International Journal of Arts, Humanities and Social Studies
Website: https://www.ijahss.in/
ISSN(*Online*): 2582-3647
Volume 4; Issue 2; Mar-April 2022; Page No. 45-56

Open Access | Original Paper

# The Efficiency of the Integrated Experience Curriculum in Developing Basic Science Operations in Kindergarten Children of Jordan

**Nadia Mahmoud Abo al fool[1*]; Zahria I. Abdelihaq[2]**
[1]Educational Supervisor, Al Quwaisma district -Ministry of Education- Jordan
[2]Professor at Department of psychology, Isra University- Jordan

**ABSTRACT**
This study aims to identify the efficiency of the integrated experience approach in developing some basic science in kindergarten children of Jordan. The study sample comprises (50) male and female children who were randomly selected from Zarqa Education Directorate for the academic year 2019/2020. To achieve the goals of the study, the researcher prepared the study instruments represented through a list of basic science for the kindergarten child and education guide through using the integrated experience approach and testing the kindergarten basic sciences operation after validating them. Findings of the study revealed statistical differences of a significance ($\alpha \leq 0.05$)between the operations of the experimental and control groups in some basic science skills (observation, classification, measurement and prediction), in favour of the experimental group that was taught through the integrated experimental approach, while there were no statistically significant difference at the significance level ($\alpha \leq 0.05$).Due to gender variable regarding (observation, classification, measurement, and prediction).There were differences with statistical significance at all levels of significance among individuals of both the experimental and control groups in some basic science skills (observation, classification, measurement, and prediction), in favour of the experimental group which was taught through the integrated experience approach in the deferred exam; while no difference was found with statistical significance at the level of ($\alpha \leq 0.05$) due to gender variable (male or female) in (observation, classification, measurement, and prediction) in the deferred exam.

**Keywords:** *Experience, curriculum, basic, science operation, kindergarten children.*

***Citation*:** Nadia Mahmoud Abo Al Fool & Zahria I. Abdelihaq (2022). The Efficiency of the Integrated Experience Curriculum in Developing Basic Science Operations in Kindergarten Children of Jordan. *International Journal of Arts, Humanities and Social Studies*, 4(2), 45-56.

## INTRODUCTION

Childhood is the maker of future and the hope for humanity to create a prosperous one. As we live in the twenty first century, we should prepare our children to change which have already begun in a very rapid manner. The kindergarten stage is one of the important stages in building up the child in cognitive, social, and corporal abilities. This stage also plays a role in developing children in intelligence and in increasing his stock of vocabulary. It also contributes to the determining of his social and mental development. At this stage of his life, child's curiosity starts and thus gets into an atmosphere of completion with his peers and with adults, whether in the kindergarten or in the surrounding area where he participates in activities that need time to develop many skills depending on himself and on others [1].

Studies emphasize the significance of this stage which affects his future, skills and concepts that help in the comprehensive integrated development once programs suitable for his potentials are available. The child here practices many activities: (drawing, coloring, singing, clay cutting act.) which help in sense practice, development and the acquisition of many experiences and facts [2]. As the curriculum is the major method to achieve education objectives, there should be various curricula organizations which endeavour to realize such objectives that cope with whatever was put in the fields of education [3].

The child is the core of modern curricula with all its activities that focus on him and develop in him experimentation, trial, and revelation. They also encourage free pay, reject the concept of obligation, and focus on the principles of flexibility, creativity, renewal, and comprehensibility. This dictate securing a rich environment for educational activities [4]. Due to what education studies and research came up to, a need to have education programs and kindergarten integrated activities that revolve around various integrated fields emerged. In this case, linguistic, scientific, social, physical, musical, artistic, and motional activities integrate, abolishing fragmentation from which extant old programs suffer. As this trend achieves the objectives of education values, it has become the major concern for being a reaction to the traditional trend [5].

From this perspective, education within this integrated trend cares for all personal aspects of the child as demonstrated in self-activity, positivity in educational situation and congruity of his ability and development needs which should be chosen in compliance with the children's educational background, their trends, corporal and mental abilities. These should be carefully selected and linked to the environment and society to meet such needs [6].

Mansour [7] assured the efficiency of the integrated experience approach in developing the scientific, social, and linguistic concepts, in addition to artistic and motor skills of kindergarten children. The use of such an approach helps students to develop their talents through the integrated activities they were given. The concept of curriculum integration refers to the integration of study courses which the students seek for as such a thing helps them get a natural integrated identity that leads to the desired behaviour. The integrated curriculum is based on the horizontal organization of the contents as the concept of every subject integrates with that of other subjects [5].

In the light of that, the most integrated method was determined through the benefit the child gains by which he grows integrated, and his experience thus integrates with that of the community [8]. Due to that, it was necessary to offer knowledge and science in an integrated manner to help the learner use them to solve those problems he encounters. This reveals why making use of knowledge is more important than having it, a thing which separated subjects were short of [9]

Developing basic science operations is one of the significant objectives that teaching works to achieve. The significance of this objective stems from relating teaching problems to student's life and that makes it like what the student faces at home, school, and community.

