Article

The Impact of Digital Environment vs. Traditional Method on Literacy Skills; Reading and Writing of Emirati Fourth Graders

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Abstract: This study aimed to determine the extent to which fourth-grade students in the United Arab Emirates (UAE) are able to develop their reading comprehension and creative writing abilities. The study used a quasi-experimental approach to achieve the study objectives, and the sample included (120) male and female students, who were divided equally into two groups: a control group and an experimental group. As a result of the differences observed between the tribal and remote measurements, favoring the dimensional measurements of the experimental group, the results of the study indicated that the use of digital learning platforms (Teams, platform LMS, Nahla and Nahil) led to an improvement in the students' levels of achievement in reading and writing. The results showed statistically significant differences in the students' performance in literacy skills, reading and writing, between students learning via digital environment and those learning using traditional methods, with these differences favoring the digital environment. It is recommended that students' needs and learning styles be met by shifting towards a digital environment, but gradually and cautiously.

Keywords: reading skills; creative written expression skills; digital learning

1. Introduction

1.1. Overview

One of the key pillars supporting the advancement and development of societies is the expansion of the fields of teaching and learning, improving the standard of the teaching–learning process. Students have a interest in learning in the manner in which the teachers teach, such that the knowledge, information, and skills they receive are appropriate to their abilities and preferences, meet their needs, and take into account the individual differences between students.

This study is concerned with literacy skills, which are synonymous with success not only at school, but also in life. Despite the enormous significance of literacy skills in the field of language teaching and learning, students' comprehension abilities still present a challenge in all school subjects [1].

In fact, literacy skills—reading and writing—are essential for learning in the early stages, since they are the key to knowledge and open avenues for learning all subjects. In addition, mastering literacy skills indicates success not only at school, but also in life. This study is an attempt to shed some light on digital literacy, which has become an integral factor in our learning and lifestyle, especially after the COVID-19 epidemic, which increased the gap in literacy skills and the opportunities to digitize learning [1].

Reading skills must be developed in order to prepare students to be lifelong learners. As Alexander [2] stated, reading is more important nowadays than it ever has been, as it is vital to being an informed citizen, to succeed in one's career, and to achieve personal fulfillment.

Digital technology increases the need to read, as there is greater access to text than ever, with more specialized magazines, more books published, more newspapers, and more articles read on the Internet. This means that reading had become more important even before the boost in technological advancements that can be used to enhance reading.

Reading is one of the most essential skills, and is the starting point from which individuals learn about everything around them. Its significance stems from its enabling learning at school and throughout life. Reading empowers beginners to understand texts, images, and their messages, to deepen their knowledge about values, beliefs, and practices, ensuring that these will be transferred to the next generation, and to connect previous experiences with new learning [3,4].

Early students' literacy proficiency is very important for students, ensuring their success not only at school, but also in life. This idea was confirmed by Kim et al. [5], who stated that learners who could not develop the basic reading skills before grade 4 would not be able to meet the minimum required literacy standards beyond this grade. Students' inability to show improvements in fourth-grade reading proficiency has become a cause for concern globally and locally [6,7].

According to the Progress in International Reading Literacy Study (PIRLS) 2016, Emirati fourth graders were lagging behind the internal benchmark by 68 points [8]. As far as I am concerned as an instructional leader, the current state may get worse due to the loss of learning during the three-year COVID-19 pandemic, with consequences for the natural growth circumstances of children, as well as their achievement and progress in literacy.

There are some factors than help in developing reading skills and writing skills as well. For example, reading success of learners involves teachers having positive attitudes towards students' positive academic beliefs, motivation, and performance. This can be achieved through a nurturing learning environment set in place and creating a safe learning environment for students. Consequently, they are able to learn to read without feeling embarrassed or feeling scared of not doing well [9].

Such factors were confirmed by Hughes [10] who stated, "*Students who enjoy a close and supportive relationship with a teacher are more engaged in that they work harder in the classroom, persevere in the face of difficulties, accept teacher direction and criticism, cope better with stress, and attend more to the teacher*" (p. 41). Torres [9] emphasized the importance of integrating components of reading—phonemic awareness, phonics, fluency, vocabulary, and reading comprehension—that enable students to have a better chance of learning to read.

