unconditional Self-Acceptance: Involves acknowledging and valuing oneself without

devaluing one's capabilities to gain attention or sympathy. It encourages self-respect and the cultivation of mutually respectful relationships.

9. Acceptance of Personal Responsibility and Forgiveness: This involves caring for oneself, taking responsibility for one's actions, and making use of opportunities to grow as a lifelong learner. It also includes accepting familial, social, and community responsibilities.

10. Positive Risk-Taking: Positive individuals exhibit greater curiosity, a willingness to explore the unknown, and a readiness to embrace uncertainty, which equips them to make effective decisions and take calculated risks.

From the above, it is clear that positive thinking encompasses abilities and skills that enable individuals to face the challenges and difficulties in life with self-confidence, trust in their abilities, trust in others, a sense of hope, and resilience in the face of failure. Therefore, it is essential to focus on developing these skills among students and to emphasize their importance through effective teaching strategies.

Teaching history can play a crucial role in fostering positive thinking skills. Learning how individuals and societies have overcome challenges throughout history can inspire students to approach their own obstacles with optimism and determination. Analyzing historical events requires considering multiple perspectives, drawing logical conclusions, and exploring alternative explanations—core components of positive thinking. In other words, the study of history provides students with opportunities to engage in critical thinking, recognize patterns of human resilience, and appreciate the progress humanity has made over time. By nurturing these skills and attitudes, educators can contribute significantly to the development of positive thinking in students, using appropriate strategies to teach the subject and empowering students to tackle challenges with optimism, resilience, and self-confidence.

Method:

: The participants in this study were 60 **Participations** secondary school students (grade 10) from a public high school in [insert location]. The students were randomly assigned to either the experimental group (n = 30) or the control group (n = 30). Random assignment helped ensure the two groups were equivalent prior to the intervention.

Research Design: A quantitative experimental research design with pretest-posttest control group was employed. The independent variable was the integration of virtual learning stations with gamification (the intervention), and the dependent variable was positive thinking skills in history. The experimental group received the intervention, while the control group received traditional instruction without virtual stations or gamification elements.

Pre-test of Research Tools: To ensure the equivalence of the experimental and control groups and control for dependent variables, the research tools were applied

preemptively to both groups. The Positive Thinking Skills Test was administered directly to the students in both groups. The mean, standard deviation, and t-value were calculated, ensuring that the conditions for using the t-test were met, as outlined below:

Table (2): The t-value and its statistical significance for the difference between the mean scores of the experimental and control groups in the pre-application of the Positive Thinking Skills

Group	Sample Size	Arithmetic average	Standard Deviation	Degrees of Freedom	Significance Level	t-Value	Sigat (0.05)
Control (Pre-test)	30	8,70	1,95	58	0,115	1,702	Not Sig
Experimental (Pre-test)	30	7,90	1,91				

The results in Table (1) indicate that the experimental and control groups are equivalent in positive thinking, as the calculated t-value is not statistically significant at 58 degrees of freedom and a significance level of 0.05.

Application of the Research: A preparatory session was held to introduce the students to the use of Telegram, how to download it, and how to create an account. Then, they were shown how to access the first-year history class channel and join it through this link https://t.me/+18llgAnE1M40Yjg0 . Afterward, the first-term history curriculum was taught to the first-year preparatory group as follows:

Table (3): Distribution of the First-Term Curriculum

UNITE	Topic	Number of Lessons
Unit 1: Introduction to the Study of Ancient Egyptian and World Civilization	Lesson 1: Civilization and History Lesson 2: Sources of Study of Civilizations Lesson 3: Factors for the Emergence of Civilizations	1 session 1 session 2 sessions
Unit 2: Ancient Egyptian Civilization (Pharaonic)	Lesson 1: Features of Ancient Egyptian History Lesson 2: Economic Life Lesson 3: Political and Administrative Life Lesson 4: Social Life Lesson 5: Religious Life Lesson 6: Cultural and Intellectual Life	1 session 2 sessions 1 session 2 sessions 1 session 2 sessions
Two Units	**9 Lessons**	**Total: 13 sessions**

The researcher asked the school administration to provide internet service to the students during the class, so they could use their tablets to join the Telegram channel and follow the educational content. In addition, a group of live broadcast sessions were held via the Telegram channel to know their opinions on the educational model and discuss the scientific material in it. The students sent the educational activities and tasks required of them to the researcher's personal account on Telegram. The control group was taught using the traditional method.

