

# STUDY ON:THE IMPACT OF EMPLOYING A STRATEGY THAT INTEGRATES VIDEOS AND DIGITAL CONTESTS ON THE DEVELOPMENT OF SOME HABITS OF MIND AND ACHIEVEMENT MOTIVATION AMONG SEVENTH GRADE STUDENTS

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#### **ABSTRACT**

The study aimed to identify the impact of employing a strategy that integrates video and digital contests on the development of some habits of mind and achievement motivation among seventh-grade students. To achieve the objectives of the study, the researcher used the quasi-experimental method. The study tools consisted of a test for habits of mind and a scale for achievement motivation, of which both have been applied to a sample of (78) seventh-grade students, distributed equally over the control and experimental groups.

The results of the study showed that there were significant statistical differences at the level of significance ( $\alpha = 0.01$ ) between the mean grades of the students in the experimental group and their peers in the control groups in both the post-tests of habits of mind and achievement motivation; this difference is in favor of the experimental group. The size of the effect was also large reaching (0.59) and (0.87) respectively.

The study recommended the need to train in-service teachers on modern teaching strategies, especially a strategy that integrates video and digital contests.

**KEYWORDS:** Employing a Strategy that Integrates Videos and Digital Contests, Habits of Mind, Achievement Motivation

#### Article History

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# **INTRODUCTION**

*Electronic educational aids* have contributed to the development of the educational process, changing the techniques and methods of teaching to interactive presentation methods, enhancing the use of colors, sounds, images and videos that raises effectiveness and motivation (Al-Ajlouni, 2014: 35); and hence the educational institutions started to compete for the use of modern digital technologies in the educational process, as they are effective tools that inspire the learner, motivates him, and acquires them different skills (Al-Ghamdi, 2016: 314). Accordingly, digital techniques and programs have become an indispensable tool, as the world depends on competitiveness as a criterion for progress and prosperity.

Digital education meets the scientific and cognitive needs and desires of learners, keeps them acquired longer, and overcomes the problem of rising numbers of learners with the narrowness and lack of classrooms and the available educational potentials (Al- Shomrani, 2019: 151), through which digital education arranges information according to its importance and need, which saves effort and time in the educational process, and a provides a variety of different

educational sources.

One of the digital educational tools used are videos, where video clips are of the most important elements of web sites, as it contains millions of different clips, including private, public, educational, physical, entertainment and others. Video clips are an educational medium that is used as an effective tool in the teaching process to transfer knowledge, information, skills, and trends (Al-Najjar, 2016: 17). Digital video clips provide animated images that include color, rhythm, various sizes, and repetition, while the computer receives it and then add to it interactivity, presentation, digital treatments, control methods, and other possibilities provided by various video/image related computer software (Cardon, 2011: 657). Digital video offers a live, recorded a digital image that touches the viewer's feelings, provides visual instructions and guidance, and develops practical skills in various fields (Liu, 2017: 166). Employing digital video in the teaching process is much easier for the teacher, giving him the ability to invent and innovate, and to deliver the educational experiences to students in a smooth and interesting manner.

Also, among the digital education tools are digital contests, which are a set of activities that provide educational content through digital competitions that are performed individually, in pairs or in groups (Al-Hassanat, 2017: 7). These contests are presented to students through computers in order to create a competitive, fun and entertaining environment, presenting some educational content in an exciting and interesting way, which has a positive impact on students and achieves the teacher's desired goals. The digital contest is a teaching method that can be used in activating subjects, contributing to the advancement of the student, enriching the subject, and developing the students' skills, all of which is done in a planned and deliberate manner (Al-Assalani, 2019: 396). In addition to that, they revive competition among students, developing their abilities and self-confidence, highlighting their talents, and enhancing their scientific and mental skills through merging the presentation of information and pleasure at the same time.

Some studies have confirmed the ability of employing digital videos in the teaching of mathematics, including the study of Mohammed et al. (2016), which revealed the effect of using digital video on the development of skills of teacher students in the use of tangible handmade materials, and the study of Al-Sawai'e (2011), which revealed the impact of participation in the video club as a method of professional development in improving the teaching of mathematics among teachers. Several studies have also revealed the impact of the employment of digital video in the educational process in general, including the study of Iskandar (2018), which revealed the impact of using different patterns in presenting digital text in cognitive load theory on the students' acquisition of human rights curriculum, the study of Harb (2018), which revealed the effectiveness of two types of interactive digital video on developing the skills of screen digital photography and its montage and the visual thinking among students of the education college at Al-Aqsa University of Gaza, and the study of Sophie (2012), which revealed that the interaction between the sequence of the fixed and mobile film image display in multimedia programs based on digital video has had a significant impact on the development of life skills among children with intellectual disabilities.

Other studies aimed at uncovering the impact of the employments of contests in the educational process, including the study of Al-Assalani (2019), which revealed the effect of activating the contests using active learning strategies in the development of English language skills in the Jubail schools; however, the researcher did not find studies engaged in the employment of contests or digital contests in the teaching of Mathematics.

The term "Habits of Mind" emerged as a result of mind researches, which focused on finding out how the mind works throughout the teaching and learning processes, and how to develop students' mental skills to the maximum of their

abilities (Al-Banna, 2012: 1). (Abdel Razek, 2015: 493) sees that the habits of the mind are a set of patterns of constant and ongoing mental performance set to cope with different life situations, while (Adam, 2014: 110) describes it as a set of intelligent and conscious behaviors that the individual continuously and without effort or trouble pursue in a variety of life situations, and that these behaviors are originated from cognitive processes or intellectual skills.

Moreover, the subject of the habits of mind is considered one of themodern topics, where the attention to the development of the right mind habits helps students to face their problems with ease and comfort and to develop their thinking skills (Al-Qawwas, 2013: 5).

(Cosla & Kallic, 2000: 9) and (Cosla & Kallic, 2008: 17) points out that a student who constantly uses the habits of mind in their daily life activities have the following characteristics: (value, inclination, sensitivity, capability, commitment, and policy), and that the neglect of the habits of mind causes many deficiencies in the results of the educational process (Muhammad, 5: 2018).

