



Research Article

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## The Effect of a Training Program Based on Multiple Intelligences on Developing Environmental Awareness and Achievement Motivation among Primary School Students

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### Abstract

*This study aimed to measure the effect of a training program based on multiple intelligences in developing environmental awareness and achievement motivation among primary school students in Jordan. The study reached the most important result that the children have gained positive attitudes towards the environment by sensing environmental problems better, which increased their motivation to contribute to solving these problems and developing environmental conditions in a better way; trends can only be generated through the information that individuals obtain from various sources. Therefore, the program was best directed toward developing environmental awareness in Children. Thus, the program has created positive trends in children toward increasing positive interaction with their environment. Where the researcher recommended working to include school curricula, starting with the primary stage and ending with the secondary stage, with concepts of environmental awareness to improve positive trends towards the environment and conduct seminars, workshops, and lectures to deepen the concepts of environmental awareness in society to improve its positive trends in researching environmental problems and limiting or eliminating them.*

**Keywords:** multiple intelligences, environmental awareness development, achievement motivation

## 1. Introduction

The environment is of great importance to the human being, as it is the environment in which he lives and obtains his life requirements. It is the environment in which he interacts and exercises his relationships with other organisms and components. Since God created him, he is continuously searching in the environment for different requirements and needs that necessitate him to adapt to the environment, using all the knowledge, skills, and experiences the Creator has bestowed upon him.

Talking about environmental awareness development is essential, especially since the environment is critical to human beings. However, with its various resources, the environment was in a state of natural balance that would enable it to fulfill human beings' demands and supply them with their needs, which is necessary for the continuation of his life and the life of other living creatures. Humans' irresponsible behavior with the surrounding organisms, components, and environmental elements has dramatically disturbed the ecosystem's balance. As a result, many environmental problems have had a clear impact on the deterioration of the environment and have worked to destroy it, especially since these environmental problems have no geographical boundaries. Not prevented by political borders; As it spreads everywhere and reaches all regions, it forces us all to reduce these problems and prevent new problems from achieving the concept of protecting and preserving the environment (Abu Arad, 2010).

Instilling values at an early age for children between education and knowledge and encouraging participation is the key to long-term change to develop their abilities to reject bad environmental habits and behaviors; to find those with the level of capabilities to adopt an environmental approach with a green vision. Their participation is essential in our lives, and their steps can make a difference in the future. Here emerges the educational institution's role in instilling ways and methods that empower children.

### 1.1 The study problem

Environmental awareness has existed since human existence, but in varying proportions with the development of human beings and the development of their needs and requirements historically; since the creation of human beings, they began to deal with the elements of the environment around them and use them into their service to preserve their survival, humans made of stones and rocks sharp tools to protect themselves, to hunt animals for food, and to use the element of fire to protect them from other environmental factors such as cold and cave digging to protect them from rain (Abed, 2004)

Environmental concepts despite holding conferences and meetings to protect the environment from all forms of pollution, depletion, and degradation of environmental resources, and given the importance of teachers' multiple intelligences strategies and employing them to provide students with concepts, knowledge, and trends towards the environment and its preservation and work to raise their achievement motivation. Thus, humans interacted directly with the growth of their needs, diversity, and accumulation. There is no doubt that the needs of humans increased until they reached in our time a point that threatened to run out of other environmental resources (Abu Arrad, 2010), through research in multiple intelligences and their role in developing environmental awareness among elementary school children. It also became clear to the researcher that in-service teacher preparation programs in Jordan have yet to be given attention focusing on the environmental dimension and environmental culture so that the teacher acquires skills that help him employ teaching strategies that work to equip students through them.

### 1.2 The question of the study

Based on the background related to environmental awareness, achievement motivation, multiple intelligences, and the relationship between them, the researcher tried to answer the following central

question:

1. What is the impact of a training program based on multiple intelligences on developing environmental awareness and achievement motivation among primary school children in Jordan?

### 1.3 Significance of the Study

1. Considering attention to children's environmental awareness is a fundamental pillar in achieving environmental security in the future. It is an essential pillar of environmental security. It is the correct starting point we must start with so that the child grows up properly handling his environment independently without intimidation, punishment, or even Laws and legislation. We have made the first step in the battle to preserve the environment.
2. The study's novelty and originality, as the researcher does not have a study that carries the same variables, will constitute a cognitive addition in dealing with a topic that attracts attention from many countries and organizations interested in environmental affairs and pollution.
3. This study will include a model for building training programs with environmental awareness and achievement motivation issues.
4. the possibility of benefiting from the results of this study in developing new directions for integrating multiple intelligences topics related to the environment because of the importance of these topics and relates directly to human life and human beings.

### 1.4 Study hypotheses

There is a statistically significant effect at the level of  $\alpha = 0,05$ ) on the development of environmental awareness as a whole, and each dimension separately attributable to (the program / the usual method) and gender (males/females) and the interaction between them among primary school children in Jordan

There is a statistically significant effect at the level of  $\alpha = 0,05$ ) on the development of achievement motivation attributable to (the program / the usual method), gender (male/female), and the interaction between them among primary school children in Jordan.