The application went through three stages as follows:

Pre-teaching stage: It included the following steps:

1) The researcher created a channel on Telegram to publish learning topics and created a group on Telegram as well and linked it to the channel to discuss and dialogue with students and answer their questions.

2) Giving the students the link to the Telegram channel and its name (First Secondary Grade History)

During the session stage:

1) Dividing the session time by going through the virtual learning stations for the lesson, which the researcher designed and uploaded to the first secondary grade history channel on the Telegram application

2) Directing students to the virtual learning stations and how to navigate between them, writing down notes, questions and inquiries about the content of the stations and putting them on the chat group linked to the Telegram channel and discussing them with the researcher

3) Monitoring students' progress in the learning environment and providing feedback when needed and ensuring that they are performing the tasks successfully

4) Reviewing what was learned in the virtual stations and discussing the main points in them and answering some questions posed by the researcher that aim to develop positive thinking skills.

5) The student implements the educational activities related to viewing the learning content and is located in the section allocated to it in the textbook and sends it to the researcher at the specified time on her personal Telegram account.

Post-session stage:

1) Evaluate the students' performance in the activities they sent to the researcher on her personal account

2) Provide feedback to the students on their personal Telegram accounts that clarify the strengths and weaknesses in their performance

3) Encourage students to learn about the topic on their own and discuss with each other via the chat group

4) Ask students to do some activities via the Internet or design some simple presentations on the topic or collect some pictures or write a simple article via the Word program such as collecting some maps from the Internet that explain the foreign trade routes in Pharaonic Egypt and presenting a simplified presentation about one of the kings of Pharaonic Egypt and his most important works and sending it to the researcher on her personal Telegram account.

5) Directing students to solve the electronic tests prepared by the researcher by entering the test link designated for each lesson, such as the test link on the lesson "Features of Pharaonic Egypt" as follows: https://forms.office.com/r/MzXqXJG7TH

Virtual learning stations in the lesson "Political and Administrative Life in Ancient Egypt
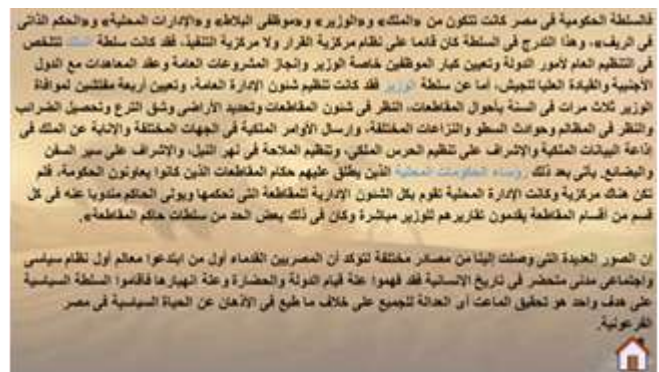

Figure (1) The main screen

Figure (2) The Reading station

Figure (3) The Photo station:

Post-test of Research Tools: After completing the curriculum using the integration of virtual learning stations and digital game incentives, the Positive Thinking Skills Test was administered post-test to both the experimental and control groups. This was done to

compare and analyze the pre- and post-test results in order to validate the research hypotheses.

Data Analysis:

After conducting the post-test for Positive Thinking Skills on the research sample, the students' scores in both the pre- and post-tests were recorded. Statistical analysis was performed using the SPSS (Statistical Package for the Social Sciences) software. The following statistical methods were used:

1. T-test for the significance of differences between the means of paired samples.
2. Effect Size (n^2)
3. Pearson's Correlation Coefficient for raw scores.

Results:

After recording the scores of students in both the experimental and control groups and performing the statistical analysis, the following results were obtained:

First: Presentation of the Results Regarding the Performance of Secondary School Students (Both Groups) in the Positive Thinking Skills Test

To assess the improvement in the students' performance in the Positive Thinking Skills Test, it was necessary to answer the research question: What is the effect of integrating the strategies of virtual learning stations and digital game incentives on the development of overall positive thinking skills among secondary school students? This was done by comparing the performance of the experimental group and the control group in the post-test for Positive Thinking Skills after teaching through the proposed model, which integrates both the virtual learning stations and digital game incentives strategies with the experimental group.

The researcher calculated the t-value and its statistical significance for the difference between the mean scores of the experimental group and the control group in the post-test for Positive Thinking Skills as a whole. The table below illustrates this:

Table (4): The t-value and its statistical significance for the difference between the mean scores of the experimental and control groups in the post-test for Positive Thinking Skills as a whole

Group	Sample size	Arithmetic average	Standard deviation	Freedom Degree	Sig level	T-value
Control (Post-test)	30	17,50	8,36	43,43	0,0001	10,61
Experimental (Post-test)	30	26,00	4,31			

The results in Table (4) indicate that the difference between the mean scores of the experimental and control groups on the post-test for Positive Thinking Skills as a whole is statistically significant at the 0.05 level, in favor of the experimental group. The calculated t-value was statistically significant at the 0.05 significance level.