Due to the importance of the development of the habits of mind in mathematics, many researches have been interested in using different approaches and strategies for their development, including the use of flipped learning (Al-Harthy, 2018), SWOM strategy (Mahdi, 2017), Fishbowl Strategy (Jad, 2017), Marzano Model for the dimensions of learning (Ali, 2017), a proposed program based on the theory of Accelerated Learning (Al-Sayyed & Al-Jahny, 2017), the effectiveness of GeoGebra Program (Al-Kubaisi & Al-Amely, 2016), the effectiveness of a program based on collaborative teaching (Marjan & Ibrahim, 2015), and the effectiveness of the program based on differentiated instruction (Abdullah, 2015).

As for the Achievement motivation, which is one of the desired educational outcomes that the present study seeks to develop, (Kiw, 2010: 419) argues that achievement motivation is the methods and mechanisms that enable students to pursue their needs and construct ways that increase their understanding of the learning experiences. In this regards (Abdul Samad & Muhammad, 2016: 760) adds that it's a set of internal and external conditions that push the individuals to meet their needs and objectives through their study of a specific course.

Achievement motivation in mathematics is one of the most important factors affecting the achievement of the objectives of the processes of teaching and learning of mathematics in a significant way, as it affects the ability of the student to attain and understand, where we find that the learner's behavior is characterized by activity and self-willingness to learn in situations, and not in others. Thus, achievement motivation is of great importance for learning mathematics, as it helps to increase the persistence and effort of the students while learning mathematics, making the student more positive.

Considering the importance of the development of achievement motivation in mathematics, many researches have been interested in using different approaches and strategies for its development, including the use of PDE-ODE (Predict-Discuss-Explain-Observe-Discuss-Explain) strategy and writing strategy as in Adam (2017), the use of the Davis model (Al-Hammad & Abed, 2018), brainstorming (Rakha, 2017), Marzano Model for the dimensions of learning (Ahmed, 2013), and the use of media models for ongoing events using graphical organizers (Satouhi, 2012), the effectiveness of the human approach (Mohammad et al., 2011), as well as a program based on Self-Regulated Learning strategy (Al-Homor et al, 2015).

Several studies have recommended the need to develop the level of achievement motivation in mathematics for students at all levels of education to achieve the goals of education, such as (Johnson, 2010), (Settlemyer, 2010) (Sungur &

Senler, 2010), (Day & Burns, 2010), (Wilkins & Kuperminc, 2010), and (Kebritchi, et. al., 2010).

#### **Study Problem**

The researcher's sense of the problem of this study and the need for it has crystallized through the following indicators:

- Review of the document of the formation of the Palestinian Mathematics Curriculum, where it is found that, as a whole, it emphasizes on the importance of developing the students' creative thinking abilities and enriching them with higher mental skills, and to accustom them to spontaneous mental thinking, recommending the need to accustom students to the habits of mind and raise their achievement motivation. As the researcher's work as a head of the Department of Educational Supervision at Al-Aqsa University and through his direct contact with students and teachers, he noted that most of the methods and techniques used in the classrooms did not keep up with the declared objectives, as the traditional methods are still based on memorization and instruction.
- The decline of the level of primary stage students in mathematics reflected through the researcher's analysis of the results of international and regional contests, especially the Test of Trends in International Mathematics and Science Study (TIMSS), which include mathematical equations that require brain work and creative thinking.
- Extrapolating the results of previous studies which confirmed the importance of the use of modern methods and programs, especially those based on "video and digital contests", specifically in the teaching of mathematics to develop the different skills of learners.
- In addition to the above, through the study of previous studies and literature on the different variables of the study, the researcher found a group of research gaps, which can be presented as follows:

#### **The First Research Gap**

Despite the importance of videos and digital contests in the educational learning process, none of the previous studies - as far as the researcher is aware - dealt with the direct impact of employing a strategy that integrates videos and digital contests on the development of some habits of mind and achievement motivation among seventh grade students; and in this behalf, the first research gap, which the researcher hopes to excel in this study is revealed. The researchers will work on overcoming this gap by identifying the effect of employing a strategy that integrates videos and digital contests on the development of some habits of mind and achievement motivation among seventh-grade students the development of some habits of mind and achievement motivation among seventh-grade students.

### The Second Research Gap

A review of previous studies shows that none of them - as far as the researcher is aware - dealt with the same subject of the study and applied in the Arab environment in general or the Palestinian environment in particular. Hence, the researcher seeks to excel in this study by applying it on the basic stage in Palestinian schools, especially the seventh grade.

In light of the above, the researcher proposes the use of a strategy that integrates videos and digital contests as a scientific attempt to find out its effect on the development of some habits of mind and achievement motivation among seventh-grade students.

Thus, the problem of the current study is determined by answering the following main question:

Study on: The Impact of Employing a Strategy that Integrates Videos and Digital Contests on the Development of Some Habits of Mind and Achievement Motivation among Seventh Grade Students What is the Impact of Employing A Strategy that Integrates Videos and Digital Contests on the

# Development of Some Habits of Mind and Achievement Motivation among Seventh-Grade Students

To answer this question, the following sub-questions have to be answered:

- What skills of the habits of mind should be developed among seventh-grade students?
- What achievement motivation skills should be developed among seventh-grade students?
- What is the basis of the strategy that integrates video and digital contests in the development of some of the habits of mind and achievement motivation among seventh grade students?
- What is the impact of employing a strategy that integrates video and digital contests on the development of mind habits among seventh-grade students?
- What is the impact of employing a strategy that integrates video and digital contests on the development of achievement motivation among seventh-grade students?