Abu Hajjooj [10] stated that science operations are of great significance at the level of scientific education. To achieve teachings objectives, one needs to care for science operations which enable the student to play a positive role through which he can get knowledge by himself and acquire scientific thinking skills. The drastic development and knowledge increment assure that the student should have balance in knowledge to benefit from the huge quantity which enriches science material so as to achieve teaching goals [2] Thus, people of concern in the majority of Arab countries started to create and develop new curricula focusing on students and developing their scientific skills in order to enable them to deal with new situations. Here basic science operations constitute an essential corner of the new curriculum with its comprehensive concept [11].

Al-Seifi [12] explained that understanding nature of science, having skills, teaching science operations to students, training them how to be used in daily life, must all be from the major objectives that teaching aims to achieve. Shortage of curricula in science operations and lack of interest will influence both student and society because the graduate lacks practice in using science operations and skills to face problems he might encounter after graduation.

A study conducted by Hamdan and Al-Qadi [13] on student life emphasized the need for teaching such skills in order to develop the student's cognitive ability. Abdulla's study [14] emphasized the need to build a science bag to determine its impact on developing basic science skills in kindergarten children. He calls for children to acquire such educational scientific skills as the child's role is not only receiving information but also being an active factor in education operations. This study adopts the integrated curriculum to check its efficiency in developing some basic science operations in the kindergarten child, as such a thing enables that child to utilize his knowledge positively and thus becomes able to face his community and solve any problem.

**Characteristics of Activity Curriculum in kindergarten**

Integration: this implies an interrelation between educational experience and teaching situation in which the child lives in an indefinite integrated unit that includes various activities cognitive, emotional, and social [15]. Among the first who were interested in solving defragmentation problems was the German philosopher John Frederick Herbart who also criticized the teaching method, which depends on explanation, memorization, and listening, that he substituted by his own method named after him "Herbert's Psychology".

**Comprehensibility**

It implies how experiences and activities help to develop the child's concepts, performance skills, social and behavioural trends which cope with Bloom's classification that comprises three of developments: cognitive, sentimental, and self-motor. The cognitive part includes (information, scientific and sport concept, language skills concept, and method of scientific and creative thinking). The sentimental field includes (values, trends, interests, emotional reactions, identity, and social relation with peers and adults). The self-motor filed is associated with motor skills and performance like: (running skills, picking up things, writing and equilibrium between balance and motor congruity. The human practices his duties whether motor, mental accompanied by reactions and wishes. No motion is done without thinking or without emotional expression [6].

**Flexibility**

Kindergarten curricula is distinguished among other curricula for being flexible and by giving freedom to the teacher to choose the contents of the syllabus that fit the stage, meets children's development, their psychological, social, mental, and corporal needs. It offers the level that suits their potentials and readiness. The freedom that is given to the kindergarten teacher, with regard to flexibility, provides her with the chance to note the individual difference among children each of whom is given the chance to learn according to his capabilities and range of development [16].

**Perseverance**

Kindergarten curricula are distinguished for perseverance as they complete the experiences through which the kindergarten child passes in the house. These experiences, acquired at home and in the kindergarten, are the core and the basis on which the primary level of education is built [17]. Diversity: Here the activities should be related directly to child's home surroundings such as: plants, animals, weather, seas, and means of communication, in addition to individuals close to that child [15]. Science operations: These play an active role in teaching as science seeks for answers to questions raised by the human. These queries stem from the child's observation of the world around him. We must remember that scientists use science processes to do scientific experiments to come up with certain discoveries and inductions [18]. Zaytoon [11] defines science operations as "a set of certain, mental abilities necessary to correctly apply science operations, thinking and scientific research.

Significance of science operations: most studies and research emphasized the significance of learning skills at early stages. Abu Hajjooj [10] sees that science operations constitute backbone of methodology for they provide teachers with self-confidence. Several past studies also assured that these operations should be acquired at the early stage for they help learners reach any piece of information by themselves, so they become the center of the teaching process. Thus, they provide learners with new positive trends toward environment and how to protect it. They also develop in them new scientific trends [19].

**Features of science operations**

Many studies and research were conducted and tackled some science features. They emphasized that one of the most important characteristics: of the operations is that they require a practice of some mental skills performed by scientists, individuals, and students to understand surrounding global phenomena. Science operations are an acquired behaviour which can be learned and practiced and that eventually help teachers in self-teaching. Science operations are not time affected but can affect various aspects of life. They also help students to cleverly deal with not only natural phenomena, but also with life problems as well. They are characterized by precision, objectivity and flexibility, as they represent the behavioural aspects of scientific thinking [18].

**Classification of Science Operations**

The scientific educational association divided science operations into two groups: skills of basic science operations which include the following: observation, classification, measurement, communication, prediction, inference, using space and time relation, number using, and the integrated science operations which include the following: variable control, data explanation, hypothesizing: procedural definition, and trial. When reading literature of scientific education, we find that such a classification has been adopted by many educators [20].