In addition to the utilization of an effective reading program, other factors contribute to students' academic achievement in reading, like motivation and accountability, as well as spreading the culture of reading. Abuhattab [1] stated that acquiring strategies for reading would be beneficial to enhancing literacy skills. Additionally, there are other factors that impact reading skills, like home-related factors affecting the learners' reading comprehension, where the reading comprehension skills of learners who did not read at home or school were affected. Additionally, learner-related factors such as prior knowledge, understanding, and motivation, if low, hinder the reading comprehension skills of the students [9].

As a mediator in the context of a situation, the teacher must have extensive knowledge of teaching strategies, methods, and techniques, and be able to invest and employ them as intended in order to achieve the goals of the teaching–learning process, including changing the behavior of learners and giving them the desired knowledge, skills, attitudes, and values, making it possible for the educational–learning process to be fun and engaging, appropriate for students' abilities, and closely related to their needs, tendencies, desires, and future goals [11].

Nowadays, teachers design, evaluate and guide the educational process, rather than just serving as a transmitter and communicator of information. Teachers need to be aware of this change in light of scientific and technological advancements that have altered the educational process, resulting in the use of contemporary terminology and trends. These changes have helped learners transition from their usual roles as recipients of knowledge to researchers and discoverers thereof [12].

Since there is a growing need for teachers to use techniques, tools, and strategies that encourage students to think critically, conduct research, take responsibility for their learning, and pick up new skills, a significant gap has arisen between the educational and learning needs of the students and the ability of their teachers to keep up with rapid change. The roles of teachers should be flexible enough to adapt to scientific advancements, which will change how subjects are taught and how learners are interacted with in order to achieve success in educational situations and accomplish their educational objectives [13].

Therefore, the use of digital learning in teaching is necessary, and is congruent with the technological progress and the tremendous amount of development that surrounds us in all aspects of life. The importance of digital learning lies in the fact that it helps students with social communication, acting as a tool to enhance their motivation towards learning, their technological literacy, and the development of aspects of thinking, thus creating innovative students through the availability of applications to learn from [14].

Digital learning employs an integrated methodology that is based on the use of technology in order to bring positive change to traditional learning methodologies, to create a stimulating environment in which to develop intellectual culture, and to allow effective communication between different elements of the educational process, enabling them to be successfully integrated into the digital age, with this latter representing one of its most notable features [15].

It Is imperative to pay attention to language skills, because mastering these fundamental abilities is the aim when learning Arabic. Language skills include listening, speaking, reading, and writing. The relationships among them are organic and mutually reinforcing, and their connections overlap. Proficiency with one skill is reflected in the others, and its forms are present in all of the other skills. Therefore, the teaching of these skills must be undertaken in an integrated manner, so that no emphasis is placed on one skill to the detriment of the others [16].

It is important to recognize the connection between reading and writing. Reading is useless without a good written expression of the content of the linguistic message, which requires a mastery of style and attention to the clarity and form of the expression. Writing also requires understanding and conscious reading, because it is based on the analysis, critique and evaluation of what the reader has read, in order to subsequently write it in an appropriate fashion [17].

On the basis of the information above, reading and writing can be seen to be very important in the lives of both individuals and society, because they are used in so many different fields. Because of the explosion of knowledge in the current era, it is now essential for individuals to be familiar with recent knowledge and information so as to be aware of everything that is happening around them. Writing is also indispensable, as it is the medium through which individuals express themselves.

1.2. Statement of the Problem

It has been acknowledged that early-stage students experience some gaps in literacy skills—reading and writing—and filling this gap is a vital necessity.

According to the Progress in International Reading Literacy Study (PIRLS) 2016, Emirati fourth graders were lagging behind the internal benchmark by 68 [8]. As far as I am concerned as an instructional leader, the current state may get worse due to the loss of learning during the three-year COVID-19 pandemic, with consequences for the natural growth circumstances of children, as well as their achievement and progress in literacy.