### 1.5 Procedural Definitions

#### 1.5.1 The training program:

A set of educational activities that cover (8) patterns of multiple intelligences (Hanna, 2009, p.30)

It is defined as procedural as a set of organized and sequential steps according to a theoretical framework that is applied to children, including a set of objectives of procedures, activities, content, and evaluation methods suitable for kindergarten children related to multiple intelligences in its dimensions, linguistic, primary stage, natural, spatial, music, and social, Personal, and kinesthetic.

#### 1.5.2 Multiple Intelligences

Gardner (2005, 33) defines intelligence as an underlying biophysical ability to process information that can be activated in a cultural environment to solve problems or create products with a value in a culture.

Abdul Sami Lasheen, referred to in Al-Omari (2011), defined them as specific mental skills capable of development. Howard Gardner reached linguistic intelligence, elementary school intelligence, spatial intelligence, natural intelligence, kinesthetic intelligence, musical intelligence,

social intelligence, and intelligence Profile.

The researcher defines it procedurally as a set of potential capabilities of children (the study sample) to process information that can be activated by using the training program in the child's environment to develop environmental awareness and motivation for his achievement.

### 1.5.3 Environmental awareness

Al-Natsheh (2006, 15) defines it as the extent to which students acquire the knowledge, attitudes, values, and skills necessary to protect and improve the environment, in addition to the extent of their understanding of the dangers that the environment and life on Earth are exposed to humans' negative behavior.

The researcher defines it procedurally: the child's ability to behave in a manner that is characterized by his understanding of his environment and his love for it, and good behavior toward it; it is measured by the degree that the child attains through the Environmental Awareness Scale that was designed for this study.

### 1.5.4 Achievement motivation

Al Sayaah referred to in Al Mubasher (2009, p. 17) and defined it as the ability to perform business and strive to succeed in competing to reach the standards of excellence, and this is related to the ability to overcome difficulties, maintain high standards, improve individual performance, compete with others, and control on the social and physical environment. (Zoo, 2004, p 5) defines it as a virtual formation that moves the individual to carry out his tasks better than he has accomplished before, with efficiency, speed, less effort, and better result. It is defined by (Petri 2004, p3) as the general tendency or tendency of behavior concerning achieving goals based on competition.

The researcher defines it procedurally: the sum of scores the child obtains on the achievement motivation scale, designed in line with this study.

### 1.5.5 Primary school children

They are children enrolled in primary school; whose ages range from (6-7) years. This period is considered the period of flexibility and the ability to learn, acquire, and develop skills, and it is the period of more significant activity and growth.

## 1.6 Limits of the Study

The study is determined by the following:

Study personnel represented by primary school children (male/female) in Loloat Tariq Kindergarten affiliated with the Directorate of Special Education / in the Capital Governorate.

The validity and reliability of the study tools that include the environmental awareness test, the achievement motivation test, and the program based on multiple intelligences (linguistic intelligence, logical intelligence, elementary stage j, natural intelligence, spatial intelligence, musical intelligence, social intelligence, personal intelligence)

The application of the training program that the researcher prepared during the first semester of 2020/2021.

Dimensions of environmental awareness (belonging, social responsibility, competence, aesthetic taste

## 2. Theoretical Framework and Previous Studies

### 2.1 Theoretical framework

Environmental awareness is considered an essential and central issue for the world, whether at present or in the future, characterized by globalization, competition, mental technology, and a response to the environment of learning, knowledge, and preservation. It represents the backbone of a future society characterized by high modernity; many organizations (health organizations. And others), institutions, and individuals have started in the introduction and application of advanced technologies and programs in the performance of their business and its tasks to develop environmental awareness and to deal with advanced technologies and make the most of them most efficiently and effectively.

The study of global environmental change has become a concern for the social sciences and humanities; some new anthropological environmental studies trends exist. One of these trends is the study of human adaptation to global environmental change. Applied anthropology is also concerned with studying environmental awareness by using the knowledge from studying different cultures to solve many problems (Burai, 2006).

Because of the family's reduced role in children's upbringing and care for many reasons, perhaps the most important of which is the work of the head of the family for additional periods or his travel to work outside the country.

Since development and technological progress cannot be stopped for environmental peace, developing awareness among young people is essential to reducing pollution and environmental degradation. Therefore, most sources and trends confirm the increasing role of primary children and the school in this way, which encourages interest in the role of primary school children and the school in educating children about their environment and how to preserve it, and what has been demonstrated by numerous studies is that environmental education cannot be left to chance or random. Still, it must be distinguished in educational policies, plans, and programs. The school is the first institution responsible for this matter, which has led to the development of scientific preparation and training programs in education. Indeed, many regional and international organizations actively and effectively participate in this type of education program, and the need to start environmental education programs early or increase environmental awareness and modify children's attitudes towards the environment (George, 2003).

