

Learning Readiness and its Relationship with Academic Achievement among First-Grade Primary School Students

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Abstract:

This study aims to investigate the relationship between learning readiness and academic achievement among first-grade primary school students. The research sample consisted of 32 students (18 males and 14 females) selected through simple random sampling. To achieve the study's objectives, a descriptive-analytical approach was adopted, utilizing two data collection instruments: a school maturity test and an academic achievement test. Following statistical analysis, the findings indicate that academic performance in this stage can be predicted through learning readiness, thereby establishing a significant positive correlation between learning readiness and academic achievement.

Keywords: Learning Readiness, Academic Achievement, School Maturity, First-Grade Primary Student.

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1. INTRODUCTION

Readiness is considered a fundamental concept in educational psychology, referring to an individual's level of preparedness and capacity for performance. This state is not formed randomly; rather, it is constructed through several factors, including intrinsic elements such as maturity, mental abilities, and intelligence, as well as environmental factors related to the individual's cultural and social surroundings.

This concept has become a central focus in the educational process, as the acquisition of knowledge and skills does not occur spontaneously but requires psychological, cognitive, and environmental readiness.

Consequently, the term is now viewed as a prerequisite for the success of the educational process. Historically, the term "readiness" did not appear in educational literature until 1935, while "school readiness" was later introduced in 1973, as noted by Chew in the Developmental and Interpretive Manual for The Lollipop Test (Awad, 2017).

Since then, educational research addressing readiness has expanded, linking it to several variables, most notably learning. Learning is defined as a process of modifying human behavior through experience and practice, as indicated by Al-Tuwaijri et al. (2014). They emphasized that learning is influenced by the individual's internal structure on one hand, and the surrounding environment on the other, alongside factors such as maturity and readiness. Analyzing this definition from an educational perspective reveals that "behavior modification" refers to the

development of mental processes and the acquisition of knowledge, which ultimately translates into what is known as academic achievement.

According to Al-Hamid's (1996) definition, published by the National Office for Distance Education and Training, academic achievement consists of the information a student learns during the study of a specific subject, their understanding of the relationships between these concepts, and their deduction of facts, all of which are reflected in their performance on a standardized test measured by specific grades.

Researchers generally agree that academic achievement is influenced by various factors, with readiness being a significant component. Studies have shown a strong correlation between achievement and variables such as motivation, intelligence, and readiness. In this context, E. C. Deputy conducted a study aimed at predicting the reading achievement of first-grade students through readiness tests, revealing that children with high readiness levels demonstrated higher achievement levels compared to their low-readiness peers (Awad, 2017).

1.1 Research Problem

Based on the aforementioned and the alignment between these two variables (readiness and academic achievement) in previous literature, this descriptive-analytical study was conducted to investigate the nature of the relationship between school maturity as an indicator of readiness and the academic performance of first-grade primary school students. The research problem lies in determining whether a relationship exists

between school maturity and academic achievement among primary school students, specifically in the first grade. Accordingly, the research question is formulated as follows: Is there a statistically significant positive correlation between students' scores on the school maturity test and their scores on the academic achievement test?

1.2 Research Hypotheses

The study's hypothesis is as follows:

There is a statistically significant positive correlation between students' scores on the school maturity test and their scores on the academic achievement test.

1.3 Research Objectives

- To identify the relationship between learning readiness and academic achievement and its impact on the acquisition of skills and knowledge among first-grade primary school students.
- To evaluate the effectiveness of the school maturity test in assessing learning readiness among first-grade primary school students.
- To predict the cognitive level of first-grade students through their performance in various activities, such as establishing relationships, vocabulary comprehension, and distinguishing similarities and differences, in both the achievement test and the school maturity test.

1.4 Research Methodology

1.4.1 Research Design

Since this study investigates the relationship between



learning readiness and academic achievement, the descriptive-analytical method was selected as the most appropriate approach, as it allows for the description of relationships between variables and their quantitative expression.