# **Study Hypothesis**

The study aims to verify the validity of the following hypothesis:

- There are no significant statistical differences ( $\alpha \le 0.05$ ) between the mean grades of the students' of the experimental group and their peers in the control group in the post-test of habits of mind.
- There are no significant statistical differences ( $\alpha \le 0.05$ ) between the mean grades of the students' of the experimental group and their peers in the control group in the post-scale of achievement motivation

# **OBJECTIVE OF THE STUDY**

The study aims to determine the impact of employing a strategy that integrates videos and digital contests on the development of some habits of mind and achievement motivation among seventh-grade students.

#### Significance of the Study

The study is expected to contribute to the following:

- Developing students habits of mind and achievement motivation, and assisting them to participate effectively, usefully and fruitfully, through the stages of employing the proposed strategy. This study may also be helpful in the stabilization of information.
- Giving teachers of mathematicssufficient time to develop students' habits of mind and achievement motivationthrough the use of the strategy that integrates videos and digital contests.
- Educational supervisors may benefit from holding training courses for teachers in order to train them to use a strategy that integrates videos and digital contests on scientific bases and in accordance with their steps, in order to teach mathematics, develop habits of mind and achievement motivation among students.
- It may be useful to the curriculum developers when formulating the curriculum of mathematics for the primary stage, as the study shows the impact of employing a strategy that integrates video and digital contests on the development of some skills of the habits of the mind and improving the level of achievement motivation in

mathematics.

• The present study may open new avenues for researchers in the teaching methods of mathematics, as the research idea, procedures and results may be helpful for further experimental researches.

#### **Operational Definitions of the Study**

#### **Digital Video Clips**

An interactive educational tool that is based on a set of videos selected by the teacher from thousands of useful educational videos, and then uploaded on the computer and digitally processed using editing software for producing video clips, so that eventually it's a visual item that can be displayed through video players, providing the ability to control, select, and repeat the displayed material depending on the learner's speed and ability.

#### **Digital Contests**

An educational strategy for using electronic contests, where students are asked questions about the educational content in an electronic form, by which students compete to solve these diverse questions; these contest raise students encouragement and excitement and encourages students to engage in individual or group competitions, giving each students the opportunity to choose what corresponds to his abilities and satisfy his tendencies, and keep pace with his perception and personal readiness to highlight his talents and develop his mental and scientific skills.

# **Employing a Strategy that Integrates Videos and Digital Contests**

An educational strategy based on integration and merge between digital educational videos and digital contests in a single scenery. Educational videos are being developed as to include educational content as audio and images, followed by evaluation activities in the form of prepared digital contests, by which students compete to answer either individually or in groups, and thus performing an evaluation to the educational content presented to students' through the videos to achieve the desired educational goals.

# **Habits of Mind**

The learner's behavior or attitudes towards the use of his intelligence when confronted with a problematic situation or issue, as that the learner does not have at the moment any ready solutions, and thus goes through the process of self-learning to solve a mathematical problem or the spontaneous response to a contradictory situations that can be faced in various ways. The total degree obtained by the student in the test of habits of mind in algebra is measured in its five dimensions: (Persistence, Thinking and Communicating with Clarity and Precision, Questioning and Posing Problems, Applying Past Knowledge to New Situations, Striving for Accuracy and Precision)

- **Persistence** An internal desire and self-motivation that constantly drives the learner to reach organized solutions that enables him to overcome difficulties and obstacles in order to achieve the desired goal.
- Thinking and Communicating with Clarity and Precision The learner's ability to communicate his ideas clearly using a solid language, which will make him more able to convince others of his point of view and support his assumptions with adequate oral and written data and accurate and comprehensive terms.
- Questioning and Posing Problems the ability to ask questions or pose problems and work to find solutions, as well as the minds attention and awareness of the surrounding incentives.

- Applying Past Knowledge to New Situations The ability of the learner to recall the knowledge and expertise gained from previous experiences and to exploit them in new life situations.
- Striving for Accuracy and Precision the ability of the learner to determine the extent to which the results achieved are consistent with specific standards and benchmarks set in advance and of which are precisely and constantly adhered to, criticized and reviewed.

# **Achievement Motivation in Mathematics**

An internal feeling and vital energy that drives the individual to continue to achieve his goals in the least time and effort accompanied by distinguished performance, self-confidence, persistence, and determination to reach satisfactory results and modern educational outputs. It has several dimensions which are: level of aspiration, persistence, enjoyment of learning mathematics, future planning, responsibility, willingness to perform better, and self-confidence and self-esteem, all of which are determined by the student's degree in the measure of achievement motivation in mathematics in its five dimensions:

- **Aspiration** The ability of the student to identify a high level of performance in mathematics, and to perform maximum effort to reach this level.
- **Persistence** The student's keenness to perform all the assigned mathematical tasks and activities, and doing all effort to overcome all obstacles and difficulties that may be faced by the student in his study of mathematics.
- Enjoyment of Learning Mathematics The student's sense of happiness and joy during his study of mathematics.
- **Future Planning** The student's plan for the achievement of the assigned mathematical tasks and activities, and his keenness to implement the plan and commit to it.
- **Class Discussions** The student's keenness to participate actively in discussions between him and the teacher or with his colleagues during the learning of mathematics, and to be positive in the expression of his mathematical views and ideas and its explanation them to others in the classroom.

#### Limitations of the Study

This study is limited to the following:

- **Objective limit:** The study was limited to the sixth unit " Algebra", from the second part of the mathematics book, which is scheduled for students in the seventh grade in Palestine
- Spatial limit: Deir al-Balah UNRWA Boys Preparatory School (B)
- Time limit: Second semester of the academic year 2018-2019.
- Human limit: A random sample of seventh graders.

# The Study Methodology and Procedures

### First: Study Methodology

The researcher used the quasi-experimental approach that is based on two groups: the experimental group which adopts a strategy that integrates videos and digital contests learning, and the control groups, which adopts the traditional

way in learning.

# Second: Study Design

The study design can be expressed as follows:)EG: 01 02 03 X 01 02 03 (CG: 01 02 03 – 01 02 03(Where (EG): experimental group, CG: control group, X: processing (a strategy that integrates videos and digital contests), 01: Traditional Teaching, 02: Test of Habits of Mind (Pre and Post), 03: Scale of Achievement Motivation (Pre and Post).

