



Cheating in mathematics exams and its relation to the student's gender

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Abstract: This research focuses on the act of cheating in mathematics exams, which is considered one of the essential ethical, educational, psychological problems due to its implications, methods, and negative effects. This problem is deemed unethical and non-educational behavior that betrays an abnormal and immature personality characterized by fear, anxiety, helplessness, negativity, dependence, and weakness. The research shows that cheating behavior develops in the individual through family and social upbringing. This behavior often develops through a socio-educational environment that provides the appropriate climate for that. Studies indicate that a student who has become accustomed to cheating when he is young is not excluded. He behaves the same in old age, which may pose a challenging issue at the individual and community levels. The research indicates that cheating has increased dramatically in current periods, including educational and socio-economic reasons. The research aims to reveal the relation between the gender of the student and the degree of cheating in mathematics exams. Studies indicate that males cheat more in exams than females. On the other hand, some studies found no differences between males and females in the practice of cheating in mathematics exams. The current study investigated this issue by conducting quantitative research using questionnaires to collect data. Three hundred students, males, and females participated in this questionnaire. These students study in private and public schools at the middle and high levels within the Arab education system in Israel. The results showed differences between students, males, and females, in their positive attitudes towards cheating in private schools. In contrast, there are no differences in male and female students' positive attitudes towards cheating in public schools. As for negative attitudes towards cheating, there are no differences between male and female students in their negative attitudes towards cheating in both schools' exams. The research results also showed a positive relation between several variables and cheating in mathematics exams in public and private schools. These variables are exam conditions, exam difficulty, and exam material. An inverse relation was also found between the student's generation and its negative attitude towards cheating in mathematics exams.

Key words: Cheating in mathematics exams, Student gender, public School, private school.

I. INTRODUCTION:

Cheating in the exams is one of the complex socio-behavioral problems and one of the worrying phenomena in schools and society due to its widespread in recent times. The student's cheating in the exams is represented by the student obtaining the exam questions' answers by illegal means (Rabi', 2005). The researchers unanimously agree that this behavior is unethical and socially, religiously, and ethically unacceptable (Rabi', 2005; Al-Ma'aytah and Al-Jaghiman, 2013; Al-Amayrah, 2002). Cheating in mathematics exams, especially the orientation exam, is a dangerous phenomenon that confronts the education system. Therefore, this phenomenon was recently discussed and fought by the Ministry of Education by canceling many schools' exams due to suspicion of cheating. The Ministry of Education believes that the exams' integrity is a supreme value, and we must work to preserve them. Several methods have been activated to eliminate fraud to achieve this goal, such as protecting the guiding exam forms from leakage by sending them in a closed mail. Severe punishment is stipulated for the student who cheats (Salomon, 2012).

Studies confirm that the phenomenon of cheating develops in the individual gradually influenced by family, educational- pedagogical, and socio-economic factors (Rabi', 2005; Al-Zarrad, 2002). These factors negatively affect the education process, the student, and his future (Rabi', 2005; Samara, 2008; Al-Tamimi, 2013). Besides, students, who cheat in high school exams, see cheating behavior as usual and harmless. They also tend to continue their practice in his life (Tolkien & Glick, 2007). The cheating methods vary between transfer by colleagues, transferring from attached materials, or transferring from the observer (Al-Zarrad, 2002; Amayrah, 2002; Samara, 2008; Dudin, 2006). Studies also indicate a relation between cheating in mathematics exams and various factors such as the family, the exam and its conditions, the

subject's teacher, and the student's gender (Dudin, 2006). Many research and studies have been conducted to clarify and understand the relation between these factors and exam cheating. Many studies have found a connection between student gender and cheating in mathematics exams for the benefit of males.

The studies on the relation between cheating in mathematics exams and the gender of the student were conducted in many countries. Still, no similar research was conducted in our country, which made us interested in researching this relation in Arab schools in Israel. This research will contribute to uncovering new data related to The phenomenon of fraud. Also, by shedding light on the connection between student gender and cheating in mathematics exams, research reveals the effect of the gender variable on the practice of cheating, which helps educators to deal with cheating cases in harmony with male and female students and work to address them. This research emphasizes the spread of cheating among students, especially in middle and high school education. It also seeks to answer the following questions: Is there a relationship between cheating in mathematics exams and the gender of the student? Is there an effect of the exam's difficulty on the student resorting to cheating in the exam? Is there an effect of the exam conditions on the student's practice of cheating in the exam? Does the importance of the exam topic impact the student's method of cheating in the exam? In our research, we assume a relation between student gender and their tendency to use cheating in mathematics exams.

Based on literature references, we also believe that females tend to use cheating in mathematics exams more than males. We also assume several secondary assumptions:

1. There is a statistically significant connection between the exam difficulty and the student's resort to cheating on the exam.
2. There is a statistically significant connection between the examination conditions and the student's practice of cheating in the exam.
3. There is a statistically significant connection between the importance of the exam topic and the student's practice of cheating on the exam.

II. THE THEORETICAL SECTION

Educational problems

Educational problems are defined as those types of behavior that teachers perceive as undesirable behavior and find it challenging to confront and represent inconsistent behavior on the student's part (Mansour et al., 2002). And a group of researchers (Al-Ma'aytah and Al-Jaghiman, 2013; Al-Mahadin, 2009) indicate that educational problems are behavioral, social, or psychological difficulties that students repeatedly face not overcome without the guidance and accompaniment of their parents and teachers. Others and hinders their social and psychological development, and they lead a socially unacceptable course.

Educational problems are apparent behavioral patterns that reflect a breach of the accepted social norms in a particular society. They are behaviors that are easily observed and are characterized by repetition and intensity. These behaviors affect the individual's social and psychological competence and reduce the degree of his interaction with others (Kashif, 2004). School educational problems are divided into several types. Our research will shed light on one of the common behavioral classroom problems, which is exam cheating.

Definition of Cheating

Researchers agree (Rabi`, 2005; Al-Zarrad, 2002; Al-Amayrah, 2002) that cheating, as a phenomenon, is one of the widespread phenomena in various civilized and backward societies, and it exists in different ages groups males and females. It indicates abnormal, deviant, and immoral behavior. It is also pathological behavior represented by falsifying reality to achieve material or moral gain or satisfy the individual's personal needs. It is done by using illegal methods that are contrary to laws and social norms.