Environmental awareness in the early stages of childhood aims to develop attitudes, concepts, values, and behaviors that positively reflect their immediate environments, such as home, parks, and friends, to achieve balanced relationships that achieve environmental safety.

The family has its role in the individual's acquisition of the culture that helps him deal with the surrounding environment with the values, principles, and behavioral standards contained in the culture that determine the individual's attitudes and behaviors towards an environment consistent with what is desirable and what is not desirable. That culture is closely related to the level of education, nature, places of residence, parents' place, and the integration of the means of upbringing in its enrichment and definition. Moreover, by implanting it in the hearts of young people, the concept of environmental culture is not separated from the concept of environmental awareness but rather is expressed, as environmental culture creates a kind of environmental awareness in the individual (Saber, 2006).

The modern concept of the environment is known as contemporary ecology, which was developed by the Western scientist Reiten in 1885 and it was taken from the Greek roots Oikos, meaning home, logos in the meaning of study, meaning that it is the science that is concerned with the study of the object in its environment. Haeckel defines ecology as studying the interrelationships between the object and its surrounding environment.

Modern ecology defines the environment: as the medium or spatial field in which a person lives, including natural and human phenomena affected by and affects (Abu Deyya 11, 1996). In other

words, it is all that the sense of hearing, sight, smell, taste, and touch tells us, whether this is from the creation of God Almighty (natural phenomena) or man (human phenomena).

The Declaration of the Human Environment Conference held in Stockholm in 1972 summarized the concept of the environment as "everything that surrounds mankind." In its current meaning and modern connotations, the word environment expands to include all this and more (United Nations Conference on the Human Environment, 1972).

Dr. Abdel Fattah Al-Qassas defines the environment as everything that surrounds humans and consists of three interconnected and interrelated systems:

Biosphere system: It is the natural environment.

The social environment system: It constitutes the surrounding social environment.

The technology surrounding the system represents the physical environment (Gad, 2009).

Therefore, the comprehensive definition of the environment is: it is that framework in which the person lives, that is, everything that is outside the human being and that surrounds him, and this definition is consistent with the limits of this study, which sheds light on educating children about the problems arising from the human relationship with the environment in which he lives and which performed his activity and his increasing unconscious pursuit of an ecological imbalance.

A person's success in dealing and coexistence with the environment is linked to the extent of his understanding, control, and investment of its resources to benefit from it.

After researchers and scientists studied many local-global environmental problems, they knew the human role and its impact on the environment, resulting from ignorance and lack of responsibility. So, they resorted to education, seeking help to solve environmental problems that have become exacerbated and threaten people and other living creatures' lives. They are fully aware of any measures taken to protect and preserve the environment and confront its problems. It should start with the human being, as he is responsible for the emergence of these problems as a result of his negative behavior towards his environment, and from here comes the importance of raising the person himself on environmental education through which he understands the foundations for the correct interaction with his environment and is convinced of the importance of preservation and exhibits appropriate environmental behavior towards them.

Environment as a global problem:

The issue of the environment has been able to impose itself forcefully since the early seventies of the last century when there was consensus that the whole world was on the verge of an environmental crisis.

"We often resort to using the term problem, issue, or even an environmental crisis, but it is primarily a behavioral phenomenon that requires awareness of the environment and an adjustment of human behavior towards it (Ahmed, 2000).

It is a mistake to view the environmental problem as a purely physical problem, neglecting its social and human dimensions because man is necessarily one of the primary factors or elements in the environment as he is - at least - the agent of change in it and the subject of being affected by it.

All this confirms the importance of viewing the environmental problem as a global problem that requires cooperation with the entire international community to address the solution and end this problem. For example, the ozone hole problem is considered one of the most critical environmental problems for which the whole world is responsible, and its risks can only be rectified if all countries cooperate for their sake, as they have become so dangerous as to undermine the ability of states to confront them individually and with their capabilities. They are global challenges.

The most critical environmental methods of raising a preschool child

The methods of acquiring educational experiences in elementary school children are one of the main dimensions of the primary curriculum for children, and this requires considering the child's educator, preparing the educational environment, preparing the positions and activities, and choosing the means and methods aimed at helping the child to acquire appropriate educational experiences for children at this stage. Gad (2009) mentioned the conditions that a kindergarten teacher should take care of, the most important of which are:

The diversity and complementarity in methods, means, positions, and activities so that they include direct, indirect, individual, and collective methods inside the playroom or activity with its various corners and activities outside it between the arenas, playgrounds, halls, theater and other things that the kindergarten contains or outside it during visits, tours, and trips.

The dependence on the child's natural inclination towards exploration and play in its various colors and forms, on the story and the fictional style with its innovative manifestations that develop the child's imagination, language, values, and trends, and on direct practical experience, on practice and use of physical sensations, on light games appropriate for children at this stage, on trips, parties, and discussions, as well as relying on children's inclination and love for imitation, simulation, chants, rhythmic movements, field visits, public observations, and popular games.

Emphasizing the importance of self-initiative, innovation, freedom, spontaneity, and positivity on the child's part and avoiding indoctrination, pressure, coercion, and punishment.