Emirati fourth graders are supposed to learn how to think deeply about and make connections within new material and to be able to grasp more complex concepts across all subjects. They are also expected to write with clarity and flow, and with a structure like that of traditional pieces of writing. From grade 4 onwards, students are supposed to learn to think deeply about the concepts they are taught, as well as being encouraged to write in a deeper way, as well. However, students experience serious difficulties with respect to literacy skills. For example, O'Sullivan [18] stated, "*Reading problem is often seen as rooted in*

negative prior learning experiences from school in the UAE". Another researcher confirmed the students' poor proficiency, clarifying that *"The school graduates' English reading abilities are extremely poor"*, also adding that *"many Arab Gulf students have a significant 'deficit' in their English language reading skills"* [19].

It is necessary for educators to work and strive to bring students to a stage of excellence in reading, and this cannot be achieved other than by developing their reading skills and creative written expression. Learning reading skills and creative written expression suffers from significant shortcomings that can be observed among the students. The issue of weak reading and writing skills among learners of Arabic has developed into a phenomenon that worries educators. This has since developed into a problem, with the source of complaints no longer being restricted to those involved in education-related issues or who work in the field, and the damage caused by this phenomenon has existed for a very long time. One of the most obvious examples of this weakness is in homework, in which the students are required to produce writing themselves; as well as declining proficiency in creative writing in particular, students exhibit an inability to keep up with their homework overall [20,21].

Researchers working in the field of educating and training students with respect to language skills have, on the basis of their experience in education, and of previous research and studies highlighting the need to pay attention to language skills and develop them through digital and e-learning platforms, noticed a real defect in those skills, whether based on expression in creating writing activities or with respect to speaking skill, and even in other language skills such as listening to dictation from others; therefore, it is necessary for researchers to work to unify the different opinions in the field of education in order to be able to access the benefit of different platforms with the aim of achieving both educational goals and linguistic skills and capabilities.

On the basis of the foregoing, the study problem is defined in the context of research on the effectiveness of digital learning platforms in the development of reading skills and creative written expression for fourth-grade students in the United Arab Emirates (UAE).

1.3. Study Question

Does the digital learning platform method have an impact on reading and writing?

1.4. Purpose of the Study

The purpose of this study is to measure the effectiveness of digital learning platforms (Teams, platform LMS, Nahla and Nahil) in the development of reading skills and creative written expression among fourth-grade students in the UAE. Accordingly, the objectives of the study are:

- To determine the necessary reading skills for fourth-grade students in the third cycle of schools in the UAE.
- To determine the creative expression skills of fourth-grade students in the third cycle of schools in the UAE.
- To reveal the effectiveness of the digital learning platform strategy for the development of reading skills and creative written expression in the United Arab Emirates.

1.5. Significance of This Study

The importance of this study is represented in the following:

Theoretical Significance:

The significance of this study lies in the contribution it will make to the literature in the area of digital learning platforms and their importance and role in developing reading and writing skills among elementary students, especially in light of the shortage of related studies in the Arab world. Moreover, this study highlights the rapid action taken by the UAE with the aim of keeping abreast of the latest technologies used in education, including digital learning platforms, due to the important role they played in the learning–teaching process during the COVID-19 pandemic.

Practical Significance:

The results of this study will clearly and truly contribute to helping teachers identify the best methods for supporting the teaching and learning process and enabling students to achieve different skills and capabilities.

The results of this study will clearly and truly contribute to assisting decision makers and curriculum developers in including language skills that are compatible with digital platforms and which make it easier for teachers to apply and use them as part of the teaching and learning process, thus providing teachers with procedures for using digital learning platforms to teach reading skills and creative expression to fourth-grade students.

2. Literature Review

2.1. Theoretical Framework

The theoretical framework for this study is shaped by what is known as new literacy, which has resulted in the development of digital tools that have been widely used in the field of education. This has crystalized the notion of there being multiple literacies that vary according to time, place, and the power of culture.

Street [22] stated that the concept of multiple literacies makes a distinction between "autonomous" and "ideological" models of literacy, and later he developed a distinction between literacy events and literacy practices.