Despite the difference in the number of basic science skills, yet such integrated operations represent a form of pyramid-shape organizing. This means that using the integrated operations requires perfecting past basic ones. In addition, integrated science operations combine a group of the basic ones. Educational literature emphasizes teaching basic skills of science operations at the lowest basic stage. These skills are less complex than the integrated ones, but necessary for them. If the learners showed an understanding of observation, measurement, and classification, that reflects their understanding of the skills of basic science operations [11].

Educators differed on the number of skills of basic science operations; some classified them into eight while others into ten. Khatabiyeh [20] classified them into eight as: Observation, classification, communication, deduction, measurement, prediction, addressing questions, using numbers, using time and space relation induction and inference. This study will focus on four operations: observation, classification, measurement, and prediction as such skills need to be acquired at the early stage of learning.

**Basic science operations**

These are characterized by simplicity and easy acquisition [14]. Observation is characterized by comprehensibility, precision, objectivity, in addition to using appropriate scientific methods. The following determine its usage:

- Using as many numbers of senses as possible

- Observing changes, not the external appearance only.
- Determining features of things and events through senses.
- Classification which includes sub-skills which are [3].
- Similarity and dissimilarity of group features.
- Determining a general common feature.
- Division based on features.
- Observing other features in the same group.
- Division based on sub-common features.
- Determining division through new observation.
- Measurement which includes the following sub-skills [21].
- Using a set of observations.
- Determining what to be measured and defined
- Organizing what was measured according to features
- Unifying the units for easy comparison
- Using measurement tools characterized by precision
- Prediction which includes a group of sub-skills [22] which are:

- Determining terms and factors available for prediction.
- Distinguishing variables and non-variables between the group terms and factors
- Acquaintance with the law, principle, or theory that might be subject to variables
- Using law for prediction
- Reading truthfulness of the prediction

**Literature Review**

The study of Mansour [7] investigated the impact of integrated experience method on developing the scientific, social, linguistic, emotional, and artistic skills in kindergarten children. The study was conducted on a sample of (60) male and female children (5-6) years of age in the city of Damascus. The sample was divided into two groups, (30) male and female children each: one experimental and the other control. Balance between the two groups regarding intelligence, social and cultural levels of members of each group, was taken into consideration. The researcher used a designed integrated program method (food and health) and a direct (pre-and post- direct) and deferred pictorial and a monitoring card to measure the effectivity of integrated educational experience in the development of motional and artistic skills in the children of experimental group. Results showed that the experimental group excelled the control one in the direct post-test and the deferred one regarding concepts and skills.

Al-Mubarak's [23] investigated the efficacy of a program based on integrated activities about teaching the kindergarten child, the skills of reception and linguistic expression. The sample of the study comprised (88) male and female children (5-6) years of age in the city of Damascus. The researcher used two instruments one of which included a program of multi activities that consider the developmental features of the (5-6) year's kindergarten child. At the same time the program aimed to achieve the integrated development of this child in the three fields of (motional, cognitive, and emotional senses), in addition to teaching him the affectivity of reception and linguistic expression. The program also included (33) questions the child had to answer to measure these two skills. Results of the study showed that the program based on integrated activities influences the child's competency in reception and linguistic expression.

Hamdan and Al-Qadi [13] aimed to determine the acquisition level of fourth-grade students for the skills of science reflected in observation, classification, prediction, and the role of sex and learning on such an acquisition, besides the relation to critical thinking. The sample comprised of (137) male and female children of the primary fourth-grade students in Latakia Governorate. The descriptive analytical method was used. A scale for measuring scientific operations and another one for critical thinking were also used. The results showed the following: science operations studied at a lower level than the hypothetical one (50%) and fourth-grade female students had better scientific operations than males. Students of high learning were better than those of four level of learning at the low level. The study suggested that post and pre-cognitive types of skills should be taught.

Aljiffarik's [24] conducted a study to figure out the influence of the integrated method on teaching English language skills, humanities, and the academic acquisition level of such skills of the Saudi child at the elementary level. Teaching three skills was applied through the integrated program method of teaching reading and writing in foreign language and social sciences. Sample of the study comprised (50) children divided into the experimental and control groups. The results showed that children of the experimental group achieved better results than those in the control one, in the field of developing writing and oral skills.

Liu and Elicker's [25] conducted a study to describe the daily life of kindergarten children and teachers in China through applying a set of kindergarten programs. The two researchers tried to determine the affectivity and ability of the program in improving the interaction and communication between teachers and children. The result showed that teachers need to be trained in the program as that leads to an interaction between the program and children's performance. After reviewing the literature review concerned, the researcher benefitted from them in the field of suggested programs used in those studies. In addition, she benefitted in building up the test of basic science operations prepared by the researcher for the purposes of this study. The researcher also knew about efforts exerted by researchers regarding determining basic science operations and methods of dealing with analysis of statistical data which helped in discussing the results of the present study. According to the knowledge of the researcher, this study has been distinguished form the past one because it linked the integrated experience method to the basic science operations absent from any past study.