Considering flexibility and gradation, moving from easy to difficult, from general to specific, and from the whole to the part.

Attention to each child's style and attention and attention to complementarities, collective experience, and experiences based on cooperation and positive interaction (a group of children).

Below we review some required methods for raising a kindergarten child in integrated environmental education.

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First: playing method

Children are distinguished by an innate desire to be active and play. Play is considered one of the essential methods for children to acquire various educational experiences and concepts in modern education. In elementary school children, play is either in the halls or activity rooms, and it is called the inside games or is outside it and is called outside games, the arena games, and others.

Second: Discussion Method

The discussion method is considered one of the essential methods for raising a child in elementary school children. Instead, it is regarded as a primary method in common with all other education methods. The children must discuss the story, for example, if we use the story style.

Discussion is essential for developing the child's language, increasing his linguistic wealth, and proving himself and his satisfaction. It is a tool for the free expression of opinion of the child and its positives, it's an indicator that shows how much the child has acquired from the goals of experiences and activities, especially activities related to environmental education, and the discussion affects the formation of the child's personality and helps develop the scientific way of thinking he has.

Third: Practice (Direct Experience)

Children acquire new experiences in different directions through their activity due to their desire to act (scientific, mental, or emotional). Direct experiences include children doing the actual practice in any action. The child acquires different experiences through actual practice and thus has realistic concepts. It has integrated dimensions, and in elementary school children, the pillars (the family corner - the art corner - the doctor's corner, etc.) are places where children acquire the behavior patterns specific to each side.

Fourth: The project's method

The project method is considered one of the essential techniques that arose out of the principle of activity at work. This method is based on children's activity in the environment and their free choice of topics that they carry out cooperatively, where each child has an exact role and a specifically agreed responsibility and where they participate together in developing plans, thinking, action, and criticism.

Motivation concept

The term "Motivation" refers to a set of internal and external conditions that move the individual to restore the balance that has been disturbed (Qutami&Adas, 2002, p. 195)

Motivation is an inner state that activates, gives, and directs our thoughts, feelings, and actions

(Lahy&Benjam, 1995P: 380).

Motivation is also defined as the self-power that drives and directs an individual's behavior to achieve a specific goal that he feels the need for or its normal or moral (psychological) importance for him. Thus, it is possible to identify the factors that push the individual to progress in his achievement (Qatami & Qatami, 2000).

Motivation is the stimulation and energizing of our behavior, for example, our cravings for food, fulfillment demands, or our needs for belonging (David. G. Myers, 2014; P: 331)

There is a relationship between the motive, or what some call a stimulus, and the motive. The incentive is defined as the external object that motivates the individual to carry out the behavior to get rid of the state of tension, while the motive means: what directs the individual's behavior towards him or away from him to satisfy a need or to avoid harm. It can be represented as follows (Qatami & Qatami, 2000):

The food incentive- is located in the environment.

Hunger is motivation - and it is an internal excitement

Water incentive - is situated in the environment

Thirst is motivation - and it is an exciting inner thirst

The concept of motivation has evolved through several stages, namely:

A - Instinct

B - motive or need

C- The incentive

A- Instinct

There are several definitions of instinct, including:

instinct is an example of complex and uneducated behavior that occurs in the presence of a particular stimulus (Josh, R, Gerow, 1993; p: 320).

instincts are innate tendencies or biological forces that determine behavior (Plotnik, Rod, 1996; P: 335).

B- Motives

Motivation is a state of organic tension, as in hunger, sex, or pain, which prompts the individual to perform actions that relieve stress. Sometimes a distinction is made between primary motives that depend directly on physiological needs and secondary or acquired motives such as competition that indirectly depends on these needs (Abdel-Hamid, 2011. p.: 1028).

Motivation is a state of psychological and physiological tension that is conscious or subconscious, prompting one to carry out actions, activities, and behaviors to satisfy specific needs to relieve stress and restore balance to the behavior or the self in particular (Issawi, 1994, p.: 101)

C- Incentive

A state of desirable psychological tension induced by need (WeberAnnl, 1994; p: 314)

A state of psychological tension that occurs as a result of need (Platnik, Rad, 1995; P: 389)

A trigger is an interface factor such as external stimuli and the forces or rewards that drive our behavior (Lahey, B, Benjamin, 1995; P: 380)

Motivation functions: -

The behavior does not occur spontaneously but in response to the individual has motives. Hence, the behavior is a purpose that moves towards goals that the individual considers capable of satisfying his needs, and the motives have three functions:

Motives provide energy for behavior and activate the human being: -

The motives stimulate the activity, and the tension accompanying the motive's frustration leads the human being to carry out the activity to achieve its goal and restore balance. Observing humans and animals in laboratory experiments and daily life indicates that each is idle as long as his needs are satisfied. However, he actively seeks to satisfy those needs if he is deprived.