Al-Zarrad (2002) defines cheating from an educational perspective as a falsification of the evaluation, which is an unjust attempt to obtain the student's answer to the test questions by illegal methods. Sociologists see cheating as a strange social phenomenon, outside society's social norms and values , with negative effects.

Cheating as an educational problem: exam cheating

Examinations are an obsession that preoccupies students, especially those with medium and low achievement, and consider the test a stumbling block to their progress in the study. To overcome this stumbling block, some students resort to adopting cheating methods to avoid failure and accommodate their classmates and move with them to other classes (Samara, 2008).

Several researchers agree (Al-Zarrad, 2002; Rabi`, 2005) that cheating in mathematics exams is unstraight and unacceptable. They also think that this behavior is driven by false perceptions and ideas of the cheating individual in his pursuit of satisfying some motives or needs, such as success, to obtain good grades, or excel in a course. That is without the individual relying on himself or diligence, but by relying on unlawful methods. Besides, the concept of cheating refers to the student's practice of one or more behaviors in the exam. This behavior is undesirable according to the social standards of the society in which the individual lives. Therefore, the definition of cheating varies from one culture to another according to the social standards followed in each culture (Al-Amayrah, 2002).

Some learners distinguish in their definition of cheating in tests between the individual's perception, perceptions, and awareness of cheating, between the concept of inclination toward cheating, between thinking about the cheating process, between doing it, and the actual behavior of cheating. The individual's concept of cheating and awareness of it means his perception of this behavior. The individual may perceive cheating behavior as socially acceptable behavior, which is merely an exchange of information between students and indicates cooperation. Thus he sees it as legitimate behavior whenever the opportunity is given for the individual to do so. The individual's tendency towards cheating means the extent of the individual's enthusiasm towards this behavior and his readiness for it or against it. The individual may have a positive or negative tendency towards cheating. Thinking about cheating means what is treated in the soul of the individual and his thought when a word is mentioned in front of him and his perception of cheating. The actual behavior of cheating is what the individual does in reality, as the individual's direction may sometimes conflict with what he is doing on the ground (Al-Zarrad, 2002).

Sometimes the student declares that cheating is harmful and that it is unacceptable behavior, except that he performs this behavior if given the opportunity to do so. Others justify this behavior and see it as a necessary means in the exams to succeed. According to the purpose, justifying the means and some have practiced cheating or were caught cheating. However, they denounce this and blame the affair and the students who use it and see it as immoral behavior! Therefore, there is a difference between the verbal tendency towards cheating and the individual's principles and ideas about cheating and his actions in reality (Al-Zarrad, 2002).

Numerous studies indicate that the phenomenon of cheating has become an "educational habit" among students that they depend on to reach the desired success and to surpass colleagues as a primary goal of science (Khaldi, 2011; Wilf & Wilf, 2008). The development of technology has facilitated cheating in mathematics exams with mobile phones and internet networks that make it possible to buy ready-made jobs or obtain answers for students in an easy way (Weiss, 2005).

Factors leading to exam cheating

1- Factors of socialization:

All educational, psychological and social studies have unanimously agreed on the importance of family upbringing for children within the family, especially in the early stages of their lives. The family plays a central role in educating the child and providing him with a set of educational, religious, and social standards and values, and it plays a role in crystallizing and forming the child's personality and in the proper growth and development of his abilities (Amara, 2014; Rabi`, 2005).

Thus, parents' role and attitudes in their children's family upbringing, such as neglect, acceptance or rejection, etc., contribute in one way or another to influencing the child and giving him certain behaviors that resemble the actions he received from his family. These behaviors may be positive such as honesty, trust, and self-confidence, or negative behaviors. Such as lying, cheating, and deception. The central factor affecting the development of cheating behavior in the child is witnessing and experiencing his family members while raising him (Rabi`, 2005).

2. Educational and educational factors

A group of researchers (Rabi`, 2005; Al-Amayrah, 2002; Al-Ma'ayta and Al-Jaghiman 2013; Samara, 2008; Al-Zarrad, 2002) point to many educational and pedagogical factors that affect many times the students' use of cheating in mathematics exams, including:

A. Examination system: There are many factors related to the prevailing examination system that paves the way for students' cheating, including:

- Difficulty of the course material or its insufficient understanding by the student and the diversity of requirements for the examination subject, which prompts the student to resort to illegal methods to accomplish it
- The difficulty of the exam questions, the presence of more than one exam per day exhausts the student in preparing for both.

Many students in the examination hall fail the presence of weak and lenient oversight and the failure to give the superintendent the full authority to take the necessary measures against the student who cheats.

- Grading grades in the exams may be a reason for students resorting to cheating to gain access to a reputable center, which is to be on his class list.

B. The school environment during the exam period and the student's fear and anxiety about the exam:

In most schools and universities, the exam period is accompanied by tension and emotion and the administration and teachers' interest in organizing exams. The school atmosphere becomes unusual during the exam period. Many educators believe that exams bring turmoil to the education process and that it is wrong to give too much importance to exams, as the task of schools and universities is to prepare students, create their knowledge, abilities, and skills, and expand their experiences to benefit from them in life, not to prepare students for exams. This pressure that precedes the exam period prompts the student to think about obtaining the highest marks to succeed in these exams in various legal and illegal ways.

C. The teacher's style and competence in teaching:

The teacher is the main element in the educational process, and he can contribute, directly or indirectly, to pushing students to use cheating in mathematics exams. He does not have the necessary competence for teaching or his inability to deliver the course material to students in an understandable and precise manner.

D. Good study, pass and fail, and cheating behavior:

There is a relation between the student's previous case of academic failure and the inability to study and memorize, and the student's resort to cheating on exams. Suppose the student's loss and his sense of fear, anxiety, and frustration, in addition to the criticism and ridicule he faces from the community around him. In that case, he may push the student to use cheating to reduce his negative feelings due to his previous failure.

3. Socio-economic factors:

It has been found through studies conducted by sociologists that the student's social background plays a significant role in influencing him and pushing him to practice cheating behavior (Al-Zarrad, 2002; Rabi, 2005). Parents who follow the upper social class often encourage their children to excel in academic achievement and obtain the highest grades in school to enroll in universities and obtain prestigious positions after graduation. As a result of everything related to their admission to universities, this pressure on students drives some of them to cheat in exams.