**Statement of the Problem**

Due to the importance of the early childhood stage, its influence on building up the child's future personality and values, educators emphasized on the need to adopt modern trends in child's education at this stage. The frequent calls to merge them in education hierarchy as they organize and describes a lot of events and phenomena which in general constitutes basic scientific concepts, the kindergarten educator needs an attracting technique which attracts and explains some difficult abstract concepts, that can never be taught through traditional methods. Thus, she uses more than one education technique and addresses more than one sense through which concepts are made more active in the children's minds.

The kindergarten through the various activities it presents, helps the child develop his skills, and his scientific and corporal potentials. All this can be achieved via integrated experience curriculum. The integrated activities help children build up their identities and help them learn indirectly. As far as the researcher knows, local studies on the issue are scarce this justifies conducting this study to know more about basic science operation add to up new ideas to the field. The study will also examine the efficiency of integrated experience in developing these operations in kindergarten children in Jordan.

**Significance of the Study**

The topic of the study, to the knowledge of the researcher is relatively modern, in addition to the shortage of such research in Jordanian libraries. It is noted that some Arabic studies were limited to a group of integrated activities of the kindergarten child without tackling the integrated experiment curriculum. The study might reveal the efficacy of the integrated experiment curriculum which helps settle the argument among educators regarding the efficacy or inefficacy of this curriculum. Furthermore, the results of applying this curriculum might open a way for future studies which could have a concern about the post-stage of the kindergarten child.

The study might help planners of kindergarten curricula in effect now and helps planners and expertise of kindergarten curricula to include the integrated experiment curriculum in developing basic science operations in kindergarten children. In additional to the scale related to kindergarten basic science operations discussed in this study might be used for other similar education purposes. It informs kindergarten teachers and supervisor about the necessary procedures needed to implement the curriculum that helps develop skills of basic science operation in kindergarten children. Through answers: To what extent does integrated experience affect the development of some basic science operations in kindergarten children in Jordan?

**Research Questions**

This study was designed to answers the following research questions:

**RQ1**: Are there differences with statistical deference between the means of the after-performance of kindergarten children at the basic science scale (observation, classification, measurement, and predication) attributed to teaching method?

**RQ2**: Are there differences with statistical deference between the means of the after-performance of kindergarten children at the basic science scale (observation, classification, measurement, and predication) attributed to gender?

**RQ3**: Are there difference with statistical deference between point average of the consecutive performance scale (observation, classification, measurement, and predication) attributed to teaching method?

**RQ4**: Are there differences with statistical deference between point average of the consecutive performance of kindergarten children at the basic science scale observation, classification, measurement, and predication) attributed to gender variable?

## METHODOLOGY

The suitable method used in this study is the experimental one with its semi-experimental form as it secures scientific accuracy for the researcher that leads to results which might be taken into consideration in answering the question posed by this study.

### Participants

The sample of the study comprised (25 male and 25 female) kindergarten children of the second level, aged between (5 to 6 years). Were randomly selected from Al-Hadaiqieh Al-asasiya kindergarten of the ministry of education in the second semester 2019/2020. Sample of the study were divided into two groups (25 experimental groups and 25 control groups). As shown in Table1.

**Table 1**: shown the sample details.

| Group | Gender | | Total |
|---|---|---|---|
| | Male | Female | |
| **Experimental** | **15** | **10** | **25** |
| **Control** | **15** | **10** | **25** |
| **Total** | **30** | **20** | **50** |

To ensure parity of the two group - control and experimental, the arithmetic and standard deviations were calculated to test the pre-basic science processes, t- test was used for the differences between means of study sample at the scale of basic science processes of the kindergarten child (5 to 6) years age as illustrated in table 2:

**Table 2**: Results of (t) the difference between the means of basic science processes.

| Groups | N | Mean | St. dev | F | (t) | Sig |
|---|---|---|---|---|---|---|
| **Experimental** | **25** | **0.45** | **0.46** | **47** | **0.029** | **0.977** |
| **control** | **25** | **0.55** | **0.47** | | | |

Table (2) showed that there is no statistically differences at (a≤ 0.05) between the mean score of the participants on the scale of basic science process which might be attributed to the group with reference to the (t= 0.029) with value (t = 0.977) which means that the two groups are equal.

### Instruments of the study

To achieve the goals of this study, the researcher prepared her instrument which were subjected to the necessary procedures of reliability and validity and presented as follows:

### First: list of skills of basic science processes.

In order of prepare integrated experience programs and test, the researcher listed the necessary basic science processes needed for the kindergarten child taking the following steps:

- Reviewed researchers and studies concerned with basic science processes.
- Getting acquainted with characteristics of kindergarten children from the books of concern.
- Preparing a preliminary list of the basic science processes the kindergarten child needs.
- The researcher presented list which consists of (4) skills, in its preliminary form as follow: observation (10) items, classification (8 items), measurement (9 items), and prediction (8 items).

These processes were specifically, selected for the following reasons:

- Being suitable for the age group (5 to 6).
- Its simplicity and suitability for the pre-school stage
- Using more than one sense.