1.4.2 Scope of the Study

- Spatial Scope:** The study was conducted at "Bouhouch Mohamed" Primary School in the municipality of El Harrouch, Skikda Province, specifically in the 460-housing district. The school was established in 1986 and opened in 1987.
- Temporal Scope:** The field study was conducted from December 2016 to April 2017.

1.4.3 Research Sample

A simple random sampling method was employed, given that the original study population was small enough for the lottery method to be applied. The sample consisted of 32 male and female students, representing approximately 49% of the original population of 66. Their ages ranged from 5 years and 9 months to 6 years and 8 months. The characteristics of the sample are detailed in the following tables:

Table 1: Distribution of Sample Members by Gender

	Frequency	Percentage
Males	18	56%
Females	14	44%
Total	32	100%

Note: Based on the data, the proportion of females was 44%, while the proportion of males was 56%.

1.4.4 Research Instruments

The study utilized the "School Maturity Test," adapted for the Algerian environment in its original version, in addition to an "Academic Achievement Test" constructed according to the standards and conditions of achievement testing (specification table) for the first-grade primary curriculum.

School Maturity Test

This test aims to provide a preliminary assessment of children's intellectual readiness. Its importance lies in its ability to predict a child's success in their academic path, particularly in the area of comprehension, which is one of the most critical acquisitions at this stage. The core components are as follows:

Table 2: Content of the School Maturity Test by Sub-tests

	Subtests	Number of Items
Overall Test	Subtest 1: Differences or Similarities	24 items
	Subtest 2: Vocabulary or Information	32 items
	Subtest 3: Symbols	24 items
Total	3 subtests	80 items



In each sub-test, the examiner provides illustrative examples before proceeding to the main items, ensuring that the child has fully understood the instructions. Regarding the scoring method, one point is awarded for each correct answer, while zero is given for incorrect or omitted responses. The raw scores are then converted using calibration tables to categorize children according to their school maturity levels (Devillarty, 1971, p. 4).

As the test is adapted to the Algerian environment, as stated in its reference manual, we relied on the validity and reliability measures established by researcher Aisha Bouziani. The researcher applied the test to a sample of 100 first-grade students from various primary schools in eastern Algiers. The reliability coefficient was estimated at 0.79, while the validity coefficient reached 0.89. These results indicate that the school maturity test is stable, requires no modification of items, and possesses high levels of validity and objectivity, making it a reliable instrument (Bouziani, 2009, p. 161).

Academic Achievement Test

An achievement test was developed covering all lessons taught to students according to the first-grade primary curriculum across the three trimesters. It encompasses the following subjects: Arabic Language, Mathematics, Scientific Education, Civic Education, and Islamic Education. The achievement test consists of five sub-tests, each scored out of 10. The final grade is the sum of scores across all subjects, totaling 50 points.

2. Learning Readiness

2.1 Definition

Definitions of learning readiness vary across studies; however, there is a general consensus that it refers to the capacity or predisposition to acquire new skills or knowledge. Key conceptualizations include:

- Suleiman Abdel-Wahid: The individual's ability to learn easily and quickly to reach a certain level of skill in a specific field (Suleiman & Youssef, 2010, p. 119).
- Aziz Samara et al.: The latent capacity of an individual to learn quickly and easily and to achieve a high level of proficiency in a particular domain (Aziz, Al-Nimr, & Hisham, 1999, p. 47).
- Rountree (1981): A state of physical and mental preparedness before commencing the learning of a skill. This readiness depends not only on prior learning but also on sufficient maturity and appropriate training.
- Gagné: The internal capabilities available to the learner at any stage of learning a specific task (e.g., learning to read), which can be measured directly through observable performance (Al-Bakri, 2013, p. 168).

Synthesizing these definitions, learning readiness can be defined as an individual's physiological and psychological preparedness for performance, which is subsequently manifested in quantifiable or qualitative results observable across different developmental stages.

2.2 Factors Influencing Learning Readiness

While scholars agree on the concept of readiness, opinions vary regarding the factors involved and their degree of influence. There is a near-consensus that the primary factors are:

- Maturity:** Natural, spontaneous growth processes common to all individuals, resulting in regular behavioral changes independent of training or experience. It is genetically determined (Kawafha, 2017, p. 128).
- Previous Experience:** Amal Al-Bakri defines this as the total interaction between the individual and the environment. Providing a child with prior experience regarding a specific topic enhances their readiness for learning (Al-Bakri, 2012, p. 169).
- Additional Factors:** Other scholars cite heredity, environment, age, and biological agents as contributing factors.