Cheating and its relation to the gender of the student:

The relation between the gender of the student and the cheating in the exams has received the attention of many researchers who have studied this connection, and the results between them have been mixed. Studies found that the percentage of males who cheat in exams is greater than the percentage of females, and some studies found no relation between the gender variable. And cheat on exams.

Some researchers explain that the prevalence of cheating behavior in exams among males is more than females due to the social role associated with gender, as females are more likely to abide by laws and regulations than males. Males are more likely to take risks and violate laws than females, including cheating in mathematics exams (Dudin, 2006). In addition to the economic factor's role in the fact that males cheat more than females, as the male is considered responsible towards himself and his family economically, this causes him to feel pressure, which leads him to cheat (Al-Najjar, 2009). The motivation to learn also affects cheating behavior, as it has been observed that females have an internal drive to know more than males (Dudin, 2006).

These differences between males and females are not constant, and research shows that they change over time. It has been found that the percentage of cheating among females increases over time, and the differences between them and males are narrowing. This change was explained by the fact that women began working in previously male jobs and professions such as engineering and management, which led to women competing with men in these fields, which led to the spread of cheating behavior among females more (Dudin, 2006).

The phenomenon of exam cheating is a phenomenon that exists among pupils and students of schools and universities, inside and outside educational institutions and outside, individually and collectively, and among young and old males and females. Educational and psychological studies indicate that this phenomenon has spread among pupils, ordinary students, and some outstanding students. This phenomenon has spread among students with poor academic achievement and those who suffer from difficulties in education, taking into account the relative difference in the phenomenon's prevalence. Cheating among these different groups (Hussein, 2015). Educational and psychological studies have indicated that cheating has become evident in our present time. It is no longer an exception but a rule upon which students depend on their academic achievement.

The phenomenon of cheating in mathematics exams in the educational system in Israel:

Scientific research confirms that the phenomenon of cheating in mathematics exams is a scourge that continues to increase without stopping at all school levels, exceptionally high school. Achieve the most elevated achievement among their peers (Khaldi, 2011). Whereas, the Ministry of Education in Israel has taken several steps to combat this phenomenon on the following levels: Tightening control over the authorities responsible for writing, printing, and processing matriculation exam forms, and taking tough decisions against participants in cheating in mathematics exams (Salomon, 2012, (Worgen, 2011).

Statistics have revealed that cheating in mathematics exams is widespread in Israeli schools, where the rate of cheating in Arab and Druze schools is nine times higher than in Jewish schools (Examinations Division, Ministry of Education, 2009). Khalidi's study (2011) confirmed that the Arab minority in the State of Israel is the most cheating in matriculation exams, out of fear of exams and the desire to pursue higher education, mainly using the writing on school furniture and their body parts. The results of this study also indicated additional factors that contributed to the spread of the phenomenon of cheating in the Arab sector: family pressure on the Arab student regarding his academic achievement and progress in education, as the issue of education for the children of the Israeli minority in Israel, is a significant issue.

The results of another research on students' attitudes towards the phenomenon of cheating in mathematics exams in the State of Israel indicated that students, parents, and schools believe that the exams do not reflect credibility in students' achievement and level and that they are far from being fair and transparent (Abu Asbah and Qaraqara, 2011).

The phenomenon of cheating is not limited to schools but extends to the university level, where it was found that nearly half of the jobs offered by university and college students in Israel are copied from various sources ((Hyden, 2014. Other research conducted on academic students in institutions of higher education revealed) In Israel, very high percentages of students used cheating during their studies as follows: In the faculties of law, social work, business, and agriculture administration: 83% of students participated in cheating in mathematics exams, 89% of them allowed their colleagues to transfer from their jobs, and 55% of them They were transferred from ready-made jobs (Cheshin, 2006. As for medical colleges in the country, research conducted by (Tolkien & Glick, 2007) showed that about 93% of first and second-year students in the medical school at Ben-Gurion University had practiced consistently. Or else cheat in exams.

III. RESEARCH METHODOLOGY:

Research hypotheses and questions:

General Research hypothesis: Through our in-depth studies on the relation between the gender of the student and his use of cheating in mathematics exams, we saw that the ratio between males and females in their use of cheating was in favor of males more than females, but some studies show that this percentage is shrinking, which makes it more likely that females will prevail. Male to cheat on exams. It makes us assume that these rates are changing, which may cause the percentage of females who cheat in exams more than the percentage of males. To this end, we researched to examine recent changes in these differences. We assume that there are statistically significant differences in the prevalence of cheating in mathematics exams between preparatory and secondary school students in private and government schools due to the gender variable in favor of females.

Partial hypotheses:

1. There are statistically significant differences in the prevalence of cheating in mathematics exams due to the examination conditions variable.
2. There are statistically significant differences in the prevalence of cheating in mathematics exams due to the test difficulty variable.
3. There are statistically significant differences in the prevalence of cheating in mathematics exams due to the exam subject (scientific or literary).

The central research question: Is there a relationship between exam cheating and the student's gender?

Sub-Questions:

1. Is there an effect of the exam difficulty on the student's resort to cheating in the exam?
2. Is there an effect of the exam conditions on the student's practice of cheating on the exam?
3. Does the exam topic's importance affect the student's practice of cheating on the exam?

The research sample:

The research sample consists of 300 male and female students from two main categories:

1. The first category: middle school and high school students and private students in Israel.
2. The second category: middle and high school students and students in public schools in Israel.

Research type:

The type of research is quantitative because it is best suited to the subject studied and helped us reach our study's goal: to know the relationship between the student's gender and his tendency to use cheating in mathematics exams and obtain objective, accurate results. This type of research assumes "the existence of objective social facts, isolated and isolated from the feelings and beliefs of individuals, and depend mostly on statistical methods in collecting and analyzing data" (Balour et al., 2015; Majed, 2016). The quantitative research tools rely on collecting data to find an answer to the research question. Therefore, the questionnaire and the test are used.