The study here agrees with that of Hamdan and Al-Qadi [13] for including observation, classification, and predication but Abdulla's study [14] selected observation, classification, measurement, and prediction, while Saleh's study [26] included observation, classification, prediction. The list was presented to a group of (14) specialist in education, psychology and evaluation and measurement in the universities of Isra, Zarqa Private University, Mutah, Balqa Applied University. In the light of examiners feedback, necessary changes of deletion, amendments, or addition were conducted. Accordingly, the list of skills of basic science process in its final shape became basic one and each of which five sub-skills are affiliated.

**Second: measuring skills of basic science processes**

After the researcher had reviewed education literature and books specialized in education researchers concerned with skills of basic science processed discussed in the studies of Zaytoon [11], Abdulla [14], Qaddah [22], Saleh [26], the researcher designed a test of basic science processes. The test, in its initial form, consisted of (35) activities divided on the four basic processes (observation, classification, measurement, and prediction). The basic skills were limited to four which were presented to specialists for evaluation to check the suitability of questions to the purpose for which they were designed.

In the light of examiners remarks, language adjustments and other changes reaching the suitability of test questions to their goals were also done. At applying the pre and post-test, and deferred tests, questions were read to every individual child for they were not used to exams at this age. They were given a limited time for each question, such a procedure was given to the two groups (experimental and control group). It is worth mentioning that the control group studies the traditional way (national interactive curriculum followed government kindergartens). It was also taught the same topics including the integrated experimental curriculum applied to the experiment group.

**Validity and Reliability**

The test in its preliminary shape to several specialized examiner in kindergarten, educational psychology, measurement and evaluation and Arabic language to test the Validity of the test regarding suitability of questions to basic science processes and to the age of kindergarten children in addition to style. In the light of examiner' remarks, some questions were modified regarding language and relevance to child's age and to the objectives of the test.

The researcher took into consideration examiner remarks deleting repeated questions and reuniting some others. Some examiner found that they didn't conform to children's abilities, therefore, the relevant remarks like repetitions were deleted and the test was redesigned ending up with (20) paragraphs. (Appendix 2), securing the validity of the test. To secure reliability of test paragraphs, the researcher used test and retest which was applied to a pioneer sample to (25) male and female children, extraneous to the study sample in Zarqa's Amineh Bint Al-Arqan government kindergarten. After two weeks, the test was reapplied to the same sample; person correlation coefficient was calculated considering the difference between the first and second applications and the basic science processes besides test total score.

**Table 3**: validity coefficient of basic science process

| Basic Science Process | Coefficient |
|---|---|
| Observation | 0.801 |
| Classification | 0.825 |
| Measurement | 0.725 |
| Prediction | 0.794 |
| Total score | 0.944 |

**Correction of basic science processes.**

To increase the validity and objectivity of correcting answer sheets, the researcher grades them individually and tabulated the result of each question on a separate form designed for the purpose with leaving and mark on the answer sheets to enable the co-corrector of regarding the papers and tabulating the results on a form set for that purpose. After the co-grader was through with his duty, the researcher compared the two corrections in the presence of that co-grader approving the final agreed upon grade with relevance to the model answer to the basic science processes. As for grade calculation, the child was given zero for the wrong answer and are point for every answer that meets specified task and two points wherever he explains the reason correctly and explicitly.

**Guide of Integrated Experience Curriculum**

For the study to achieve its goals, the researcher prepared teacher's book in correlation with integrated experience curriculum. After reviewing education literature on integrated experience curriculum such as: Yosef's book [5], Atef's [6], and the studies based on integrated experience curriculum like that Yosef's [5], Mansour's [7], Al-Mubarak [23], Saleh [26]. The researcher prepared a set of integrated activities designed in a way to argument basic science processes to be applied to children. Such a preparation includes general goals for every activity considering implementation steps

through dividing children into groups and through preparing the needed means tools, activities, and games necessary for implementation, in addition to the time needed and the basic processes to be developed in such activities.

**The principles on which the integrated experience curriculum is based:**

- To what extent do activities suit children's age and the level of their mental development?
- To what extent do they realize the intended objectives?
- To what extend do they meet the child's needs and desires?
- To what extent do they realize joy and amusement in addition to learning?
- Simplicity of language and absence of complexity.
- Clarity of instructions.
- Simplicity of preparation and availability of necessary materials.
- The capability of observation and measurement.

After examining the activity list, arbitration, development, design, and activity production the researcher took into consideration the following:

- Limiting the time needed for activity practice.
- Limiting place of activity and the way children sit.
- Limiting the necessary materials for preparation activity.

To determine the validity of the content of the integrated curriculum, the guide in its preliminary stage was presented to examiner' psychology. They were asked for opinion regarding clarity of the steps of the curriculum and its suitability for kindergarten children (5 to 6) year of age. On the other hand, the opinion about the curriculum role in developing basic science processes was also needed.

After the researcher studied the proposed remarks, and after consulting the supervisor some activities which were considered by examiner unsuitable, they were deleted. The final form of the guide. It consists of 20 activities enjoying logical validity and gaining consensus of 70% from both examiner and expects.