2.3 Assessment of Learning Readiness

Learning readiness is evaluated through several methods:

1.**Readiness Tests:** Standardized tests such as the School Maturity Test, the Wesley Test, and the Atiya Mahmoud Mansour Test (Kawafha, 2007). The General Aptitude Test Battery (GATB) is also widely used for vocational guidance and testing (Muqaddam, 1993, p. 200).

2.**Observation:** A vital tool for data collection, allowing teachers to monitor children in learning situations, observe their behaviors and responses, and identify normal versus disordered patterns.

3.Questioning and Discussion: Teachers can gauge readiness by asking task-related questions, which helps predict performance levels (Kawafha, 2017, p. 131).

4.Intelligence Tests: These are crucial as intelligence is a prerequisite for effective learning. They measure general intelligence and cognitive aspects like concentration, memory, and attention span. They also assist in grouping students and understanding their emotional personalities (Abu Al-Ma'al, 2005, p. 212).

3. Academic Achievement

3.1 Definition

•Linguistic Definition: According to Ibn Manzur (1997), "achievement" (Tahsil) refers to what remains and is established after everything else is gone, often used in the context of calculations and actions (Bin Mu'id, 1432 AH, p. 71).

•Technical Definition:

Good (1973): Actual knowledge or skill attained in school subjects, measured by teacher-assigned grades (Lamaan, 2013, p. 23).

Morgan (1966): Accomplishment achieved in a test of knowledge or skill.

Shaplin (1971): A specific level of achievement or proficiency in a skill or body of information.

3.2 Factors Influencing Academic Achievement

Numerous factors both positive and negative—affect academic achievement, as reflected in the diversity of scholars’



perspectives and researchers' studies. Most researchers agree that academic performance is contingent upon the interaction among these factors, which can be classified into psychological factors, such as intelligence, motivation, anxiety, and others, and external factors, such as economic level, for example.

Mustafa Samara (1995), in his study entitled "The Impact of Socioeconomic, Cultural, and School Factors on the Mathematics Achievement of Tenth-Grade Students in UNRWA Schools in Irbid Governorate," emphasized that two main factors influence academic achievement: psychological factors and demographic factors (Al-Salkhi, 2013, p. 25).

3.2.1 Psychological Factors:

These are internal factors related to the learner and include intelligence, achievement motivation, personality, physical health, and others.

3.2.2 Demographic Factors:

These are external factors surrounding the learner, represented by the family environment, cultural and economic level, and the school.

It should be noted that these factors, along with others not mentioned here, as indicated by numerous studies conducted by researchers and scholars, confirm the existence of a relationship between these factors and academic achievement, whether positive or negative. However, it is important to clarify that two critical variables interact with all other factors: gender and age. Academic achievement, when examined in relation to any variable economic, cultural, or cognitive is inevitably influenced

by gender and age. Research consistently shows variation in achievement levels between males and females, as well as across different age groups, as evidenced in studies addressing cognitive abilities and their impact on achievement among both genders and similar related research.

3.3 Measurement of Academic Achievement

Similar to many cognitive and performance-based abilities, academic achievement is subject to measurement and evaluation, given that teachers' assessment of learners constitutes one of the most important topics in educational measurement. Evaluation is no longer limited, as it once was, to merely measuring what has been acquired in a particular subject through tests alone. Rather, contemporary evaluation relies on a variety of methods and techniques that assess, in addition to learners' acquired knowledge, their ideas, information, values, and attitudes, which are later reflected in learners' behavior.

These methods and techniques can be outlined as follows. Mansour Hussein (1976) indicated that the methods and tools used to assess academic achievement can be classified into three main categories:

1. Written methods, including essay and objective tests.
2. Oral methods.
3. Observation methods and the collection of information about students.