Search tool:

One of the essential tools that quantitative research relies on is the questionnaire (the questionnaire). The questionnaire contains questions or phrases that the researcher specifies in advance and determines the method for answering them according to the research objectives. The questionnaire's answers may be open or closed, where the solution's location is determined on a sliding scale (Salem, 2012; Kandilji and Al-Samarrai, 2009).

We chose to use the closed questionnaire in our research due to its suitability for the research objectives and collect and analyze the most critical data within a short period. Through the questionnaire, we can control all the variables related to the dependent variable, and the fact that the questionnaire's use encourages an honest answer. And freedom because it is anonymous (Salem, 2012).

Questionnaire description:

The questionnaire was based on the objectives and questions of the research. It consists of 27 phrases, and the answers list is divided into five characters: 1 (strongly agree), 2 (highly agree), 3 (medium-level agree), 4 (disagree), and 5 (absolutely disagree) according to Likert's scale. The stability and reliability of the research tool were verified in advance on a test sample.

IV. RESULTS:

The research sample:

A total of 300 male and female students participated in the research, studying in the preparatory and secondary levels (from the seventh to the twelfth grade) in private schools and a government-funded post-primary school in Israel. The students' responses to cheating were addressed and focused on through the SPSS program. We referred to a quantitative scale - how much this scale has an R scale's characteristics, although it was analyzed according to Spearman's test. Besides, the t-test was used as a test for differences between the two different groups, for example. Example differences between girls and boys.

Table No. (1) shows the research sample's distribution according to the variables of gender, grade, and type of school.

Modifier	Group	Number	Percentage %
The Gender	Male	144	38.0
	Female	186	62.0
The Group	7 th grade	57	19.0
	8 th grade	53	17.7
	9 th grade	48	16.0
	10 th grade	42	14.0
	11 th grade	56	18.7
	12 th grade	44	14.6
Type of School	Private	163	54.3
	Public	137	45.7

Distribution of the study sample according to the variables of gender, grade, and type of school.

-Examine hypotheses and analyze results: -

The first hypothesis:

There are statistically significant differences in students' positive and negative attitudes towards the phenomenon of cheating in mathematics exams between male and female students in private schools.

To examine the hypothesis, the t-test was used.

Table No. 2: The averages, standard deviation, t-test value, and the statistical significance of students' positive and negative attitudes towards the phenomenon of exam cheating among male and female students in private schools.

Students' attitudes towards the phenomenon of cheating in mathematics exams		N	Average	standard deviation	T-Value
Positive attitudes towards the phenomenon of Cheating	Males	64	3.18	0.57	-2.282*

	Females	99	3.40	0.62	
Negative attitudes towards the phenomenon of Cheating	Males	64	2.96	0.92	0.180
	Females	99	2.94	0.85	

*p<0.05

The results in Table No. (2) above indicate that statistically significant differences were found in students' positive attitudes towards the phenomenon of cheating in mathematics exams between male and female students in private schools ($t = -2.282, p < 0.05$). Whereas the rate of positive student attitudes towards the phenomenon of cheating in mathematics exams in private schools ($M = 3.40, SD = 0.62$) is higher than the average of positive students' attitudes ($M = 3.18, SD = 0.57$). As for the negative attitudes towards cheating, the results indicate that there are no statistically significant differences in students' negative attitudes regarding the phenomenon of cheating in mathematics exams between male and female students in private schools ($t = 0.180, n.s$).

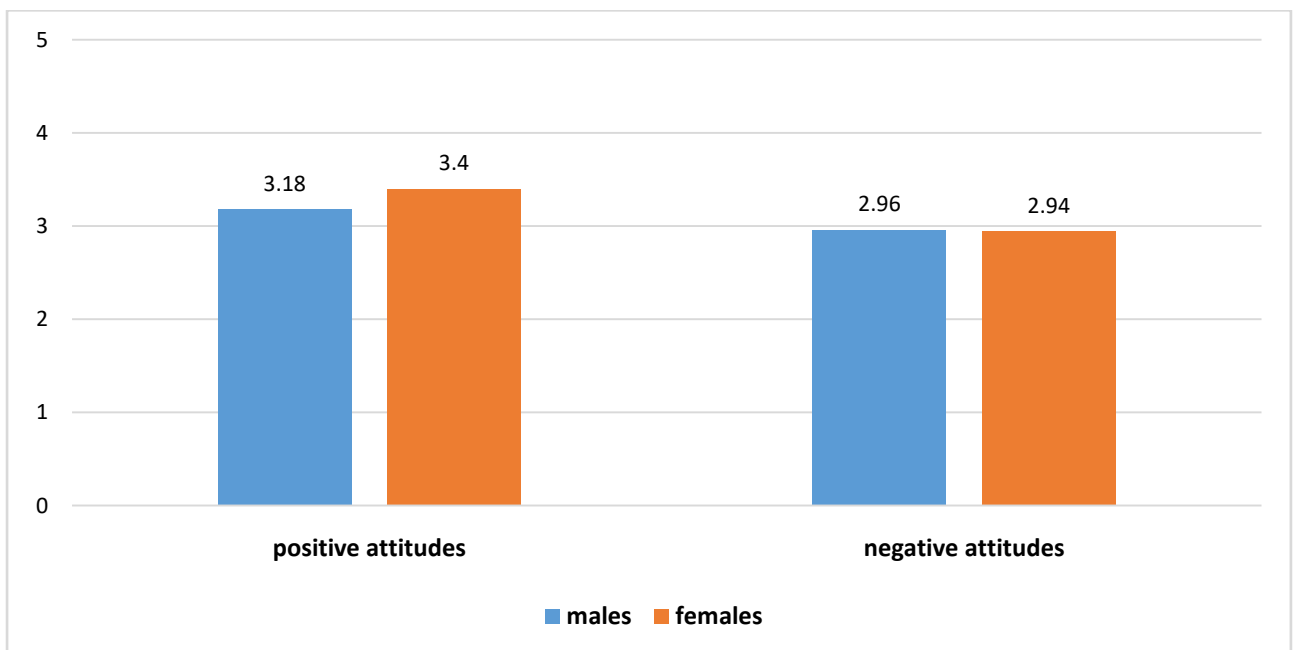


Diagram No. 1: The difference in students 'positive and negative attitudes towards the phenomenon of cheating in mathematics exams between male and female students in private schools.