This research is guided by this theory, which is considered the theoretical perspective of smart digital technology. In response to dramatic shifts towards smart technology, literacy is in need of redefinition. Leong [23] observed that there had been so many developments in literacy in such a short period of time. In addition, there had been a shift from printed text to digital screens or text. The form and function of literacy have changed. Chamcharatsri [24] stated that literacy was not static print in a text; it had become more dynamic and interactive in the form of digital text. The "New Literacies" are based on basic aspects of literacy, including word recognition, comprehension, inference and reasoning. The New Literacies model includes multimodal literacies in digital environments. Many researchers have responded to this theoretical framework and adapted well-known previous strategies to forge pathways into digital reading comprehension environments [25]. New Literacy serves as a theoretical framework to explain any of the results emerging from this study as an outcome of reading and writing via digital texts.

Another theoretical model is the technology acceptance model TAM [26]. TAM posits that there are two factors that determine whether a digital system will be accepted by its users: (1) perceived usefulness, and (2) perceived ease of use. The key feature of this model is its emphasis on the perceptions of the user. This model reflects the fact that students are digital native, and are addicted to technology that can be used as a good tool for enhancing their reading skills [27].

2.2. Studies about Digital Environments

The theme of the study stems from two major perspectives: challenges faced by students with respect to literacy; and students' addiction to and strong desire to use digital devices. Thus, tablets, which are the tools they are fond of, can be exploited in order to approach their literacy difficulties, as confirmed by Abuhattab [1].

Instructional digital technology has some advantages with respect to enhancing reading and writing in the context of both EFL and ESL. For instance, Williams [28] stated that using technology has positive effects, enhancing the literacy skill of the students. In addition, Bennett [29] confirmed that digital technology is advantageous, due to its interactivity and accessibility, thus enriching instructional resources that enable students to enhance their literacy skills.

In the UAE context, Patronis [30] stated that the iPad could help Emirati students in Dubai in their reading and writing performance. In the same context, another study carried out by Abuhattab [1] exploring the impact of tablet digital texts as compared to printed texts on reading achievement, reading strategies, and reading motivation among seventh-grade

studens. The results of the study showed statistically significant differences in the reading achievements, reading strategies and reading motivation between the students who were using tablet digital texts and their counterparts using printed text, favoring the use of tablet digital texts.

A research study was conducted in Calhoun County High School in Michigan by Jones et al. [25] who examined the effects of Merit Reading Software on reading. The students in both groups read the same texts, but the treatment group used the software, while the control group carried out similar work using printed texts. The results showed significant differences in the reading scores of the students, favoring the students using the software reading program. They concluded that the use of digital texts could improve reading comprehension.

In fact, the technology may impact students' motivation. Researchers such as Ciampa [31] have reported that the use of digital eBooks increases students' reading motivation among general and struggling readers. He added that students' interaction with digital eBooks increased their interest in and engagement with reading.

On the other hand, another study in the US context carried out by Collins [32] found that technology was not able to completely replace traditional ways of reading and writing. In order to use technology to its fullest potential, students must have basic reading and writing skills that can only be afforded through traditional practice. Moreover, Wells [33] carried out a study exploring the effect of electronic books on the reading comprehension of middle- and high-school students, finding no statistically significant differences in reading comprehension level as a function of book format between students reading digital texts and students reading printed texts.

Distance education uses the printed word as well as modern means of communication such as television stations, satellites, optical fibers, telephone lines and the Internet to provide scientific material over long distances, and require neither a traditional classroom nor a teacher to manage it, so that education and training programs can be transferred to students, teachers and others in remote locations [34].

Distance education is seen as a method of self-directed and continuous learning in which the learner is distant from their teacher and bears the responsibility of learning using printed and non-printed educational materials prepared to suit the nature of self-directed learning as well as the different abilities of learners and their different speeds of learning, transmitted to them via different technological tools and means. It can be accessed by anyone who desires to do so, regardless of age or qualification [35].