(Mansour & Muhammad, 1976, p. 202)

Meanwhile, Magdy Aziz Ibrahim (2004) added homework assignments as a means of measuring academic achievement, alongside practical tests, oral questions, and



achievement tests. He stated:

“It is important to give due attention to methods for measuring students’ achievement levels, as measurement—despite its obligatory nature—is a continuous process and represents the final step in the instructional sequence as a system or process. The issue of evaluating students’ achievement extends beyond a discussion limited to oral questions, written achievement tests, practical tests, and homework assignments.”

(Magdy, 2004, p. 183)

4. Empirical Study and Results

4.1 Descriptive Analysis

The results and data obtained through the administration of the School Maturity Test and the Academic Achievement Test have been described and analyzed. This analysis relies on descriptive statistics, using the arithmetic mean and standard deviation to determine the degree of dispersion among the sample members’ scores on both tests. In addition, frequency distributions and percentages were employed to clarify the levels of performance on the achievement test and the school maturity test to which the sample members belong. All results are presented through statistical tables and bar charts.

4.1.1 Presentation of Academic Achievement Test Results

Presentation of Achievement Test Results Using the Mean

The arithmetic mean of the total scores on the academic achievement test for the sample members was calculated, along with the standard deviation. The results were as follows:

Table 3: Arithmetic Mean and Standard Deviation of Academic Achievement Test Scores for the Sample

	Sample	Minimum Score	Maximum Score	Mean	Standard Deviation
Academic Achievement Test Score	32	11.75	47.75	33.01	9.14

The results presented in Table (3) indicate an arithmetic mean of 33.01, which falls within the moderate level, between a minimum score of 11.75 and a maximum score of 47.75. The standard deviation was 9.14, indicating a low degree of dispersion among the scores of the sample as a whole. The smaller the value of the standard deviation, the lower the dispersion and the greater the homogeneity of scores.

Presentation of Achievement Test Results Using Frequencies

Regarding the frequency distribution, the previously defined academic achievement levels presented in the methodology chapter were used, namely: low, moderate, and high levels. These levels were converted into frequencies and percentages, yielding the following results:



Figure 1: Bar Chart Representing Academic Achievement Levels of the Sample

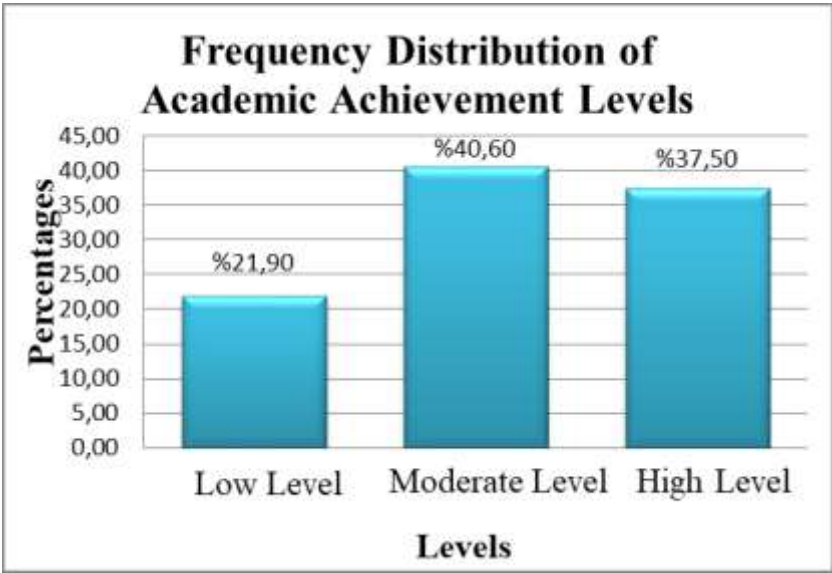


Figure (1) shows that the majority of the sample members fall within the moderate level of academic achievement, with a percentage of 40.6%, followed by the high level, representing 37.5% of the sample. The low level accounted for 21.9%, which is the lowest percentage compared to the other two levels.