The second hypothesis:

There are statistically significant differences in students 'positive and negative attitudes towards the phenomenon of cheating in mathematics exams between male and female students in public schools.

To examine the hypothesis, the t-test was used.

Table No. 3: averages, standard deviation, t-test value, and statistical significance of students 'positive and negative attitudes towards the phenomenon of exam cheating among male and female students in public schools.

Students' attitudes towards the phenomenon of cheating in mathematics exams		N	Average	standard deviation	T-Value
Positive attitudes towards the phenomenon of Cheating	Males	50	3.33	0.50	-0.451

	Females	87	3.72	0.46	
Negative attitudes towards the phenomenon of Cheating	Males	50	2.86	0.86	-0.673
	Females	87	2.97	0.89	

The results in Table No. (3) above indicate that there are no statistically significant differences in students' positive attitudes towards the phenomenon of cheating in mathematics exams between male and female students in public schools ($t = -0.451$, n.s). As for the negative attitudes towards cheating, the results indicate that there are no statistically significant differences in students' negative attitudes towards the phenomenon of cheating in mathematics exams between male and female students in public schools ($t = -0.673$, n.s)

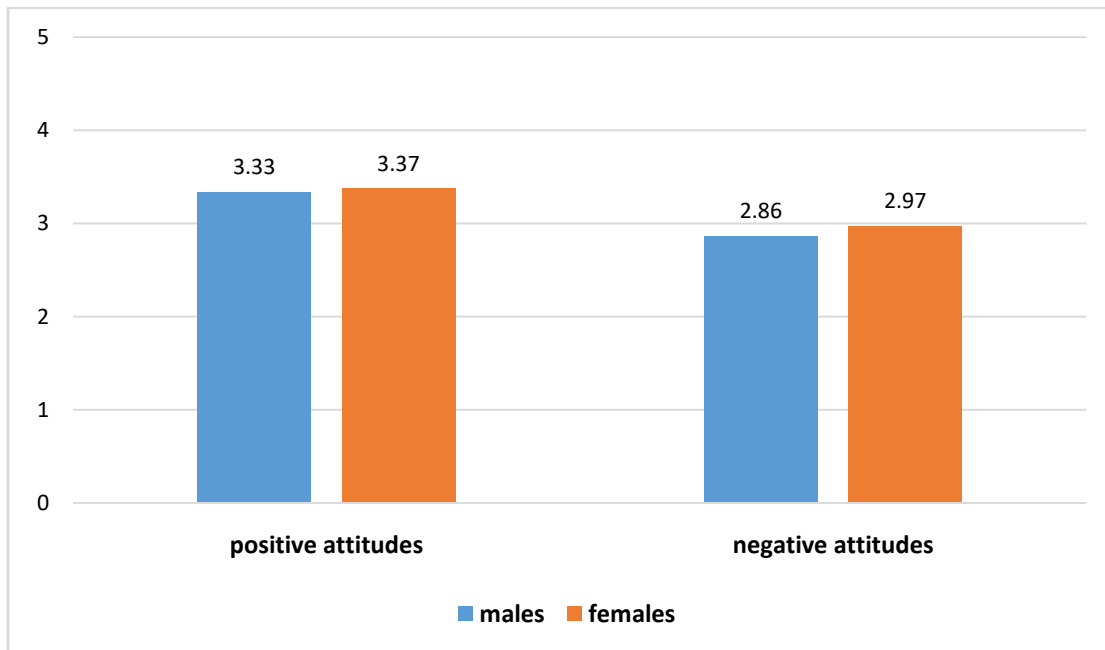


Diagram No. 2: The difference in students' attitudes towards the phenomenon of cheating in mathematics exams between male and female students in public schools

The third hypothesis:

There is a positive relationship of statistical significance between the difficulty of the examination and students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

To examine the hypothesis, the Pearson correlation coefficient was used.

Table No. 4: The rates, standard deviation, and Pearson correlation coefficient between the exam difficulty variable and the students' positive attitudes towards the phenomenon of exam cheating in private schools and public schools.

		Average	Standard deviation	R value
Private schools	Exam difficulty	3.59	1.00	0.697***
	Positive attitude of students	3.31	0.61	
Public school	Exam difficulty	3.55	0.95	0.636***
	Positive attitude of students	3.35	0.47	

*** $p < 0.001$

The results in Table (4) above indicate that a positive, statistically significant relation was found between exam difficulty and students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools ($r = 0.697$, $p < 0.001$). Also, the results indicate that a positive, statistically significant relation was found between exam difficulty and students' positive attitudes towards the phenomenon of cheating in mathematics exams in public schools ($r = 0.636$, $p < 0.001$). The more complicated the level of the exam, the more positive the students' attitude towards cheating. Thus the hypothesis was supported.

Fourth hypothesis:

There is a positive relationship with statistical significance between the examination conditions and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

To examine the hypothesis, the Pearson correlation coefficient was used.

Table No. 5: The rates, standard deviation, and Pearson correlation coefficient between the variable of examination conditions and the positive attitudes of students towards the phenomenon of cheating in mathematics exams in private schools and public schools.

		Average	Standard deviation	R value
Private schools	Exam difficulty	3.16	0.65	0.628***
	Positive attitude of students	3.31	0.61	
Public school	Exam difficulty	3.21	0.62	0.573***
	Positive attitude of students	3.35	0.47	

*** $p < 0.001$

The results in Table (5) above indicate that a positive, statistically significant relation was found between the examination conditions and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools ($r = 0.628$, $p < 0.001$). Also, the results indicate that a positive, statistically significant relationship was found between the examination conditions and the students' positive attitudes towards the phenomenon of cheating in public schools ($r = 0.573$, $p < 0.001$). The more the test conditions favorable to the affair, the more positive the students' attitude towards cheating. Thus the hypothesis was supported.

Fifth hypothesis:

There is a positive relation with statistical significance between the rate of cheating in scientific exams and students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

To examine the hypothesis, the Pearson correlation coefficient r was used.

Table No. 6: The rates, standard deviation, and Pearson correlation coefficient between the percentage of information exchange in scientific examinations and the positive attitudes of students towards the phenomenon of cheating in mathematics exams in private schools and public schools.