**Study Procedures**

- Reviewing past education studies (these, Arabic and foreign education research concerned curriculum in developing basic science processes.
- Reviewing education literature through on insightful study of the study variables: integrated experience approach and basic science operations.
- The researcher prepared, a list for some of the basic science operation of the topics taught to the experimental group according to the integrated cubiculum.
- The researcher also prepared a teacher's guide for what was taught to the experimental group according to the integrated curriculum.
- The researcher gave a test to measure basic science operation for kindergarten children for validity and reliability.
- An official permission to conduct the study in the schools of Isra University and Zarqa education directorate was obtained.
- Zarqa Hadaiqieh Kindergarten which belongs to the directorate was choose for it was fit for application.
- After the application of curriculum, the post test for the two groups was graded and result were recorded.
- The result was statistically processed, analyzed, and explained.
- In the light of the result the researcher came up with some recommendations.

**RESULTS**

**RQ1**: Are there differences with statistical deference between the means of the after-performance of kindergarten children at the basic science scale (observation, classification, measurement, and predication) attributed to teaching method?

In answering this question, means and standard deviations were calculated; t-test was used to disclose the differences reference between means of post-performance scores of the kindergarten children at the measurement of basic science operations (observation, classification, measurement, and prediction). Attributed to method of teaching shown in table4

**Table 4**: Means and standard deviations and t-test results

| Operation | Group | Number | mean | St. dev | F | t | Sig |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Observation | Experimental | 25 | 1.56 | 0.150 | 47 | 8.354 | *0.00 |
| | Control | 25 | 0.62 | 0.468 | | | |
| classification | Experimental | 25 | 1.54 | 1.191 | 47 | 8.049 | *0.00 |
| | Control | 25 | 0.56 | 0.515 | | | |
| Measurement | Experimental | 25 | 1.56 | 0.281 | 47 | 10.049 | *0.00 |
| | Control | 25 | 0.52 | 0.527 | | | |
| Predication | Experimental | 25 | 1.58 | 0.231 | 47 | 9.850 | *0.00 |
| | Control | 25 | 0.53 | 0.425 | | | |
| Total | Experimental | 25 | 1.56 | 0.167 | 47 | 9.993 | *0.00 |
| | Control | 25 | 0.56 | 0.492 | | | |

Significant at (a≤ 0.05)

Table (4) (t) showed that there were statistical differences at (a≤ 0.05) between the total mean of post-performance of kindergarten children on the scale of basic science operation, attributed to method of teaching in favour of experimental group taught through the integrated experience curriculum. There were also differences with statistical deference in mean of post-performance of kindergarten children at the basic science operations (observation, classification, measurement, and prediction) attributed to teaching method.

**RQ2**: Are there differences with statistical deference between the means of the after-performance of kindergarten children at the basic science scale (observation, classification, measurement, and predication) attributed to gender?

In answering this question: mean and standard deviations were calculated, and t-test was used to detect the differences attributed to gender as presented in the following table 5:

**Table 5**: results of means, standard deviations, and t-test

| Operation | Group | Number | mean | St. dev | F | t | Sig |
|---|---|---|---|---|---|---|---|
| Observation | Male | 30 | 1.17 | 0.621 | 47 | 0.888 | 0.380 |
| | Female | 20 | 1.01 | 0.589 | | | |
| classification | Male | 30 | 1.12 | 0.654 | 47 | 0.785 | 0.437 |
| | Female | 20 | 0.97 | 0.640 | | | |
| Measurement | Male | 30 | 1.11 | 0.622 | 47 | 0.825 | 0.414 |
| | Female | 20 | 0.96 | 0.634 | | | |
| Predication | Male | 30 | 1.10 | 0.643 | 47 | 0.409 | 0.684 |
| | Female | 20 | 1.02 | 0.645 | | | |
| Total | Male | 30 | 1.12 | 0.616 | 47 | 0.745 | 0.460 |
| | Female | 20 | 0.99 | 0.606 | | | |

Significant at (a≤ 0.05)

Results in table (5) showed that there is no statistically differences at (a≤ 0.05) between mean of post-performance related to gender variable (t=0.745) and (Sig = 0.460).

**RQ3**: Are there difference with statistical deference between point average of the consecutive performance scale (observation, classification, measurement, and predication) attributed to teaching method?