There is a more profound and far-reaching effect related to the contribution of this modern integrated technology in creating a new environment for distance learning, an environment that provides distinct possibilities and allows students to interact with the educational curricula, controlling the direction of the process itself in a significant way, so that the learner is the focus of the educational process and the teacher is just a guide or an observer, while measures of success shift from being the ability to store and retrieve information towards that which is the most important and comprehensive: the acquisition of skills and the ability to learn, comprehend, think soundly, analyze, deduce, and innovate [35].

Some distance learning systems in developed countries use satellite television broadcasting to transmit their programs to learners in individual or group locations, some Teams taking on an advanced form of educational technology called the video conference. The students of the program are grouped in certain locations according to a pre-program, such that the lesson is presented in a main location by specialized professors who are seen by the learners in their on-screen locations and engage in dialogue with them and members of other sites as if they were in a face-to-face conference. There is no doubt that this technological pattern is of great benefit, as it compensates for several disadvantages in the distance education system, reducing the isolation of the learners and compensating for their lack of opportunity to communicate with their professors and fellow learners. With steady advances in communication technology, distance learning in recent years has come to be

based on a flexible model, incorporating interactive multimedia that provides the storage of messages on the world wide web, as is available in many educational systems [14].

2.3. Digital Learning Platforms in the UAE

Teams: Microsoft Teams is a unified communication and collaboration platform that combines continuous workplace chatting, video meetings, file storage (including file collaboration), and application integration [36].

Learning Management System: A system for managing, recording, and delivering educational and information content that allows teachers to monitor student progress and assess the effectiveness of their lessons. It is one of the contemporary tools for distance learning, and students can use the platform to access assignments and tests using their school email and password.

Nahla and Nahil platform: The first Arabic-speaking educational and entertainment platform, Nahla and Nahil, targets kids between the ages of 4 and 11 years. The Nahla and Nahil platform was named the most outstanding educational resource in the 2019 GESS Awards. Teachers and Arabic language experts created the Nahla and Nahil platform to give students access to a variety of resources that are appropriate to their skill level as they advance in reading, understanding, and comprehension of the Arabic language [37].

A rise in the effectiveness of distance learning programs and the development of new, more potent approaches can both be attributed to the ongoing development of various technologies. It is common knowledge that developing nations' educational systems have flaws and issues. Because of this, distance learning, particularly when it is part of a multi-channel education system, can help confront these issues and try to find solutions. Issues related to exclusion from traditional education, due to either gender, spatial dimensions, or poverty, are at the top of this list of shortcomings [38].

The significance of the poor quality of education and its shaky connection to the needs of development and progress are no less significant. However, if they are not carefully planned and offered, the issues with the educational system and the characteristics of the overall educational context in developing countries could result in distorted and ineffective methods of performing distance education [39].

The abundance of educational channels could, if not carefully considered, make it more challenging to set up and manage educational systems. Because of the importance of integrating digital learning platforms into the educational process, the pressing need for them has been emphasized by educators. Without the use of digital learning platforms in the educational process, students of all academic levels will not be able to learn and go about their daily lives.

2.4. Reading Skills

The ability to translate what one sees from written or copied symbols requires the person to have certain cognitive skills, which are complex and intertwined with reading. Reading is not only a visual activity involving the recognition of printed symbols; rather, it is a contemplative mental process based on higher mental processes that involves patterns of thought, evaluation, analysis, reasoning, and problem solving. Because they are familiar with the mechanisms and reading techniques employed, good readers are able to anticipate the content that is to be read [40].

Reading is an essential skill for learning and retention, developing perspectives and abilities, and learning from the experiences and knowledge of others. Reading gives students the freedom to think outside the box and take chances that have never been taken before, which aids in the development of their creative skills. It aids in the formation of mental routines and skills, the purification and enhancement of the mind, the treatment of tongue hernia, the avoidance of melodies, and the demonstration of eloquence.

Reading continues to be the most important way of transmitting the work of the human mind and the purest of human emotions known to printing history across generations

and cultures, despite technological advancements. Picking out, evaluating, remembering, organizing, making inferences from, and creating.