		Average	Standard deviation	R value
Private schools	Scientific Exam	2.95	1.31	0.233**
	Positive attitude of students	3.31	0.61	
Public school	Scientific Exam	3.12	1.20	0.207*
	Positive attitude of students	3.35	0.47	

** $p < 0.01$, * $p < 0.05$

The results in Table No. (6) above indicate that a positive, statistically significant relation was found between the percentage of cheating in scientific examinations and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools ($r = 0.233$, $p < 0.01$). Also, the results indicate that a positive, statistically significant relation was found between the percentage of information exchange in the scientific examinations and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in public schools ($r = 0.207$, $p < 0.05$). The more information is exchanged between students in scientific exams, the more positive the students' attitude towards cheating in private schools and public schools. Thus the hypothesis was supported.

Sixth hypothesis:

There is a positive relation with statistical significance between cheating in literary exams and students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

To examine the hypothesis, the Pearson correlation coefficient r was used.

Table No. 7: The averages, standard deviation, and Pearson correlation coefficient between the leakage of answers in the literary material exam and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

		Average	Standard deviation	R value
Private schools	Literary Exam	3.00	1.22	0.125
	Positive attitude of students	3.31	0.61	
Public school	Literary Exam	2.94	1.24	0.109
	Positive attitude of students	3.35	0.47	

The results in Table No. (7) above indicate that there is no positive, statistically significant relation between cheating in literary subject examinations and students' students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools ($r = 0.125$, n.s). Also, the results indicate that there is no positive, statistically significant relation between the leakage of answers in the literary subject's exam and the student's positive attitudes towards the phenomenon of cheating in mathematics exams in public schools ($r = 0.109$, n.s). The hypothesis was thus disproved.

In addition to the hypotheses examined, we examined the relation between students' students' generation and their attitude towards exam cheating. The Pearson test was performed, which did not show any statistical relation between the generation and the positive attitude towards cheating. At the same time, it was found that there is an inverse statistical relation between the negative attitude towards cheating and the student's generation. The more significant the student's generation, the less negative his attitude towards cheating on exams, which means that the older students are, the more likely to cheat.

V. DISCUSSION AND CONCLUSION:

The research revolves around cheating and its relation to the student's gender. The results were examined utilizing a questionnaire passed to the students, and its effects were analyzed through the SPSS program. The research hypotheses were determined according to the scientific references we reviewed. Thus, we can explain the results and conclusions based on the products and scientific references.

The first hypothesis: There are statistically significant differences in students' students' positive and negative attitudes towards the phenomenon of cheating in mathematics exams between male and female students in private schools.

Conclusion According to the first hypothesis: We conclude from the results that the rate of positive attitudes of female students regarding the phenomenon of cheating in mathematics exams in private schools is higher than the rate of positive attitudes of students in the exams, meaning that female students follow cheating in mathematics exams more than students, and this contradicts what was mentioned in the literature (Dudin, 2006); Al-Najjar, 2009; Salih and Zubaidi, 2006;; Al-Omari, Qablan & Qaraeen 2009; Lawson, 2004) which showed that the rate of cheating among males is higher than that of females and that Males have a greater tendency to violate laws and dishonesty than females.

This result is consistent with a study (ward & neck, 2001), which found that females have gender-specific tricks that make it easier for them to cheat. It also accords with the Kahlout study results (2004), which indicated differences in cheating between the sexes in favor of females.

We can explain the differences in positive attitudes towards cheating in private schools due to this type of school's interest and its focus on students' educational attainment. It leads students to pay attention to achieving high scores in any way possible to show off their achievements in front of their female colleagues. Females care about their image in front of others than males, which explains their resorting to cheating to reach success. Besides, females use specific means to make it easier for them to cheat, such as hiding headphones under their hair or veil, which increases their chances of using them to cheat in exams.

As for negative attitudes towards the phenomenon of cheating, the results indicate that there are no statistically significant differences in students' negative attitudes towards cheating in mathematics exams between male and female students in private schools. This is consistent with the following studies (Khalladi and Katila, 2017; Rasheed and Al-Azhar, 2016; Najm, Taghi, and Salem, 2016; Samira, 2014) came to the same conclusion. At the same time, it contradicts studies (Al-Najjar, 2009; Saleh and Al-Zubaidi, 2006; Al-omari, Qablan & Qaraeen, 2009) which concluded that males cheat more than females.

According to research, there are differences between males and females in cheating, which varies according to the frequency of time. According to many variables, students in schools have different opinions towards cheating, including the student's gender and life environment. Where it has been found that students differ in their outlook with the same gender, so females differ from each other in their attitude towards cheating, whether positive or negative, and this also applies to males, so there are always differences of opinion in the same-gender group, and this increases the differences between male and female students (Lawson, 2004). The existence of differences in positive attitudes towards cheating between males and females' favors females. In contrast to what has been reported in some studies, the differences in students' opinions are increasing and changing over time (HendryWendy &, 2017).

The second hypothesis: There are statistically significant differences in students' positive and negative attitudes towards the phenomenon of cheating in mathematics exams between male and female students in public schools.

Conclusion According to the second hypothesis: According to the results, there are no statistically significant differences in the students' positive attitudes towards the phenomenon of cheating in mathematics exams between male and female students in the public school. As for the negative attitudes towards the phenomenon of cheating, the results also indicate that there are no statistically significant differences in the negative attitudes of students towards the phenomenon of cheating in mathematics exams between male and female students in public schools.

The results indicate that there are no differences between students' attitudes, and this corresponds to studies (Khalladi and Katila, 2017; Rashid and Al-Azhar, 2016; Najm, Taghi, and Salem, 2016; Samira, 2014) which found that there is no relation between student gender and cheating in mathematics exams. And that there are no differences between male and female students in the levels of moral thinking. This result contradicts studies (Al-Najjar, 2009; Saleh and Al-Zubaidi, 2006; Al-omari, Qablan & Qaraeen, 2009) which found that there are differences between male and female students in cheating in mathematics exams in favor of male students.

This result contradicts the results of a study conducted on cheating and found differences between students of both sexes in their attitudes towards cheating in the exam. There are male and female students in schools who strongly support cheating and use it in various ways to ensure success (Ding & Lee, 2014). On the other hand, according to a study conducted in a school in Iran, some students refuse to cheat on the exam and consider it a bad habit (Khodaie, 2012).