Based on this, the first hypothesis of the study was accepted, which states, "There is a statistically significant difference at the 0.05 level between the mean scores of the experimental and control groups on the post-test for Positive Thinking Skills as a whole, in favor of the experimental group."

From the above, it is evident that the independent variable—the integration of the strategies of virtual learning stations and digital game incentives—has a significant effect on the dependent variable (overall positive thinking skills). However, this result does not indicate the effect size or the strength of the relationship between the two variables. To determine the strength of the relationship between the independent and dependent variables, the value of (d) was calculated, which was found to be 3.22. This value is greater than 0.8, indicating a strong effect of the independent variable (the integration of virtual learning stations and digital game incentives) on the dependent variable (overall positive thinking skills). This reflects the practical impact of the proposed program. This result can be interpreted by understanding that the variety in content delivery methods, through virtual learning stations, the design of a formative assessment station based on digital game incentives, and the diversity of activities, provided opportunities for students to actively and effectively participate in the learning process. It also allowed each student to learn according to their abilities and level. Additionally, the design of the content in this way added an element of enjoyment and motivation in completing the required educational tasks, contributing to the enhancement of the sense of accomplishment, self-satisfaction, and the ability to handle challenges in a constructive and positive manner.

Second: Presentation of Results for the Performance of Secondary School Students in the Positive Thinking Skills Test (Each Skill Separately)

In order to assess the improvement in secondary school students' performance in positive thinking skills, one skill at a time, it was necessary to answer the research question: What is the effect of integrating the strategies of virtual learning stations and digital game incentives on the development of each positive thinking skill separately among secondary school students?

This was done by comparing the performance of the experimental group and the control group in the post-test for Positive Thinking Skills, after teaching through the model based on the integration of the strategies of virtual learning stations and digital game incentives with the experimental group.

The researcher calculated the t-value and its statistical significance for the differences between the mean scores of the experimental and control groups on the post-test for each positive thinking skill separately. This is illustrated in the table below:

Table (5): Independent Samples t-test Results for Individual and total Positive Thinking Skills Posttest Scores

Skill	N	M	SD	M	SD	T-value	Df
Problem-solving	30	2.90	1.80	4.60	1.90	5.17**	58
Self-leadership of thinking	30	3.40	2.13	5.10	2.53	4.74**	58
Cognitive openness	30	3.70	2.11	5.40	2.12	7.13**	58
Positive expectation/optimism	30	3.60	2.11	5.50	2.12	7.13**	58
Accepting differences with others	30	3.90	2.11	5.40	2.12	7.13**	58
Total Positive Thinking Skills	30	17.50	8.36	26.00	4.31	10.61**	58

Note. N = 60. **p < .01.

The results indicate a statistically significant difference in total positive thinking skills between the experimental and control groups on the posttest, t= 10.61, p < 0.01, with the experimental group outperforming the control group. The effect size, calculated using eta-squared, was 0.72, indicating a large effect of the intervention on total positive thinking skills.

Furthermore, the results demonstrate statistically significant differences between the experimental and control groups on all individual positive thinking skills, favoring the experimental group. Specifically, the experimental group outperformed the control group in problem-solving (t(58) = 5.17, p < 0.01), self-leadership of thinking (t(58) = 4.74, p < 0.01), cognitive openness (t(58) = 7.13, p < 0.01), positive expectation/ optimism (t(58) = 7.13, p < 0.001), and accepting differences with others (t(58) = 7.13, p < 0.01).

Discussion:

The findings of this study highlight the potential of integrating virtual learning stations with gamification elements in fostering positive thinking skills in history education among secondary school students. The experimental group, which received the intervention, demonstrated significantly higher overall positive thinking skills compared to the control group, as evidenced by the large effect size. This result aligns with previous research suggesting that interactive and engaging learning environments can cultivate positive attitudes and mindsets among students (Beavis et al., 2017; Veldkamp et al., 2020).

Furthermore, the experimental group outperformed the control group in all individual positive thinking skills, including problem-solving, self-leadership of thinking, cognitive openness, positive expectation/optimism, and accepting differences with others. These findings underscore the multifaceted benefits of the intervention in developing a range of positive thinking skills essential for effective learning and personal growth.