Reading skills: a mental visual activity that may or may not be accompanied by the production of sound or lip movement. A thorough comprehension of the read material includes understanding not only the explicit, direct meanings of written symbols, but also their underlying, more ephemeral meanings, which also applies to the spoken language, where things that the speaker has not expressed directly are inferred by the listener.

2.5. Creative Written Expression

Expression is a creative process that requires the ability to delve into the imagination and inject it with distinctive emotions via the linguistic web. Every human being, young or old, has a fundamental and urgent need for expression, because it enables them to interact with others, discuss their needs, and convey what is significant to them. Man also uses expression to carry out social, cultural, and professional responsibilities. Because of this, learners are compelled to pay attention to both oral and written expression in their daily lives.

The aforementioned indicates that writing is an essential part of human communication. Writing thus symbolizes the missionary aspect of linguistic communication, whereby, just as there must always be a listener to hear a speaker express their thoughts and feelings, there must always be a reader to read a writer's words.

Written expression is the most important form of communication, because it enables people to connect with the outside world and express needs and feelings. This is due to the fact that it enables communication across time and space barriers and cultures. Students also express their thoughts.

Creative Written Expression: The websites included in this study (Teams, LMS, Nahla, and Nahil) give teachers the ability to create an interactive learning environment where they can publish lessons, assign tasks, engage in educational activities, and communicate with students. They also give teachers the ability to administer electronic tests, divide students into working groups, exchange ideas, and share scientific content. This aids in the development of students' reading and writing skills [41].

2.6. Summary of Literature Review

Summarizing the major ideas, instructional digital technology presents some advantages in terms of enhancing reading and writing, e.g., having positive effects on enhancing the literacy skill of students due to its interactivity and accessibility, enriching instructional resources in order to enhance literacy skills [29]. Other researchers have stated that technology can improve reading comprehension [42], increase students' reading motivation in both general and struggling readers, and increase interest and engagement in reading [31]. On the other hand, Collins [32] and Wells [33] found that technology could not completely replace the traditional means of reading and writing, and students in the early stages must acquire basic skills of reading and writing that only traditional practice is able to provide them with.

3. Materials and Methods

3.1. Design

In this study, a quasi-experimental design was used to examine the improvement in students' reading skills and creative written expression before and after intervention with digital learning platforms. A pre-test was applied before the intervention. Then, students in the experimental group studied using digital learning platforms, whereas students in the control group studied using the traditional method. A post-test was applied to both groups at the end of the intervention.

3.2. The Research Sample

The study sample included 120 fourth graders, who were evenly divided into an experimental group (G1) that received instruction using digital learning platforms and a control group (G2) that received instruction using conventional teaching techniques. Participants were chosen at random from two major private schools in the United Arab Emirates that were connected to the Ministry of Education and were situated in the study area. Schools were chosen over other institutions in order to offer the opportunity to apply action research. Due to the importance of the fourth grade, which is regarded by educational experts as the most suitable educational level for studying the development of reading skills, this grade being the focus in this research.

3.3. Research Instrument

The study tool consisted of a pre-/post-test for reading skills, a pre-/post-test for creative written expression, and a pre-/post-test to estimate reading skill. The experimental and control groups sat for pre-trial tests before the intervention, and post-trial tests after the experiment. Both tests were constructed on the basis of the UAE Ministry of Education English Language Standards and validated by two English supervisors, two senior English teachers and two university professors providing comments and suggestions that were taken into consideration when preparing the final versions of the instruments.

3.4. Data Collection and Analysis

Both pre-test and post-test data were collected and marked by two teachers and revised by the researcher. Then, an independent t-test was run in order to be able to display and compare the results.

4. The Results

4.1. Reading Skills Test and Writing Skills Test (Pre-Test)

To verify the equivalence of the groups, the arithmetic averages and standard deviations of the scores of school dropouts on the reading skill test and the writing test were extracted according to the group variable (experimental, control); furthermore, to indicate the statistical differences between the arithmetic averages, a *t*-test was used to compare the results of the two groups.

The results were collected, and are presented in tables using descriptive analysis to answer the two research questions. The following table presents the results obtained by the students in the reading and writing pre-test.