# **Third: Study Population**

The study population consisted of all seventh-grade students, totaling (2410) students, distributed over (61) classrooms from a total of (13) UNRWA preparatory schools in the Middle Governorates for the second semester of the academic year (2018 - 2019).

### Fourth: Study Sample

Deir al-Balah UNRWA Boys Preparatory School (B) was purposely chosen, as it includes a cooperative and motivated teaching staff. The school consists of 6 classes for the seventh grade, and the sample of the study was randomly selected, consisting of (78) students, distributed evenly over the experimental and control groups.

#### Fifth: Study Tools

To achieve the objective of the study of identifying the impact of employing a strategy that integrates videos and digital contests on the development of some habits of mind and achievement motivation among seventh-grade students, the researchers used the test for habits of mind and a scale for achievement motivation, as illustrated below:

#### **Test of Habits of Mind**

It was prepared according to the following steps:

# **Determining the Test Purpose**

This test was designed to measure the impact of employing a strategy that integrates videos and digital contests on the development of some habits of mind among seventh-grade students.

#### **Determining the Habits of Mind**

Consisted of 5 habits (Persistence, Thinking and Communicating with Clarity and Precision, Questioning and Posing Problems, Applying Past Knowledge to New Situations, Striving for Accuracy and Precision), which has been identified by following a set of steps outlined in the answer to the first question of the study.

# The Initial Form of the Test

The initial form of the test consisted of (40) multiple choice questions, each with four possible alternatives, distributed over the (5) habits, so that each habit has a total of (8) questions, equaling (20%).

#### **Exploratory Experimentation of the Test**

After the preparation of the initial test, it was applied on an exploratory sample of (42) seventh-grade students outside the study sample.

The Validity of the Instrument was tested Through:

# Validity of the Arbitrators

The validity of the test was tested through presenting it to a group of (7) specialized university teachers and (5) educational supervisors to confirm the appropriateness of the vocabulary used scientific and linguistically, and to be guided from their views on the appropriateness of the items of the test to the seventh graders; suggested modifications were taken into consideration.

#### Internal Consistency

The internal consistency of the test was ascertained using Pearson correlation between the grades of each item of the test and the total grade of the test of habits of mind, in which the researcher found that all values of Pearson correlation for all of the test items are statistically significant at significance level ( $\alpha = 0.01$ ); this indicates that the test is strongly valid.

- **Reliability of the Test:** To test the reliability of the test, the researcher used Kuder–Richardson Formula 21 and found that the reliability coefficient is (0.847), which is highly reliable and statistically significant coefficient, confirming the possibility of applying the test of habits of mind on the study sample.
- Analysis of the Items of the Test of Habits of Mind: The results of students' answers on the test were analyzed in order to identify the degree of difficulty and discrimination index for each item of the test, where the researcher found that the difficulty index for each item ranged from (0.238-0.643) and the discrimination index ranged from (0.286-0.786) to distinguish between the responses of the higher and lower categories, where metrology accepts discrimination index when it reaches more than (0.20) (Kilani et al., 448: 2008).
- **Determining the Test Duration:** The time needed to answer the test of habits of mind was determined by calculating the mean time it takes for the first and last student to finish the test; it was found to be (60 minutes).
- Test Scoring: One degree was assigned for each test item, and thus, the grade obtained by the student is limited to (0 and 35).

#### The Final form of the Test of Habits of Mind

Based on the results of the arbitration and exploratory experimentation of the test and doing the necessary modifications, the number of test items after adjustment is (35) multiple choice questions, falling under five main areas: the skill of persistence (7) items, questioning and posing problems (6) items, applying past knowledge in new situations (8) items, thinking and communication with Clarity and Precision (7), and Striving for Accuracy and Precision (7) items; thus the test is ready to be applied in its final form (Annex 1).

Scale of Achievement Motivation, which was prepared according to the following steps:

# **Determine the Scale Purpose**

This scale is designed to measure the impact of employing a strategy that integrates videos and digital contests on the development of achievement motivation among seventh-grade students.

#### **Determining the Areas of the Scale**

The areas of the scale were in five areas or skills: (Aspiration, Persistence, Enjoyment of learning mathematics, Class discussions and Future planning).

#### **Phrasing the Scale Items**

The phrases of the scale were formulated in a procedural form, by which the number of phrases in its initial form was (30) phrases divided over the five fields.

#### The Scaling and Correction of the Scale

student responses are formulated according to the Likert five points scale (Very Large "five points", Large "four points", Medium "three points", Small "two points", and Very Small and has "one point").

The Validity of the Scale: the validity of the scale was tested through:

- Validity of the Arbitrators: The scale was presented to a group of arbitrators from specialists in education, curriculum and teaching methods of the Palestinian universities, to be guided from their views on the appropriateness of the items of the scale, as well as to ensure the validity and clarity of the language; some items have been added, deleted and modified based on the suggestions of arbitrators, by which the scale in its final form consisted of (25) items.
- Internal Consistency: internal consistency was ascertained using Pearson correlation between the grades of each area of the scale and the total grade by applying the instrument on an exploratory sample of (42) students outside the study sample, and were as follows (0.958, 0.918, 0.858, 0.845, 0.879, 0.660, 0.904) respectively, which indicates that the scale is strongly valid.

The Reliability of the Questionnaire: the reliability of the scale was calculated using the following methods:

# **Split-Half Method**

The correlation coefficient between the results of the odd and even items was calculated for the five domains and the questionnaire as a whole, as shown in Table (1).

Variable	Number of Items	Reliability Coefficient Before Modification	Reliability Coefficient After Modification
Aspiration	5	0.943	0.946
Persistence	5	0.608	0.722
Enjoyment of learning mathematics	5	0.784	0.868
Class discussions	5	0.650	0.758
Future Planning	5	0.651	0.715
Overall Questionnaire	25	0.881	0.912

# Table 1: Shows the Reliability Coefficient between the Results of the Odd and Even items

The above table clearly shows that the reliability coefficients found using split-half method are high, indicating that the scale has a high degree of reliability.