Thus, it can be stated that approximately half of the sample (40.6%) demonstrated moderate performance on the achievement test, while the remaining half exhibited either high (37.5%) or low (21.9%) performance. This indicates that the overall academic achievement level of the sample tends to be moderate.

4.1.2 Presentation of School Maturity Test Results

Presentation of School Maturity Test Results Using the Mean

Table 4: Arithmetic Mean and Standard Deviation of School Maturity Test Scores for the Sample

	Sample	Minimum Score	Maximum Score	Mean	Standard Deviation
School Maturity Test Score	32	43.00	69.00	52.87	8.57

Based on the results shown in Table (4), a slight dispersion among the sample members’ scores on the school maturity test can be observed. The standard deviation was 8.57, while the arithmetic mean reached 52.87, ranging between a minimum score of 34.00 and a maximum score of 69.00. These results correspond to a moderate level of readiness for learning.

Presentation of School Maturity Test Results Using Frequencies

As was done in the analysis of the academic achievement test results using frequency distributions, the same method was applied to analyze the school maturity test results. Predefined levels of learning readiness were used to determine the frequencies and percentages representing the sample members at each level. The results were as follows:

Figure 2: Bar Chart Representing Levels of Learning Readiness Among the Sample

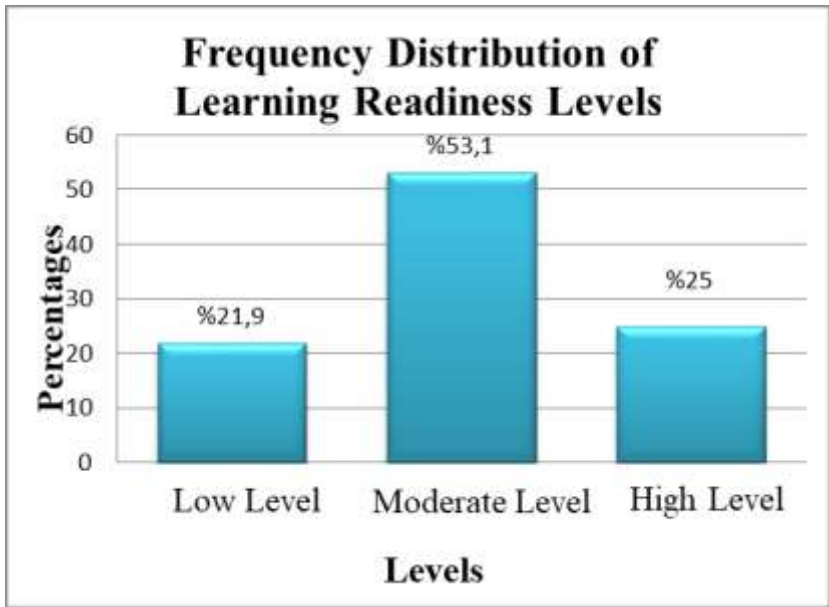


Figure (2) indicates that the high readiness level represents 25% of the sample, which is relatively low compared to the moderate level, which includes 53.1% of the sample. The low readiness level represents 21.9%. Accordingly, it can be concluded that more than half of the sample members fall within the moderate level of readiness for learning, while low performance is represented by only a small proportion, similar to the findings of the academic achievement test.

4.2 Discussion of Study Results

In this section, the results are presented and analyzed in relation to the main question, which is formulated as follows:

Is there a statistically significant positive correlation between

students’ scores on the school maturity test and their scores on the academic achievement test?

To examine this question, Pearson’s correlation coefficient was used to measure the relationship between the two variables academic achievement scores and school maturity scores at a significance level of 0.01. The results were as follows:

Table 5: Correlation Between Students’ Scores on the School Maturity Test and the Academic Achievement Test

Statistical Variables	Sample	Pearson Correlation Coefficient	Significance Level	Significance
Hypothesis				
There is a relationship between Academic Achievement Score and Learning Readiness Score	32	**0,901	0,01	Significant

The results shown in Table (5) reveal a correlation coefficient of 0.901, indicating a very strong positive correlation at the 0.01 significance level between first-grade students’ academic achievement scores and their school maturity scores. This finding supports the validity of the proposed hypothesis. Accordingly, it can be concluded that the higher the readiness for learning, the better the academic performance.