Several factors may contribute to the observed positive effects of the intervention. the content provided a safe and motivating learning environment where students could interact with the educational material and solve problems with ease and relaxation. This approach not only enhanced positive thinking but also increased self-confidence levels. The addition of a formative assessment station based on digital game incentives provided immediate feedback on student performance, which enhanced positive thinking by encouraging persistence and continuous improvement.

Teaching history through the integration of virtual learning stations and digital game incentives emphasized the positivity and activity of the learner by presenting content in multiple ways, based on a variety of educational materials and interactive tools. The use of digital game incentives in the assessment station made students more enthusiastic and eager to learn, encouraging them to explore and experiment with new and different ideas. The delivery of content through modern technology enhanced self-directed and independent learning, as students were able to set their own educational goals and take the initiative in their learning paths. Additionally, teaching history through the Telegram app and holding some sessions and discussions among students helped strengthen social interaction and developed positive communication skills by providing interactive and enjoyable learning experiences that enhance self-fulfillment and positivity.

While the findings of this study are promising, it is important to acknowledge potential limitations and considerations for future research. First, the study focused on a specific age group (secondary school students) and subject area (history education). Future studies could explore the effectiveness of the intervention across different age groups and subject domains to assess its generalizability.

Second, the study employed a quantitative experimental design, which may not capture the nuances and depth of students' experiences and perceptions. Future research could incorporate qualitative methods, such as interviews or focus groups, to gain deeper insights into students' perspectives and the factors contributing to the development of positive thinking skills.

Third, the study focused on a relatively short intervention period (one academic semester). Longitudinal studies could investigate the long-term impacts of the intervention and assess the sustainability of the observed positive effects on thinking skills and attitudes.

Despite these limitations, the findings of this study contribute to the growing body of knowledge on innovative pedagogical approaches in history education and the potential of combining technology-enhanced learning environments with gamification principles. By fostering positive thinking skills, such as problem-solving, self-leadership of thinking, cognitive openness, positive

expectation/optimism, and accepting differences with others, the intervention holds promise in cultivating a generation of learners equipped with the mindset and skills necessary to navigate the complexities of the modern world.

Conclusion

This study provides compelling evidence for the effectiveness of integrating virtual learning stations with gamification elements in fostering positive thinking skills among secondary school students in history education. The findings demonstrate significant improvements in overall positive thinking skills, problem solving, self-leadership of thinking, cognitive openness, positive expectation/optimism, and accepting differences with others.

The multifaceted intervention, combining interactive virtual stations and engaging game elements, created a powerful learning environment catering to diverse preferences while enhancing motivation and engagement. By transforming historical narratives into immersive experiences, students actively participated, collaborated, and developed a growth mindset towards learning. Notably, the intervention fostered essential cognitive, affective and social-emotional competencies like empathy, perspective-taking, and appreciation for diversity - crucial skills for navigating modern complexities and promoting inclusive societies.

While further research is needed to assess generalizability across contexts, this study contributes to the literature on innovative pedagogies. It highlights the potential of integrating technology-enhanced environments with gamification principles to empower students as lifelong learners, critical thinkers, and responsible global citizens equipped to navigate an ever-changing world.

Research Recommendations

In light of the results obtained from this study, the researcher recommends the following:
1. Integrating modern strategies and utilizing digital technology to develop positive thinking skills among secondary school students.
2. Using the proposed model, which integrates virtual learning stations and digital game incentives, to develop positive thinking skills in the history curriculum across various educational stages.
3. Including positive thinking skills in the objectives of history curricula at different educational levels, recognizing their importance and the need for them in the contemporary era.
4. Holding training courses for history teachers on using modern strategies that can help develop positive thinking skills, particularly the strategies of virtual learning stations and digital game incentives.
5. Providing the tools and resources necessary to implement the strategies of virtual learning stations and digital game incentives.

Suggestions for future studies

Based on the previous research results, the researcher suggests the following:
1. The effectiveness of using the digital game incentives strategy in developing 21st-century skills.
2. The effectiveness of using the virtual learning stations strategy in developing historical imagination skills.
3. The effectiveness of using the virtual learning stations strategy in developing historical research skills.
4. The effectiveness of using the digital game incentives strategy in developing creative thinking skills.
5. The effectiveness of using interactive e-stories in teaching history to develop positive thinking skills.
6. The effectiveness of using certain artificial intelligence programs in teaching history and its impact on developing positive thinking skills.
7. The use of virtual reality techniques in teaching history and its impact on developing certain positive thinking skills.

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