# **Cronbach's Alpha Coefficient**

The researcher calculated Cronbach's alpha coefficient to measure the reliability of each dimension and the

phrases of the scale as a whole; the reliability coefficients were as follows (0.963, 0.903, 0.858, 0.801, 0.914, 0.957),

which indicates that the scale has a high degree of reliability.

# Sixth-the Consistency of the Study Groups

The consistency of the experimental and control groups was ascertained in terms of: (pre-test of habits of mind, the scale of achievement motivation, chronological age, and students' grades in mathematics), as illustrated in Table (2).

Variable	Group	Number	Mean	Standard Deviation	Test Value	Sig	<b>P-Value</b>
pre-test of habits of	Control	39	4.897	2.292	0.072	0 222	Statistically
mind	Experimental	39	4.436	1.875	0.975	0.555	insignificant
scale of achievement	Control	39	2.236	0.344	0.957	0.394	Statistically
motivation	Experimental	39	2.171	0.321	0.837		insignificant
abronalagical aga	Control	39	12.46	0.51	0.014	0.264	Statistically
chronological age	Experimental	39	12.36	0.49	0.914	0.304	insignificant
students' grades in	Control	39	80.44	1.28	0 477	0 625	Statistically
mathematics	Experimental	39	80.29	1.60	0.477	+// 0.055	insignificant

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It is clear from the above table that the calculated T-value equal to (0.973, 0.857, 0.914, 0.477), respectively, which is smaller than the calculated T-Value which is equal to (2.00), at degree of freedom (76) and the average statistically significant ( $\alpha = 0.05$ ); this indicates that there are no significant statistical differences between the experimental group and the control group and that the two groups are consistent, especially that all students are from one environment and one school.

# Seventh: Steps of the Study

The present study included the following steps:

- Review of educational literature related to the present study, in order to learn how to prepare the study tools.
- Preparing a test of habits of mind and a scale for achievement motivation.
- Application of tests on a small sample in order to determine the time of the test, and to find the degree of easiness and difficulty, discrimination coefficient, and test the validity and reliability of the test.
- Application of the scale on a small sample in order to test the validity and reliability of the scale.
- Choosing two classes randomly from Deir al-Balah UNRWA Boys Preparatory School (B), in which one class was chosen as the experimental group and the other as the control group.
- Ensuring the evenness of the two groups in some variables that are expected to have an impact on the dependent variable in terms of (pre-test of habits of mind, scale of achievement motivation, chronological age, andstudents' grades in mathematics).
- Teaching the unit to both the control and experimental groups according to the experimental design, so that the experimental group adopts a strategy that integrates videos and digital contests, and the control group is taught using the traditional way.
- At the end of the application of the experiment, the test of habits of mind and the scale of achievement motivation

is applied once again to reveal the impact of the employment of a strategy that integrates videos and digital contests.

- Test grading, data collection, analysis of the results of the study, and discussion.
- Highlight the study recommendations in the light of its results, and then provide a set of proposals.

# **Eighth/Statistical Methods used**

The Statistical Package for Social Sciences (SPSS) was used to perform the required analysis and statistics for the data of the test and scale, by which the means and standard deviations were calculated, Multivariate analysis of covariance (MANCOVA) analysis was also used, in addition to calculating the size of the impact of the employment of a strategy that integrates videos and digital contests through ETA square ( $\eta$ 2).

# **Results of the Study (Discussion and Interpretation)**

Based on the study Questions and hypotheses, the following results were obtained:

# Presenting and Discussing the Result of the first Question

#### What Skills of the Habits of Mind should be Developed among Seventh-Grade Students?

To answer this question, the researchers prepared a list of habits of mind by reviewing the educational literature and previous studies, and by analyzing the content of the sixth unit of the seventh grade math book entitled "Algebra", in addition to a sample survey of opinions of specialists in education, through personal interviews (Delphi method). In light of this, the researcher prepared a list of habits of mind necessary for seventh-grade students, consisting of (5) major skills and (35) minor skills, as illustrated in the following table:

Subject	Persistence	Questioning and Posing Problems	Applying Past Knowledge to New Situations	Thinking and Communicating with Clarity and Precision	Striving For Accuracy and Precision	Number of Items	Relative Weight
numerical value of an algebraic expression	2	0	2	1	2	7	20
Calculations on algebraic terms and expressions	3	5	5	5	4	22	62.9
SolvingLinear Equations (1)	1	1	0	0	0	2	5.7
SolvingLinear Equations (2)	1	0	1	1	1	4	11.4
Total	7	6	8	7	7	35	100

#### Table 3

#### Presenting and Discussing the Result of the Second Question

### What Achievement Motivation Skills should be Developed among Seventh-Grade Students?

To answer this question, the researchers prepared a list of achievement motivation skills by reviewing the educational literature and previous studies which identified the dimensions of achievement motivations, such as the study of (Adam, 2017), (Al-Hammad & Abed, 2017), (Rakha, 2017), (Ahmed, 2013), (Satouhi, 2012), (Mohammed, et al., 2011), (Al-Homor et al, 2015), (Sungur & Senler, 2010) (Settlemyer, 2010) (Johnson, 2010) (Kebritchi, et. al., 2010), (Wilkins & Kuperminc, 2010, and (Day & Burns, 2010). The researcher has also analyzed the content of the sixth unit of the seventh-grade math book entitled "Algebra", in addition to a sample survey of opinions of specialists in education, through personal interviews (Delphi method). In light of this, the researcher prepared a list of achievement motivation skills necessary for seventh-grade students, consisting of (5) main skills, which are (aspiration, persistence, enjoyment of learning mathematics, class discussions and future planning), where each skill has (5) indicators.

# What is the Basis of the Strategy that Integrates Video and Digital Contests in the Development of Some of the Habits of Mind and Achievement Motivation among Seventh-Grade Students?