To answer this question, means and standard deviations were calculated, and t-test was used to detect the significance of differences between children's grade average of deferred performance at the measurement of basic science operation previously mentioned attributed to methods of teaching. In following table 6

**Table 6**: results of means, standard deviations, and t-test

| Operation | Group | Number | mean | St.dev | F | t | Sig |
|---|---|---|---|---|---|---|---|
| Observation | Experimental | 25 | 1.52 | 0.231 | 47 | 7.882 | *0.00 |
| | Control | 25 | 0.62 | 0.514 | | | |
| classification | Experimental | 25 | 1.44 | 0.277 | 47 | 7.355 | *0.00 |
| | Control | 25 | 0.56 | 0.521 | | | |
| Measurement | Experimental | 25 | 1.61 | 0.398 | 47 | 9.126 | *0.00 |
| | Control | 25 | 0.51 | 0.445 | | | |
| Predication | Experimental | 25 | 1.50 | 0.217 | 47 | 9.873 | *0.00 |
| | Control | 25 | 0.54 | 0.423 | | | |
| Total | Experimental | 25 | 1.52 | 0.192 | 47 | 9.651 | *0.00 |
| | Control | 25 | 0.56 | 0.449 | | | |

*Significant at (a≤ 0.05)

Table (6) presented that there are differences at (a≤ 0.05) between means score of children's deferred performance at the sale of basic science operations attributed to methods of teaching (t = 9.651) and (Sig= 0.00) in favour of the experimental group. There were also statistical differences at (a≤ 0.05) between score means of children's deferred performance of basic science operation (observation, classification, measurement, and prediction). The result also showed that there were statistically differences between means of consecutive performance of kindergarten children at the scale of basic science operation attributed to the method of teaching of this kind of test.

**RQ4**: Are there differences with statistical deference between point average of the consecutive performance of kindergarten children at the basic science scale observation, classification, measurement, and predication) attributed to gender variable?

To answer this question: means and deviation standards and t-test have been calculated in table 7.

**Table 7**: results means and deviation standards and t-test

| Operation | Group | Number | mean | St. dev | F | t | Sig |
|---|---|---|---|---|---|---|---|
| Observation | Male | 30 | 1.15 | 0.94 | 47 | 1.041 | 0.303 |
| | Female | 20 | 0.97 | 0.610 | | | |
| classification | Male | 30 | 1.08 | 0.59 | 47 | 0.941 | 0.351 |
| | Female | 20 | 0.91 | 0.644 | | | |
| Measurement | Male | 30 | 1.08 | 0.615 | 47 | 0.161 | 0.873 |
| | Female | 20 | 1.05 | 0.813 | | | |
| Predication | Male | 30 | 1.10 | 0.560 | 47 | 0.980 | 0.332 |
| | Female | 20 | 0.93 | 0.620 | | | |
| Total | Male | 30 | 1.10 | 0.561 | 47 | 0.792 | 0.432 |

| | | | |
|---|---|---|---|
| Female | 20 | 0.97 | 0.639 |

*Significant at (a≤ 0.05)

Results in table (7) presented no significant differences at (a≤ 0.05) in mean of children's deferred performance based on gender variable. Furthermore, no significant at (a≤ 0.05) in means of children's deferred performance at the basic science operations (observation, classification, measurement, and prediction) attributed to gender variable.

**DISCUSSION**

The current study sought to investigate the efficiency of the integrated experience curriculum in developing basic science operations in kindergarten children of Jordan. The results revealed statistical differences between total mean of post-performance of kindergarten children on the scale of basic science operation, attributed to method of teaching in favour of experimental group taught through the integrated experience curriculum. There were also differences with statistical deference in mean of post-performance of kindergarten children at the basic science operations (observation, classification, measurement, and prediction) attributed to teaching method. And there are no differences at between mean of post-performance related to gender. In additional to, statistical deference between means scores of children's deferred performance at the sale of basic science operations attributed to methods in favour of the experimental group, and statistical differences between score means of children's deferred performance of basic science operation (observation, classification, measurement, and prediction).

The results refer the distinction of members of experimental group to the efficacy of the integrated experience curriculum which strongly affects children as it reduces anxiety regarding study material presented in an interesting manner that attracts the attention of children, thus avoiding distraction motivating them to learn, a way from memorization and traditional methods. The integrated experience utilizes mental operation in the correct manner –mental operation of the experimental group responded positively to learning as the result show. Thus, the integrated activities secure elements of motivation as the language used was easy and suitable for the levels of children.

Because integrated experience is one of the active curricula, it becomes the activity in which the child uses a group of senses to develop basic science operations. Reality might have a role in that as such integrated operations stemmed from the child's environment relating it to the child's senses and mental operations. The nature of the integrated curriculum. The activities the curriculum contained was general with no specify for any of the two sexes. In addition, the curriculum with the attached activities, the use of several method, the equal environment and class conditions provided for males and females, and the mental and age similarity, all facilitated in implementing the integrated curriculum. Such a thing helped children to better deal with the test of basic science operations. Furthermore, the active role of the integrative curriculum regarding its positive impact of developing the scientific operation in the experimental group which wasn't temporary as it lasted are month more after application. The time in which the deferred exam was conducted. Results of this study agrees with results of study of Mansour [7], [5], Abdulla [14] and Al-Qaddah [22].