The third hypothesis: There is a positive relation of statistical significance between the difficulty of the exam and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

Conclusion:

According to the third hypothesis:

According to the results, there is a positive relation between the difficulty of the examination and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private and governmental schools. That is, the more complex the exam, the more positive the students' attitude towards cheating. This result is consistent with the studies (Al-Ma'aytah and Al-Jaghiman, 2013; Al-Zarrad, 2002). Examinations have an essential place among students, as they fear exams and prepare for them very carefully to obtain the highest results. Among the things that make the exam necessary is the family and community view of the exams as determining their children's future and direction in life after school (Al-Zarrad, 2002). Besides, the course material's difficulty or its insufficient understanding by the student, or the multiplicity of requirements for the examination subject, push the student to resort to illegal methods to complete it (Al-Ma'aytah and Al-Jaghiman, 2013).

The fourth hypothesis: There is a positive relation with statistical significance between the examination conditions and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

Conclusion According to the fourth hypothesis: According to the results, there is a positive relation between the examination conditions and the students' positive attitudes towards cheating in mathematics exams in private schools and public schools. The more the examination conditions conducive to cheating, the more positive the students' attitude towards cheating. This result is consistent with the studies of (Dudin 2006; Al-Zarrad, 2002; Rabi`, 2005; Al-Ma'aytah and Al-Jaghiman, 2013).

We can explain this by the fact that the exam atmosphere: a large number of students in the examination hall, the presence of weak and lax oversight, the negligence in applying the necessary penalties, the failure to give the full authority to the superintendent to take the required measures against the student who cheats, and also the grading of grades in the exams may be a reason for students resorting to the use of cheating from to obtain the highest marks, this corresponds to the interpretation (Rabi`, 2005). The exam period in most schools may be accompanied by an atmosphere of tension and emotion and put the student under specific pressures that can facilitate the process of cheating the student due to the unfavorable conditions for the examination, which leads students to cheat and transfer the exam (Lawson, 2004). Also, leakage of answers has nothing to do with cheating in the exam; leaking responses may occur outside the exam room, which does not indicate cheating inside the exam room (Cohn & Alian, 2018).

The fifth hypothesis: There is a positive relation with statistical significance between the rate of cheating in scientific exams and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

Conclusion According to the fifth hypothesis:

According to the results, there is a positive relation between the rate of information exchange in scientific examinations and students' positive attitudes towards cheating in mathematics exams in private schools and public schools. In other words, the more information is exchanged between students in scientific exams, the more positive the students' attitude towards cheating in private schools and public schools.

This result is consistent with studies (Al-Kahlout, 2004; Salih and Al-Zubaidi, 2006) which found that the percentage of cheating in science and mathematics subjects is higher than in literary subjects. It is also consistent with the results of Al-Balawi (2015) research, which also concluded that the rate of behavioral problems among the students of the scientific department is more than that of the students of the literary department due to the requirements and the focus on the knowledge side in scientific subjects and mathematics. In another recent study, it was found that the greater the rate of cheating among students, the more they cheated in the exam, the greater the transfer in the exam, and the transfer of scientific and mathematics materials related to the exam (Hendry, 2017). Besides, most medical students in the country (93% of them) used exam cheating in one way or another (Tolkien & Glick, 2007). This result also supports the research of Saleh and Al-Zubaidi (2006). They have concluded that cheating in scientific subjects such as pharmacy is higher than cheating in literary subjects.

We can explain that there are more mathematics requirements than the student, and educational materials are more complicated than literary subjects, which may lead students not to be familiar with the subject enough, which leads them to use cheating in these exams to reach higher achievement.

The sixth hypothesis: There is a positive relation with statistical significance between the rate of cheating in literary subject examinations and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private schools and public schools.

Conclusion According to the sixth hypothesis: The results indicate no positive statistically significant relation between the leakage of answers in literary material examinations and the students' positive attitudes towards the phenomenon of cheating in mathematics exams in private and government schools. This hypothesis conflicts with studies that support the previous hypothesis.

It should be noted that there has been a significant change in the rate of cheating between exams for scientific subjects and exams for literary subjects. In Faisal Al-Zarad's paper (1995), the percentage of cheating in literary examinations was 42%, while in scientific exams, it was only 15%. In Al-Saleh and Al-Zubeidi's (2006) study, the percentage of cheating in scientific exams reached 50%, and in literary exams, it got 40%! We can ask why this change the technological development that made the availability of information on the Internet without studying or memorizing it. This made students are not interested in learning scientific materials and abstract mathematics and remembering them. But resorting to transferring them during the exam, in contrast to the literary materials that require the student's understanding and personal interpretations, forces the student to use his capabilities to answer questions and not benefit from his colleagues' transfer. In addition to that, literary subjects are usually more accessible than mathematics topics and require less accurate answers, so students cheat less in these exams because they can reach good scores concerning their answers without using anyone.

We examined the relation between the student generation and its position on cheating in mathematics exams, although we did not include this in the beginning hypotheses. It was found that there is an inverse statistical relation between the student's generation and his negative attitude towards cheating in the exams. In contrast, no association was found between the student's generation and his positive attitude towards the exams. We conclude from this that older students have fewer negative attitudes than younger students. They tend to cheat more, which corresponds to Amara, Samira(2014), which found that the rate of cheating among high school students is higher than that of middle school and stage students Undergraduate. These results contrast with Cohn (2018), results, which found that cheating is higher in younger adults. This result also contradicts the natural congenital growth associated with luminous cognitive development within gradual developmental stages that undergo some changes during different age periods. It is assumed that cognitional growth proceeds towards successive stages in the direction of progress—advanced stages (Alshawareb, Aseel, 2008).

We can explain that as the student gets older in a generation and uses cheating in an early generation, he may view cheating as an acceptable and legitimate method for obtaining the desired goal because of his accustomed to cheating. In contrast, younger students have no experience with cheating and are still in their beginning, and have not practiced Cheating a lot, which is why they see it as more erratic behavior than older students. This view may be the leniency in applying penalties to students who cheat in schools and leniency in educating morals at school and home.