Through the researcher's review of some of the researches and previous studies that discussed the employments of video and digital contests, and in light of the nature of the content of the algebra unit of the mathematics book assigned to the seventh grade students, the researcher prepared an initial list of the basis of the employment of a strategy that integrates video and digital contests. The initial list was then presented to a group of arbitrators from specialists in curriculum and teaching methods, to be guided from their views on the list in terms of the link or association between the videos and digital contests to the content of the course, and checking the validity of the list and its relevance to the area its placed in; some basis have been added, deleted and modified based on the suggestions of arbitrators, by which the list in its final form consisted of the following basis:

- The scenes should be clear and precisely linked to the development of some of the habits of mind and achievement motivation among seventh-grade students, and that the student simulates and imitates those skills through available models.
- Certain scenes are repeated more than once; so that students can perceive them.
- Videos and digital contests must include a clear explanation and a precise description of the components of the algebra unit so that it's easily by the students.
- The scenes of the videos and digital contests should be well-designed and clearly focused, as toattract, and not distract, the students' attention.
- All video clips and digital contests should be clear and sharp, high in resolution, non-blurry, and fit the screen.
- The importance of sound or volume in the videos and digital contests presented to students, by which all sound files must be clear and noise-free, continuously audible throughout the duration of the video, and explains the content of the video.
- Control the size of the video clips shown to suit the visual ability of the students, thus deepening their attentiveness of the content of the presented clip.
- The cognitive priming of the learner to take advantage of the presented video, as the learner must be ideally prepared, excited and thrilled in order to perceive the video when viewed on the screen; the preparation may be through texts or images that precede or accompany the presented video clips.
- The multiplicity of clips and scenes that handle the same skill of the development of some habits of mind and achievement motivation among seventh-grade students, as to present the maximum knowledge to the learner, and to be more attention-grabbing, exciting and attractive to students.

#### Presenting and Discussing the Result of the Fourth Question

# What is the Impact of Employing a Strategy that Integrates Video and Digital Contests on the Development of Mind Habits among Seventh-Grade Students?

To answer this question, the arithmetic mean and standard deviations of the pre and post grades of seventh-grade students in the experimental and control groups were calculated to the test of skills of the habits of mind, as illustrated in

Table 4

# the following Table (4).

It is clear from the above table that there are significant differences between the arithmetic means of the dimensions of the skills of the habits of mind in the two groups, the experimental (which adopted a strategy that integrates videos and digital contests), and the control group ( adopted the traditional teaching method) in both the pre and post tests. To determine whether those differences were statistically significant, Multivariate analysis of covariance (MANCOVA) has been used; the results of this analysis is illustrated in Table (5) below:

39

4.23

1.75

29.59

5.93

Experimental

Source of Variance	Sub-Dimensions	Sum of Squares	Degree of Freedom (Df)	Mean Squares	F Value	Significance (Sig)	Eta Square (η2)
Pre (concomitant)	Persistence	6.72	1	6.723	3.66	0.06	
	Questioning and Posing Problems	4.07	1	4.068	2.34	0.13	
	Applying Past Knowledge to New Situations	7.24	1	7.244	3.11	0.08	
	Thinking and Communicating with Clarity and Precision	11.86	1	11.862	3.71	0.06	
	Striving for Accuracy and Precision	4.78	1	4.779	3.67	0.06	
	Overall Test	167.22	1	167.219	9.13	0.00	
	Persistence	62.42	1	62.419	33.96	0.00	0.31
Teaching Method	Questioning and Posing Problems	86.77	1	86.771	49.99	0.00	0.40
	Applying Past Knowledge to New Situations	73.72	1	73.720	31.65	0.00	0.30
	Thinking and Communicating with Clarity and Precision	185.38	1	185.380	57.98	0.00	0.44
	Striving for Accuracy and Precision	26.60	1	26.601	20.45	0.00	0.21
	Overall Test	1986.91	1	1986.912	108.4	0.00	0.59

# Table 5: Results of the Multivariate Analysis of Covariance (MANCOVA) between the mean Grades of the Seventh–Grade Students in the Experimental and Control Groups on the Test of the Habits of the Mind

		Table	5: Contd.,		
	Persistence	137.84	75	1.838	
Error	Questioning and Posing Problems	130.19	75	1.736	
	Applying Past Knowledge to New Situations	174.70	75	2.329	
	Thinking and Communicating with Clarity and Precision	239.78	75	3.197	
	Striving for Accuracy and Precision	97.58	75	1.301	
	Overall Test	1374.11	75	18.322	
	Persistence	2800.00	78		
Total	Questioning and Posing Problems	1319.00	78		
	Applying Past Knowledge to New Situations	2918.00	78		
	Thinking and Communicating with Clarity and Precision	1584.00	78		
	Striving for Accuracy and Precision	2432.00	78		
	Overall Test	50851.00	78		

Study on: The Impact of Employing a Strategy that Integrates Videos and Digital Contests on the Development of Some Habits of Mind and Achievement Motivation among Seventh Grade Students

It is clear from the above table that there are significant statistical differences between the experimental and control groups in the test of skills of habits of mind and all dimensions, where calculated F-value of the test dimensions and the total grade of the test were (33.96, 49.99, 31.65, 57.98, 20.45, 108.45) respectively, where all values are statistically significant at level of significance ( $\alpha = 0.05$ ); this indicates the existence of significant statistical difference of the employment of a strategy that integrates videos and digital contests on the development of some habits of mind among seventh graders.

Regarding the size of the impact of each dimensions, ETA square ( $\eta$ 2) was calculated and was found as following : persistence (0.31), questioning and posing problems (0.40), applying past knowledge to new situations (0.30), thinking and communicating with clarity and precision (0.44), striving for accuracy and precision (0.21), and the overall test (0.59); this indicates that the use of a strategy that integrates video and digital contests has made a great variation in the dependent variable on the development of some of the skills of habits of mind. In other words, ETA square shows that (59%) of the effect size is in the dependent variable, which indicates a large impact, where (Afana, 2000: 42) indicates that the size of impact is considered large if the value of ETA square is greater than or equal to (0.14); to determine the direction of these differences, the researcher calculated the modified arithmetic means and standard errors of the students' grades in the test of skills of the habits of mind for both the experimental and control groups, as shown in Table (6) below.