Motives perform the selection function: -

That is, the motives choose the activity and determine it. It makes the individual respond to some situations and neglects others. They also determine to a large extent how he responds to



specific situations, and as Gordon Allport decides, when a general trend of inclinations is formed, it does not create only the state of tension that is easy to arouse. It leads to an apparent activity that saturates those tendencies. Instead, it also works as a subtle means of selecting and directing each behavior connected to it. Let us take, for example, those who have remarkable aesthetic tendencies; when they examine a newspaper, they notice what is related to art and remember it. They put aesthetic characteristics first when asked about others' opinions and virtues.

Motives direct behavior towards the goal:

It is not enough for the human being to be active, for the energy released by hunger, for example, and the behavior that drives it does not benefit him unless the behavior is directed towards a goal that satisfies the motivation. Although satisfied individuals with their condition achieve only a small amount of learning, merely provoking dissatisfaction with their current state is insufficient. For the events of a state of improvement and growth, unless their energies are directed towards specific goals that can be reached and achieved. The reason is that students often obtain low grades. They need to realize the relationship between their studies while carrying out it and their ultimate goals. Often students studying medicine need help understanding the relationship between this study and their study of basic swimming. Also, students of colleges of education who face practical education problems often need help comprehending their education's significance (Abdel-Hamid, 2011. pp. 30-31).

#### Achievement Motivation

The drive for achievement is one of the essential social motives associated with the learning process and its development; this drive desires to do an outstanding job and succeed. This desire is characterized by ambition, enjoyment of competitive positions, the unbridled desire to work independently in facing problems and solving them, and preferring tasks that involve moderate difficulty rather than tasks. It involves little or considerable risk (Atkinson, 2014).

It has been proven that the drive for achievement is acquired early in a person's life and is supported by society's "achievement" approval for success or punishment for failure. Therefore, it remains constant in the individual's personality during the later stages of his life and has a driving force and a direction for his behavior.

Suppose the achievement motive is characterized by superiority over others in various competitive fields and a willingness to cooperate with others for the sake of remarkable goals. In that case, this leads to the cohesion and progress of the group, as we see in the so-called first world compared to the third world in which we live.

Thus, we see that the achievement motive satisfies the individual with specific goals or can create successful and distinguished behavior and leads, in some aspects, to the group's growth and social and economic prosperity (Saber, 2003).

#### 2.2 Previous studies

Murad et al. (2021) study aimed to determine whether or not a curriculum based on the theory of multiple intelligences effectively fosters the growth of students' language and social abilities and their capacity to remember what they have learned in the early elementary years (KG2). One hundred eighty-five boys and girls were split evenly between this study's experimental and control groups. An accomplishment exam was used as the research instrument to evaluate the participants' linguistic competence. Its validity and reliability were examined, then used on the before and after research groups. The results reveal that the proposed curriculum improves students' communication and retention ability.

Murad (2021) conducted a study to provide evidence for how well Gardner's theory of multiple intelligences aligns with students' coursework at Al-Balqa Applied University. In order to do so, a list of Gardner's ten multiple intelligences was compiled; the final version of this list contains 63 paragraphs, each of which corresponds to one of the intelligence (linguistic, logical, bodily, personal, social, existential, natural, spatial, and musical), after determining the list's psychometric qualities, it

was used with 550 students from across five different majors at Al-Balqa Applied University (education, agriculture, administration, engineering, and medicine). Moreover, the results showed that the following intelligence was prevalent among the study population sample: (personal, bodily, social-existential, spatial, logical, musical, natural, and linguistic). Furthermore, the study results demonstrate a mismatch between the students' various bits of intelligence and the expectations of their respective academic fields. Therefore, the researcher has proposed a set of suggestions considering the study's results.

The study by Zimmerman and Scherer (2014) aimed to identify each group's communication behavior. The study was applied to a Wisconsin, United States sample, numbered 23 individuals. (They represent the group that does not practice environmental activities, while the second group represents 304 individuals (they represent the group that practices environmental activities). The researcher used a questionnaire to identify the media in which the sample members obtained their environmental information. The study's most important finding is that the two groups have no statistically significant differences in the media's general use. The results indicated that the sample members do not rely to a high degree on personal contact as their source of environmental information.

Abdul Karim (2016) conducted a study to reveal preschool children's deficiencies in the extent of their acquisition and practice of the dimensions of aesthetic and innovative appetite. Moreover, the preparation of a proposed program for the development and implementation of dimensions and the study included a sample of (60) boys and girls ranging in age from (4) years and ten months to (5) years and six months, enrolled in kindergartens from primary children. The study revealed statistically significant differences in favor of the experimental group in the extent of their aesthetic taste acquisition. The results also indicated no statistically significant differences between males' and females' averages in the extent of their acquisition of aesthetic taste.