This conclusion is further supported by the analytical presentation of the frequency distributions for both tests. Most of

the sample members demonstrated moderate to high performance on the academic achievement test, while low performance was observed in only a small number of students. The same pattern was observed in the results of the school maturity test, confirming that students with higher readiness for learning tend to exhibit better academic achievement. This finding allows us to assert that academic performance can be predicted based on students' level of readiness for learning.

The results of the present study are consistent with those of Manning (1992), whose study aimed to predict the academic performance of first-year university students based on their high school GPA and their scores on the ACT readiness test ¹. The

¹ American College Testing (ACT) Program: The American College Testing program, commonly referred to as ACT, is administered by a non-profit educational organization whose primary objective is to provide universities with information about students seeking admission. In addition to general applicant data, the program reports students' scores on a battery of standardized tests developed by the organization to measure the acquisition of fundamental academic skills. The ACT organization began its operations in 1959, in response to the growing demand for higher education.

Historically, the ACT examination has consisted of four subject tests: English, Mathematics, Reading, and Science. In February 2005, an optional writing test was added to the ACT assessment. The ACT is widely accepted by all four-year colleges and universities in the United States of America (Al-Alam Newspaper, Algeria, "University Admission Aptitude Test," Part 2, www.mondeadm.com, retrieved March 22, 2017).

findings indicated a significant correlation between students' high school GPA and their readiness test scores, showing that students with higher secondary school averages obtained higher scores on the readiness test (Ben Mu'ayd, 1432 AH, p. 78).

The results also align with the study conducted by Fawqiya Abdel Fattah (1999), which examined the predictive validity of readiness tests in determining academic achievement levels among learners. The study found a statistically significant correlation between academic performance and performance on readiness tests.

These findings further reinforce the theoretical framework presented earlier regarding the importance of readiness for learning in the acquisition of knowledge and skills and its role in enhancing students' academic achievement. Abdel Fattah (1999) emphasized that readiness represents the starting point of learning and, in measurement for predictive purposes, refers to the extent to which future performance can be anticipated in new learning situations.

5. Conclusion

In conclusion, this study demonstrates that readiness for learning is a criterion through which children's academic achievement can be predicted, and through which the quality of their future acquisition of knowledge and experiences can be assessed. Although academic achievement has been associated with numerous important variables in previous studies, its relationship with readiness for learning has attracted particular interest in educational and psychological research. As a result, various tests and scales have been developed and standardized to measure readiness, as it represents a fundamental component in

the construction of children's learning. Adequate readiness is a strong indicator of positive academic performance.

The importance of readiness lies in the fact that it begins in early childhood, influenced by genetic and hereditary factors, as well as maturation and prior experiences, and continues to develop throughout the individual's learning journey. In addition to the numerous studies addressing this topic, the present study contributes further evidence confirming the existence of a positive, statistically significant correlation between readiness for learning and students' academic achievement, as well as the predictive capacity of readiness regarding achievement quality. Based on these findings, several educational and psychological recommendations are proposed, as outlined below:

Recommendations and Suggestions

- Greater attention should be given to primary school students from both psychological and educational perspectives by teachers, educational specialists, and psychologists, with deeper exploration of their characteristics, needs, and developmental requirements to ensure effective and meaningful learning.
- Parents should intensify efforts to prepare their children for the school environment, closely monitor their early learning steps, and provide support and participation before and after school entry.
- Researchers interested in continuing studies on this topic may consider additional variables such as gender and type of educational institution (public vs. private).

- Alternative readiness tests may be applied instead of the School Maturity Test, such as general aptitude batteries or differential aptitude batteries, using different samples (e.g., adolescents or adults) and different contexts to predict general or academic performance.
- The concept of predicting academic performance or assessing cognitive achievement levels may also be applied to special education populations, such as gifted and talented individuals, individuals with intellectual disabilities, hearing impairments, visual impairments, physical disabilities, autism spectrum disorder, and learning difficulties, among others.

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