**Limitation and Recommendation**

The study is limited to the efficacy of integrated experiment curriculum in developing some basic science operations in Jordan kindergarten children. And with the sample of second level kindergarten children of 5-6 years of age. Moreover, to Study application was conducted on Al-Hadaiqieh Co-education kindergarten affiliated with ministry of education. In the light of finding of this study, we might come to the following recommendation and suggestions:

1) Publicizing the integrated curriculum used in this study, in coordination with these ministries of education, to enable children joining public or private kindergartens benefit from it.
2) Adopting the scale of basic science operations used in this study, whose psychometric features were verified, by public and private kindergartens of measure children's basic science operations, in coordination with the ministry of education?
3) Conducting Arabic studies to investigate the kindergarten's child with some basic science operations and other variables like post- academic performance in the primary stage of education.
4) Conducting more research on the efficacy of integrated experience curriculum in developing basic science operation in kindergarten's children.

**REFERENCES**


1. Al-Rimawi, M. O. (2003). In Child Psychology. *Al Shorouk Publishing and Distribution House*. Oman.
2. Botros, B. H. (2007). Development of concepts and scientific skills. *Dar al-maserah*, Oman.
3. Nashwan, Y. (2001). New in Science Education. *Dar Al-Furqan*, Amman.

4. folfuli, H and Al-Ansi, A (2014). The effectiveness of a games-based educational corner in the development of spatial intelligence among kindergartens children in Sana'a. Proceedings of the International Conference on the Humanities: Reality and Hope, *Faculty of Arts and Educational Sciences*, Isra University.
5. Yosef, M. K. (2009). Integrated Educational Experiences for Kindergartens. *University Publishing House*, Cairo.
6. Atef, H. M. (2002). Integrated Activities of the Kindergarten Child, *Arab Thought House*, Cairo.
7. Mansour, M. (2012). The effectiveness of the integrated experience curriculum in the development of some scientific concepts of social linguistic and technical kinetic skills in the kindergarten children of Riyadh. Unpublished master's thesis, Damascus, *Damascus University*.
8. Abu Jalaleh, S. (2001). Accessible curriculum for basic education firsted. *Al-Falah Library for Publishing and Distribution*, Kuwait.
9. Al-Sharbini, F and Tanawi, A. (2001). International entries in the development of educational curricula in light of the challenges of the 21st century, Cairo: Anglo-Egyptian Library.
10. Abu Hajjooj, Y. (2008). Availability of science processes in science books for basic education in Palestine. *Al-Najah University Journal of Human Sciences Research*. 22 (5), 1358-1420.
11. Zaytoon, A. (2008). The extent to which science processes are acquired among students of the basic stage in Jordan and its relationship with the changers of the class and educational achievement. *Drasat educational sciences*.35 (2), 327-392.
12. Al-Seifi, S. (2011). Measuring the processes of science among students of public education in Oman. Unpublished master's letter. *Faculty of Education*. Sultan Qaboos University.
13. Hamdan, S and Al-Qadi, L. (2011). The level of acquisition of science process skills among fourth graders and its relationship to certain variables, *Tishreen University Journal of Research and Scientific Studies*, 33(4), 119 -136.
14. Abdulla, W. (2001). The effectiveness of using an educational bag in the development of basic science processes in kindergarten. Journal of Reading and Knowledge, Egyptian Society for Reading and Knowledge, *Faculty of Education*, Ain Shams University, (7), 137-169.
15. Al-Hawmdeh, M and Al-Odwan, Z. (2009). Kindergarten Curriculum: The Foundations of Early Childhood Development.
16. Abdul Fattah, A. (2003). Kindergarten and Innovation Development Teacher, Alexandria: Alexandria Book Center.
17. Hateeba, N. F. (2009). Kindergarten Curriculum. Dar Almaserah, Amman.
18. Ambu, S and Al-Balushi, S. (2009). Science Teaching Methods. Dar Almaserah.
19. Taiwo, A. (2002). The Effect of Pre-School Education on Academic Performance in Primary School A Case Study of Grade on Pupils in Botswana, *International Journal of Education Development*, 22(2), 168 - 180.
20. Khatabiyeh, A. M. (2008). Science education for all. Dar Almaserah.
21. Ali, W. M. (2005). A structural model for the development of numerical sense and its impact on the achievement of mathematics and mathematical logical intelligence among sixth-grade primary school students. Studies in curricula and teaching methods, Egyptian Association of Curricula and Teaching Methods (108), 49-91.
22. Qaddah, A. (2001). The effectiveness of a proposed program for the development of basic science in a kindergarten child. Unpublished PhD, *Faculty of Education*, Mansoura University.
23. Al-Mubarak, M. (2012). Effectiveness of an integrated activities program in giving kindergarten children between the ages of (5 - 6) years of reception and language expression, unpublished master's thesis, *Damascus University*, Syria.
24. Aljiffarik's, I. (2010). Effects of the Integrated Approach of Teaching English and Social Studies on Achievement in Saudi Private Elementary School. *Journal of Educational & Psychological Science* (11) 4.
25. Liu, J and Elicker, J. (2005). Teacher – Child Interaction in Chinese Kindergartens: An Observational Analysis. *International Journal of Early Years Education*, 13(2), 129-143.
26. Saleh, M. (1988). The impact of using sports activities to develop some basic science processes in preschool children, *Studies in curricula and teaching methods*. (49), 53 – 87.