David Rockland (2014) conducted a study to identify where children come from environmental information. To answer this, Neetf (Global Foundation for Environmental Education and Training) surveyed a sample of children from the age of (4-12) years to learn about their interests, trends, and environmental behaviors. Moreover, through two groups, the first group includes a specific sector of students in the United States of America, totaling 928 students from 24 schools. The second group focused on the most polluted areas; the sample was about 2139 students from 19 schools. The data was collected through a questionnaire that was done through the interview. The most important results of the study are:

All the items of the sample emphasized that the environmental problems and their solution occupies second place from the list of issues that occupy their thinking (the list includes ten issues)

There are statistically significant differences between gender and the level of environmental awareness. Those differences favored females, who were more knowledgeable and interested in the environment than males.

Hassouna (2016) conducted a study aimed at designing a program to provide kindergarten children with two social skills: imitation and independence skills and to employ and invest the capabilities of the kindergarten child to teach and train him to acquire proper social behavior through the activities and positions of the program, where the research was conducted on a sample of primary school children. At the age of (4-6) years, it consisted of 140 children and it was divided into two groups: an experimental group of 70 children and the other is control of 70 children. The scores of the members of both groups on the scale of imitation and independence in the subsequent application of presenting the program for the benefit of the members of the experimental group found no statistically significant differences between the mean scores of males and females in the experimental group on the scale of imitation and independence in the subsequent application of the program's presentation. It also found that there were statistically significant differences between the mean scores of the older and younger members of the experimental group on the imitation scale and independence in the subsequent application of the program's presentation to benefit more aged children.

Al-Suhaimi's (2014) study aimed at increasing the rates of social behavior of preschool children by focusing on aspects of activity and inculcating good values and urging the child to progress and advance, know his duties and rights, and develop a spirit of cooperation between the child and others through the use of sound educational methods, empowering the child in proper interaction with his environment, also, by providing a democratic climate to increase the child's participation in aesthetic activities and training to take responsibility. The research was conducted on a sample of (45) preschool children in the Arab Republic of Egypt who practice low rates. In social behavior, due to the high percentage of homogeneity between them, twenty children were chosen to conduct the study on them randomly of positive reinforcement and increasing rates of social behavior among preschool children.

### 3. Methodology

Study methodology: The researcher used a descriptive-analytical method of data analysis and classification to explain the phenomenon and society of interest to achieve the study's goals. The study's findings were also recorded so that they could be presented in charts and tables. A questionnaire was also designed to collect and analyze data using the (SPSS) program and then arrive at the study's results and recommendations.

#### 3.1 Population and study sample

The study was conducted in two divisions, one experimental and the other controlled by a lot. The study members were selected from the preliminary class students at Loloat Tariq School in Tariq District in Amman, with 60 students. The Table shows the distribution of study individuals in light of the group and gender.

#### 3.2 The study tools

The researcher adopted the design of a questionnaire covering all dimensions of variables independent and subsidiaries of the study, in a form in which it can test the hypotheses that have been built and the distribution and composition according to members of the preview unit.

##### 3.2.1 Validity of the tool

To ensure the validity and trustworthiness of the data collected, the researcher used scales from prior studies that had already been shown to be reliable in measuring the study variables. In order to accurately measure, the researcher coined some new terms that had not been used before. On a five-point Likert scale designed to reflect how enthusiastically respondents to the questionnaire agreed with each issue, he shared the results in the following formats: (strongly agree with five marks, agree with four marks, neutral three marks, disagree with two signs, strongly disagree with one mark).

One of the administration professors judged to judge its validity as a tool for data collection. The tool's validity is defined as the extent to which it can measure what is required to be measured. Therefore, the researcher tested the degree of apparent validity of knowing the related questions.

##### 3.2.2 Reliability of the tool

Cronbach's Alpha was used to ensure the questionnaire's internal consistency, ensuring its reliability in collecting the data required for this investigation; this study will use the questionnaire's results to comment on the mean of the study's variables.

#### 4. Analyze and Discuss the Results of the Study

The researcher reviews the results of the study according to the sequence of her hypotheses, as follows:

**The results of the first hypothesis:** "Is there a statistically significant effect at the level of ( $\alpha = 0.05$ ) on the development of environmental awareness as a whole, and each of its dimensions separately, attributable to (the program / the usual method), gender (male/female) and interaction Among them among primary school children in Jordan?"

The results of the second hypothesis, which states: "Is there a statistically significant effect at the level of ( $\alpha = 0.05$ ) on the development of achievement motivation attributable to (the program / the usual method), gender (male/female) and the interaction between them among primary school children in Jordan?"

Arithmetic means and standard deviations were calculated, and an analysis of variance was performed to answer this question, the results of which appear in Table (1).

**Table 1.** The arithmetic means and standard deviations of the achievement motivation scale on the pre-measurement

Gender	Group					
	Experimental		Control		Total	
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Male	57.38	1.19	55.43	1.79	56.37	1.80
Female	57.88	2.15	55.75	1.65	56.85	2.18
Total	57.67	1.79	55.60	1.69	56.63	2.02

It is clear from Table (1) that there are apparent differences between the two pre-measurements according to each of the treatment variables, gender, and the interaction between them, and to verify that these differences are statistically significant, the pre-measurement has an effect on the results of the study, common bilateral variance analysis was conducted, which appears the following Table (2).