The six hypotheses have been examined and reviewed according to the results of this research and the scientific references that confirm the connection between the variables between the student's gender and its relationship to cheating in the exam and other secondary variables. The research provides us with different results from previous research findings regarding the differences between male and female students cheating on exams. The students' positive attitudes towards cheating are only present in the private school and are in favor of females; we can explain this due to the emphasis and focus of this type of schools on the student's educational attainment and achievement, which may prompt students to pay attention to reaching high achievement in various ways, including cheating. The public school results are consistent with some previous research that proved that there is no relation between the student's gender and his use of cheating. Other research results indicate a positive connection between cheating in mathematics exams and exam conditions, exam difficulty, and exam subjects. This supports previous research conducted on this topic.

Besides, an inverse relationship was found between the student's generation and their negative attitude towards cheating on exams. Whereas the older the student gets, the less negative his attitude towards cheating becomes. This supports one of the previous research that reached the same conclusion and opposed some of the others.

Despite the results we reached through this research, we state that there were some limitations in the study, such as the difficulty of finding in recent research conducted on the subject in the country, difficulty in preparing the research and applying it to the sample, interest in formulating the questionnaire in an uncomplicated and understandable language for students. The questionnaire is highly dependent on the credibility of the male and female students, and this is a limitation that may affect the research results. The private school results may not reflect an accurate picture of the relation between gender and cheating in the exams. This school sample may have unique characteristics, which requires additional research on other schools to confirm or deny this result.

In light of these conclusions, we propose additional research:

It is conducting extensive research on a larger group of students and in several different schools to confirm or deny the study results and increase the products' credibility. It is possible to make a comparison between Arab and Jewish schools in Israel.

They are conducting separate studies on each of the genders separately to examine the attitudes of each gender individually on cheating in mathematics exams in a Broadway.

- Researching the relationship of cheating in mathematics exams and the gender of the student between different age groups to find out the generation in which the cheating behavior begins to appear, which helps in fighting this phenomenon and eliminating it before it develops.

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VI. SUMMARIZATION:

This research deals with the relation between the student's gender and cheating in the exam, as cheating is considered from an educational point of view as a falsification of the evaluation, which is an abnormal attempt to obtain the student's answer the test questions by illegal methods. And it is considered one of the most challenging educational problems and the broadest impact on the life of the student and society as a whole. The research results showed a relation between the sex of the student and cheating in the exams in the private school in favor of females. This contrasts with previous studies that found that males cheat more than females. While in the public school, we did not find any differences between male and female students in cheating in mathematics exams, and this is consistent with some studies that reached the same conclusion.

The research also dealt with exam conditions, exam difficulty, exam material, and exam cheating. And it was found that there is a positive relationship between the exam conditions and its problem and the use of cheating in the exam, as the more the exam conditions are suitable for cheating and lenient, the higher the cheating rate in this exam is, and the more complex and essential the exam is for students, the greater the cheating rate. It was also found that the percentage of cheating in mathematics examinations is more than in literary subjects' exams. All this is consistent with the literature studies conducted on these relationships. In addition to the connection between student generation and exam cheating, it has been found that older students are more likely to use cheating.

This research has presented results different from the effects of previous research. This calls for attention to this result and examines it again through additional analysis to fit treatment methods according to gender to reduce this dangerous phenomenon that threatens our students' present and future.

The spread of the phenomenon of cheating calls on schools and families to find a cure for cheating. There must be cooperation between the school and the students' parents to reform the students and support them scientifically. This leads to improving the student's behavior and morals through the school and the family's guidance.

VII. RECOMMENDATIONS:

It is imperative to improve and change students' conditions in schools regarding cheating in mathematics exams, which will reflect positively on students' self-confidence and belief in their abilities without falsifying them, and this will undoubtedly affect the future of individuals. Therefore, all the resources available within the school should be recruited from educators, consultants, specialists, and students, in addition to coordinating with the resources located outside the school such as students' parents and public opinion to combat the phenomenon of cheating in all its forms and stand against it in the interest of the community. Based on the findings of the research, we present the following recommendations:

1. Building an appropriate action plan to combat cheating and limit its persistence in schools and enlist all available resources. Such as carrying out social activities that develop socially acceptable habits, encouraging students to trust their abilities, and setting them in proper ways, such as asking teachers to help them understand the material and not resorting to illegal methods such as cheating, dealing strictly with cheating in the school and setting penalties against those who use cheating.
2. Raising students of both sexes to the moral values through appropriate activities and activities. Values help the individual to control his behavior and guide him so that his desires do not prevail over his mind. They also define the individual's goals and fixed values that contribute to the individual's stability and cohesion within society. This helps students build a fixed value system that is considered a guide to them in all the situations they face, which allows them to control and evaluate their behaviors, such as cheating in mathematics exams or their lives in general. Teachers need to set an example for students in applying positive values.
3. Beginning the education of moral values from an early generation and instilling positive values in children from childhood to follow them in advanced stages of their lives. Emphasis on combating cheating from the kindergarten stage so that cheating does not develop in the school's advanced settings.
4. Cooperating with parents to combat the phenomenon of fraud. And that is by holding meetings with students' parents to discuss the phenomenon of cheating in the school and cooperating in reducing it and standing against it inside and outside the school, i.e., at home, in addition to examining the educational capabilities of their children and appropriately improving them, instead of the student resorting to cheating in the exam to reach success. Parents need to realize that cheating in mathematics exams may extend to its use in daily life, so it is necessary to eliminate it at the school stage. Each person has his

capabilities and abilities and not pressure their children to reach the parents' achievement. They do not resort to illegal's appearing in a decent appearance in front of their family and not disappoint them.

5. Arranging and organizing educational materials to facilitate their comprehension and understanding for students, making it easier for students to study them and succeed in exams without outside help. And the use of appropriate clarification methods in teaching scientific subjects and mathematics, bringing them closer to their daily lives, facilitating their understanding for students and facilitating their study for the exam, and reducing the percentage of students resorting to cheating in scientific subjects and mathematics exams.

6. Improving examination conditions, such as writing exam questions clearly and understandably, emphasizing monitoring during the exam, improving conditions in the examination room such as ventilation, lighting, and students' number in the hall.

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