Dimension	Group	Arithmetic Mean	Standard Error
Dersistance	Control	4.87	0.21
reisistence	Experimental	6.67	0.21
Questioning and Besing Problems	Control	2.70	0.24
Questioning and Foshig Floblenis	Experimental	4.82	0.24
Applying Past Knowledge to New	Control	4.87	0.29
Situations	Experimental	6.82	0.29
Thinking and Communicating with	Control	2.30	0.18
Clarity and Precision	Experimental	5.39	0.18
Striving for Accuracy and Precision	Control	4.85	0.69
Surving for Accuracy and Frecision	Experimental	6.02	0.69
Overall Test	Control	19.59	0.21
Overall Test	Experimental	29.72	0.21

 Table 6: Modified Arithmetic Means and Standard Errors of the Students' Grades in the Test of

 Skills of the Habits of Mind for both the Experimental and Control Groups

The above table indicates that the difference in the modified arithmetic means of the students' grades in the test of skills of the habits of mind for both the experimental and control groups was in favor of the experimental group on all dimensions of the skills of the mind habits; this indicates the existence of significant statistical differences between the mean grades of the experimental group and their peers in the control group in the posttest of habits of mind; these differences were in favor of the experimental group in each dimension of the test and in the overall test as well.

This result is consistent with many previous studies such as (Al-Harthy, 2018), (Mahdi, 2017), (Jad, 2017), (Ali, 2017), (Al-Kubaisi & Al-Amali, 2016), (Morjan & Ibrahim, 2015), and (Abdullah, 2015). The success of a strategy that integrates video and digital contests to develop skills of habits of mind among seventh graders may be due to the following reasons:

- Employing a strategy that integrates video and digital contests has helped students by giving them an opportunity to invest their mental abilities, encouraging them to research, investigate, question, generate ideas, review, audit, and make more efforts to achieve solutions with the utmost proficiency, accuracy, and clarity.
- Employing a strategy that integrates the video and digital contests that aims at summarizing and crystallizing ideas, which helps learners to review all the steps of the solution and review it accurately and deeply, express opinion in the solution strategy, and ask questions accordingly, all of which requires a great deal of persistence and thinking to achieve integrated solutions.
- Employing a strategy that integrates video and digital contests have helped students express their views freely during the learning process, not fearing criticism or anxiety, or the reprimanding of the teacher, thus contributing to the development of their abilities to raise questions and to be constantly accurate and clear.
- The diversity of activities and equations in the light of a strategy that integrates video and digital contests has helped to familiarize students with the completion of the activity to the fullest and review the solutions more than once, and to ensure the completion of tasks in the best outcome and insistence on mastering work and striving for accuracy and precision.
- Employing a strategy that integrates video and digital contests has helped the teacher to conduct behaviors and instructions that encourage the learners to be proactive in asking questions and posing problems, inquiring about missing situations, planning questions that should be raised and realizing that asking questions is aimed at

learning, and that probe and deep questions are actually minded stimulus, all of which motivates the learners and

lead them to ask multiple questions during the lesson and thus excel in answering the questions of the habit of

questioning and posing problems.

# Presenting and Discussing the Result of the Fourth Question

# What is the Impact of Employing a Strategy that Integrates Video and Digital Contests on the Development of Achievement Motivation among Seventh-Grade Students?

To answer this question, the arithmetic mean and standard deviations of the pre and post grades of seventh-grade students in the experimental and control groups were calculated to the scale of achievement motivation, as illustrated in the following Table (7).

Shills of Ashiovoment			Pr	e-Scale	Post-Scale	
Motivation	Group	Number	Mean	Standard Deviation	Mean	Standard Deviation
Amination	Control	39	2.31	0.57	3.54	0.36
Aspiration	Experimental	39	2.22	0.53	4.66	0.34
Persistence	Control	39	1.16	0.58	3.15	0.26
	Experimental	39	1.14	0.38	4.67	0.40
Enjoyment of learning	Control	39	2.39	0.56	2.73	0.42
mathematics	Experimental	39	2.30	0.53	4.47	0.41
Class discussions	Control	39	2.51	1.07	3.59	0.42
Class discussions	Experimental	39	2.49	1.06	4.70	0.37
Euture Dianning	Control	39	2.81	0.61	3.66	0.38
Future Planning	Experimental	39	2.70	0.62	4.63	0.35
Overall Scale	Control	39	2.24	0.34	3.33	0.22
	Experimental	39	2.17	0.32	4.63	0.28

Table 7

It is clear from the above table (7) that there are significant differences between the arithmetic means of the dimensions of the skills of achievement motivation in the two groups, the experimental (which adopted a strategy that integrates videos and digital contests), and the control group ( adopted the traditional teaching method) in both the pre and post scales. To determine whether those differences were statistically significant, Multivariate analysis of covariance (MANCOVA) has been used; the results of this analysis is illustrated in Table (8) below:

Source of Variance	Sub-Dimensions	Sum of Squares	Degree of Freedom (DF)	Mean Squares	F Value	Significance (Sig)	Eta Squar e (η2)
Pre (concomitant)	Aspiration	0.74	1	0.74	6.56	0.01	
	Persistence	0.21	1	0.21	1.82	0.18	
	Enjoyment of learning mathematics	0.21	1	0.21	1.24	0.27	
	Class discussions	0.00	1	0.00	0.00	0.98	
	Future Planning	0.31	1	0.31	2.35	0.13	
	Overall Scale	0.22	1	0.22	3.52	0.06	
Teaching Method	Aspiration	23.32	1	23.32	206.55	0.00	0.73
	Persistence	44.21	1	44.21	385.19	0.00	0.84
	Enjoyment of learning mathematics	58.03	1	58.03	339.33	0.00	0.82
	Class discussions	23.47	1	23.47	149.30	0.00	0.67
	Future Planning	17.88	1	17.88	137.74	0.00	0.65
	Overall Scale	31.74	1	31.74	507.68	0.00	0.87
	Aspiration	8.47	75	0.11			
	Persistence	8.61	75	0.11			
Error	Enjoyment of learning mathematics	12.83	75	0.17			
	Class discussions	11.79	75	0.16			
	Future Planning	9.73	75	0.13			
	Overall Scale	4.69	75	0.06			
	Aspiration	1346.40	78				
	Persistence	1246.68	78				
Total	Enjoyment of learning mathematics	1083.20	78				
	Class discussions	1376.36	78				
	Future Planning	1367.76	78				
	Overall Scale	1273.34	78				

# Table 8: Results of the Multivariate Analysis of Covariance (MANCOVA) between the mean Grades of the Seventh-Grade Students in the Experimental and Control Groups on the Scale of Achievement Motivation

It is clear from the above table that there are significant statistical differences between the experimental and control groups in the scale of achievement motivation and all dimensions, where calculated F-value of the test dimensions and the total grade of the scale were (206.55, 385.19, 339.33, 149.30, 137.74, 507.68) respectively, where all values are statistically significant at level of significance ( $\alpha = 0.05$ ); this indicates the existence of significant statistical difference of the employment of a strategy that integrates videos and digital contests on the development of achievement motivation among seventh graders.

Regarding the size of the impact of each dimensions, ETA square ( $\eta$ 2) was calculated and was found as following: aspiration (0.73), persistence (0.84), enjoyment of learning mathematics (0.82), class discussions (0.67), future planning (0.65), and the overall scale (0.87); this indicates that the use of a strategy that integrates video and digital contests has made a great variation in the dependent variable on the development of achievement motivation. In other words, ETA square shows that (87%) of the effect size is in the dependent variable, which is a large impact. To determine the direction of these differences, the researcher calculated the modified arithmetic means and standard errors of the students' grades in the scale for achievement motivation for both the experimental and control groups, as shown in Table (9) below.

Dimension	Group	<b>Arithmetic Mean</b>	<b>Standard Error</b>
Aspiration	Control	3.55	0.05
Aspiration	Experimental	4.65	0.05
Dorsistanco	Control	3.15	0.05
Persistence	Experimental	4.67	0.05
Enjoyment of	Control	2.73	0.07
learning mathematics	Experimental	4.47	0.07
Class discussions	Control	3.60	0.06
Class discussions	Experimental	4.70	0.06
Eutura Dianning	Control	3.66	0.06
ruture Flaiming	Experimental	4.63	0.06
Orignall Casta	Control	3.34	0.04
Overall Scale	Experimental	4.62	0.04

 Table 9: Modified Arithmetic Means and Standard Errors of the Students' Grades in the Test of

 Skills of the Habits of Mind for Both the Experimental and Control Groups

The results in the above table indicates that the difference in the modified arithmetic means of the students' grades in the scale of achievement motivation for both the experimental and control groups was in favor of the experimental group on all dimensions of the skills of achievement motivation; this indicates the existence of significant statistical differences between the mean grades of the experimental group and their peers in the control group in the post-scale of achievement motivation; these differences were in favor of the experimental group in each dimension of the scale and on the overall scale as well.

This result is consistent with many previous studies such as (Adam, 2017), (Al-Hammad & Abed, 2018), (Rakha, 2017), (Ahmed, 2013), (Satouhi, 2012), (Mohammad et al., 2011), (Al-Homor et al, 2015), (Johnson, 2010), (Settlemyer, 2010), (Sungur & Senler, 2010), (Day & Burns, 2010), (Wilkins & Kuperminc, 2010), and (Kebritchi, et. al., 2010). The success of a strategy that integrates video and digital contests to develop achievement motivation among seventh graders may be due to the following reasons:

- Employing a strategy that integrates video and digital contests gave learners the opportunity to discuss, debate and express their opinions individually and in groups. This led to the motivation of students who do not prefer to participate and intervene in an atmosphere of cooperation with their peers, thus breaking the fear and distress of participation and thus developing their achievement motivation.
- Employing a strategy that integrates video and digital contests has made the learner a central part of the learning process through their performance of various tasks and activities, and by making the classroom atmosphere open and free, releasing the learner from any restrictions.
- The reliance of the strategy that integrates video and digital contests on dialogue, discussion, teamwork, and collaborative work through groups, all of which has increased students' achievement motivation.
- Strategies that integrates video and digital contests creates an atmosphere of competition and enthusiasm among the students' groups, which has played a prominent role in increasing the learners' effort and preparation for lessons, and doubling the search and review for the sake of excellence among their peers, which reflected on their performance and achievement motivation.

#### **Study Recommendations**

In light of the findings of the study results, the following recommendations can be provided:

- Training in-service teachers on modern teaching strategies, especially on a strategy that integrates video and digital contests, and training them on its employment in the principle of lesson planning, through the implementation of the lesson and applying it to different assessment methods and feedback.
- Calling those responsible for the design, planning and implementation of the mathematics curriculum to include in these curricula orparts of them mathematical activities and situations that stimulate thinking and contribute to the development of skills of habits of mind and increase the achievement motivation of students.
- Encouraging mathematics teachers to prepare and adopt various educational activities and tasks that help to develop the different thinking skills and mind habits and increase the achievement motivation of students.
- Developing the evaluation systems that are prevalent in the teaching of mathematics so that they can be extended to include the measurement of the skills of the habits of mind and achievement motivation of students.
- That the teacher guide prepared by the Ministry of Education for a math book, to include models for how to present some lessons using active learning strategies to develop the habits of mind and achievement motivation.
- Conducting studies on the use of a strategy that integrates video and digital contests in teaching different subjects at different educational stages, and on its impact on different learning outcomes.

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