**Table 2.** Bilateral variance analysis between control and experimental groups

Gender	Group					
	Experimental		Control		Total	
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Male	74.15	0.55	55.14	1.46	64.30	9.74
Female	73.41	2.18	54.87	1.64	64.72	9.60
Total	73.73	1.70	55.00	1.54	64.53	9.58

It is clear from Table (2) that there are apparent differences between the two-dimensional measurements according to each of the treatment variables, gender, and the interaction between them and to verify that these differences are statistically significant from the analysis of the common bilateral variance, the results appear in Table (3).

**Table 3.** Binary variance analysis of the difference in the treatment and sex variables and the interaction between them for the motivation variable

	Sum of squares	Degrees of freedom	Average of squares	F	indication
Pre-test	29.82	1	29.82	13.95	0.00
the group	3418.63	1	3418.63	1599.14	0.00
gender	6.34	1	6.34	2.96	0.09
Group * gender	1.20	1	1.20	0.56	0.46
The error	115.44	55	2.14		
Total	3571.43	59			

Table (3) shows statistically significant differences on the motivation scale, as the statistic value  $F$  (1599.14). These values are significant at a level of 0.05 or less. The averages of the experimental group were higher than the averages of the control group, indicating the experimental treatment's effect.

It is also evident from the Table that  $F$ 's statistic values for the sex variable were (2.96). This value is not a function at (0.05) or less, indicating that achievement motivation was not affected by the gender variable.

As for the interaction between the treatment and gender variables,  $F$  values reached (0.46). These values are not a function at the level of (0.05) or less, so there is no effect of the interaction between the treatment and sex variables on achievement motivation.

## 5. Discussion of the Results

### 5.1 *Discussing the results of the first hypothesis*

After extracting the results, it became clear from Table (1) on the scale of environmental awareness with its sub-dimensions of the pre-measurement that there are apparent differences between the pre-measurement and the total score according to the treatment variable, gender, and the interaction between them. Noticeable differences between the dimensional measurement on the sub-dimensions and the total degree according to the treatment variable, gender, and interaction existed. A common bilateral variance analysis was used to demonstrate the significance of the differences. It was evident from Table (3) that there were statistically significant differences in the level of importance on the scale of environmental awareness in its sub-dimensions and the full degree, as the statistic value reached ( $q$ ) on the cleanliness dimension (7316.74), the belonging dimension (1802.95), the social responsibility dimension (976.92) and the distance Aptitude (9968.87), the aesthetic taste dimension (1899.48) and the overall score (761.43). By reviewing the averages, the averages of the experimental group were higher than the arithmetic averages of the control group members, which indicates a clear indication of the effect of the experimental treatment. This can be explained by the fact that the experimental group members who were exposed to the program have benefited from the program, which deepened the concepts of environmental awareness among children. It is essential to educate children to preserve the environment around them to contribute to the preservation of the safety of the environment and generate enthusiasm. They have to find appropriate solutions by implanting environmental values that target the conservation of the environment, threatening it from dangers, and urging them to reduce and prevent environmental problems. The program has also benefited children by increasing their awareness of their right to a clean environment through individuals' actual participation and changing environmental behavior towards the environment.

The program also improved children's environmental attitudes towards the environment by sensing environmental problems, increasing their motivation to solve these problems and develop better environmental conditions. Trends can only be generated through the information that individuals obtain from various sources. Therefore, the program was best directed toward developing environmental awareness among children. Therefore, the program created positive trends among children toward increasing positive interaction with the surrounding environment.

This result is consistent with the Bedeer study (2014), which showed several factors that distinguished children with a high sense of beauty from those with a low sense of beauty, including social participation.

Moreover, it differs from the result of the study (Zimmeran&Schere, 1982), which showed that the sample individuals do not rely to a high degree on personal contact as their source of environmental information.

The results from Table (5) also showed that environmental awareness was not affected by the gender variable, as it was found that the values of the statistic ( $P$ ) reached the hygiene dimension (0.10), the dimension of affiliation (0.74), the social responsibility dimension (1.46), the competency dimension (0.05) and the aesthetic taste dimension (1.94) and finally the overall score (1.59). This can

be explained by the fact that both sexes have benefited from one of the program's components that develops environmental awareness among children through the program sessions, which deepened their environmental awareness concepts, so the differences between both sexes did not appear.

This result is consistent with Abdul Karim's study (2016), whose result showed no statistically significant differences between males' and females' mean in the extent of their acquisition of aesthetic taste.

Furthermore, it differs from the result of the study (David, 2014), which showed that there are statistically significant differences between gender and the level of environmental awareness, and those differences came in favor of females.

The results from Table (5) also showed that there was no effect of the interaction between the treatment and sex variables on the level of environmental awareness in its sub-dimensions, as the value of (q) on the dimension of cleanliness was (2.07). For the affiliation dimension (0.37), the social responsibility dimension (0.74), and the competency dimension (0.83). Furthermore, for the aesthetic taste dimension (1.15) and, finally, the overall score (0.22), this can be explained by the fact that children in both the experimental and control groups had a similar level of environmental awareness for either males or females, indicating that there is no interaction between the treatment and gender variables at all Scale dimensions.

This result is consistent with the result of Abdel-Fattah's study (2003), whose result showed the effectiveness of the program in developing children's awareness of some environmental problems, and differs from the result of Abdul-Karim's study (2016), whose result showed statistically significant differences in favor of the experimental group in their acquisition of aesthetic taste.

The results of the second hypothesis, which states: "Is there a statistically significant effect at the level of ( $\alpha = 0.05$ ) on the development of achievement motivation attributable to (the program / the usual method), gender (male/female) and the interaction between them among primary school children in Jordan?"

The analysis of the results through table (1) showed that there are apparent differences between the pre-measurement according to the variable of the therapist and the gender and the interaction between them, and to demonstrate the statistical significance of those differences, a standard bilateral variance analysis was conducted, where the results of Table (2) showed the existence of apparent differences between the post-measurement according to the variable treatment, gender, and the interaction between them, and to verify these differences are statistically significant, a standard bilateral variance analysis was conducted, and it was found from table (3) that there are statistically significant differences at the level of significance on the measure of achievement motivation, where the statistic value (F) reached (1599.14), and this value A function at the level of ( $\alpha \leq 0.05$ ), and by reviewing the arithmetic means, it was found that the averages of the experimental group were higher than the arithmetic averages of the control group members, and this indicates the effect of the experimental treatment.

This can be explained by the fact that the children in the experimental group benefited from the program's components that deepened their environmental awareness concepts, which contributed to developing their positive attitudes towards the environment positively. It also increased their achievement motivation by searching for these problems and finding clear solutions, eliminating or reducing them, indicating the program's effectiveness in deepening environmental awareness among children and increasing achievement motivation.

This result is consistent with (Gottfried's 1998) study, which showed a statistically significant relationship between internal motivation, academic achievement, intelligence tests, and self-efficacy perception. It agrees with the Hanna study results (2009), whose results showed statistically significant differences in the study individuals' performance on the two study tools (self-efficacy test and achievement motivation test) and the experimental group's favor.

It was also evident from Table (8) that the value of the statistic (F) for gender was (2.96), and this value is not a function of the level of ( $\alpha \leq 0.05$ ). This indicates that achievement motivation was not affected by gender.

We can explain this because children of both sexes in the experimental group were exposed to the same program components and in the same circumstances. They also acquired the same information and skills through the program, which deepened their environmental awareness concepts and increased their positive attitude toward the environment and the achievement motivation in creating appropriate solutions to eliminate or reduce environmental problems.

This result is consistent with the result of the Hanna study (2009), which showed no statistically significant differences attributed to sex, and it differed with the result of the study (Chiu, 1997), which indicated that females received better evaluation than males by their teachers on achievement motivation.

Table (4) shows that the value of (F) amounted to (0.46) for the interaction between the treatment variables and gender. This value is not a function of the level ( $\alpha \leq 0.05$ ), which means that there is no interaction between the treatment and sex variables on achievement motivation, and this can be explained. While the children in both the experimental and control groups had one vision and understanding of the environmental concepts and environmental awareness, the children of the experimental group benefited from the components of the program, as for the children in the control group's awareness of the environment was not different, so there was no interaction between the treatment and sex variables.

This result is consistent with the result of the Hanna study (2009), whose result showed the absence of interaction between the treatment and sex variables and differed from the result of the Hillatt study (2004), whose results showed statistically significant differences between the average post-performance modified for the experimental group and the average post-performance of the control group. Each test's overall dimension and the motivation-to-achievement test favored the experimental group's performance.

## 6. Conclusion

The existence of multiple intelligences and their differences among students in one semester requires the adoption of various teaching and learning methods and methods to achieve communication with all students in the classroom, which the educational system neglected. Gardner (1993) indicated that the IQ scale does not consider only a tiny part of the learner's abilities. The theory has become a well-known method for exploring learning and teaching methods appropriate for each individual, developing curricula, and improving methods of evaluating teachers and students alike. Many books have been written, many articles have been written, many theses centered on the theory have been researched, and many researchers support educational and professional development based on it. The theory of multiple intelligences is consistent with the requirements of the modern concept of the curriculum and with the foundations of modern curriculum development that prioritize the learners' needs, tendencies, and abilities when developing.

## 7. Recommendations

In light of discussing the results of the study, the researcher recommends the following:

1. Working to include in school curricula, starting with the elementary stage of children and ending with the secondary stage, with concepts of environmental awareness to improve positive trends towards the environment
2. Conducting seminars, workshops, and lectures to deepen the concepts of environmental awareness in society to improve its positive trends in researching environmental problems and reducing or eliminating them.
3. Directing the printed and audio media to deepen the community members' environmental sense and prompt them to unite to face environmental problems.
4. Conducting similar studies to investigate the impact of environmental awareness on other variables.
5. The study results in the environment deepen the environmental awareness of the community members.

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