It can be observed from Table 1 that there were no significant differences between the two groups in the reading skill test, with a statistical significance of 0.661 for the pre-test. Similarly, no significant differences were observed between the two groups for the writing skill test during the pre-test, with a statistical significantce of 0.48.

Table 1. Mean scores, standard deviations, and *t*-test scores of the study sample members on the reading skill test and the writing test during the pre-test by group (i.e., experimental or control).

Instrument	Group	Number	Mean	Standard Deviation	Values "T"	Degrees of Freedom	Statistical Significance
Reading Test	Experimental	30	2.89	0.328	−0.440	58	0.66
	Control	30	2.92	0.254			
Writing Test	Experimental	30	2.85	0.297	−0.712	58	0.48
	Control	30	2.90	0.208			

The results of the *t*-test and a multiple analysis of variance in the two measurements before and after the intervention were compared to identify differences in the performance of T. This confirmed the extent of the statistical significance of the differences. The mean scores,

standard deviations, and Cronbach's alpha as a reliability coefficient for the questionnaire items as well as the reliability of repeatability of the test scores were extracted.

The first question was as follows: are there statistically significant differences at the level $\alpha = 0.05$ between the performance averages of the experimental and control groups on the reading skill test scores due to the teaching method (ordinary and digital learning platforms?

To answer this question, arithmetic means, standard deviations, and arithmetic averages adjusted for the scores of the members of the study sample on the reading skill test were extracted, depending on the group variable (i.e., experimental vs. control), and the results are illustrated in Table 2.

Table 2. Standard deviations and arithmetic averages adjusted for the scores of members of the study sample on the reading skill test, depending on the group variable.

Group		The Test Arithmetic Mean	Standard Deviation	Average	Standard Error	The Number
Reading skill test	experimental	2.21	0.145	2.205	0.032	60
	control	2.88	0.194	2.877	0.032	60
	total	2.54	0.378	2.541	0.022	120

Table 2 shows the apparent variance in the arithmetic averages, standard deviations, and arithmetic averages adjusted for scores. Due to the group variable including two different categories (i.e., experimental and control), and to indicate the significance of the statistical differences between the arithmetic averages, this was accompanied by a one-way analysis of variance, and the results are illustrated in Table 3.

Table 3. The effect of the group on individuals' results in the reading skill test, analyzed using one-way analysis of variance.

Contrast Source		Sum of Squares	Degrees of Freedom	Mean Squares	Statistical Value (p)	Statistical Significance (H)	Impact Size (η^2)
Reading skill test	test	0.014	1	0.014	0.466	0.497	0.008
	group	6.702	1	6.702	225.605	0.000	0.798
	error	1.693	57	0.030			
	average total	8.414	59				

Table 3 shows that there were statistically significant differences (a = 0.05) arising from an effect of group on the reading skill test, with a *p* value of 96.098 and a statistical significance of 0.000. These differences favored the teaching method in which digital education platforms of all kinds (Teams, platform LMS, Nahla and Nahil) were employed.

In order to determine the effectiveness of digital education platforms, the square of Eta (η^2) was calculated in order to measure the effect size, with a result of 0.628, indicating that 62.8% of the variance in the reading skills test was due to the teaching method, while the rest was due to other uncontrolled factors.

Attributed researcher Results Previous to me that platforms education digital of all kinds (The Teams, platform LMS, Nahla and Nahil). From more environments educational ease in deal with her and this is What Assist researcher in a necklace quota Un Line And that From During availability the rooms e that Complete a necklace quota out, as such that platforms education digital of all kinds (The Teams, platform LMS, Nahla and Nahil). service Free Working From During Connection on the internet Nor Need to me costs expensive or possibilities specific to turn it on, Where Complete Register program or Application From During Email, or From During registration Access accounts Networks communication social Such as face book, and be Quality the sound Excellent very, can for

every the parties Hearing some of them clearly, as such it's a lets Possibility registration meetings by voice and the video and store on me Computer in the form of automatic in. Form audio Just, can mute the sound or turning off contact.

The second part of the first question was as follows: are there statistically significant differences at the level $\alpha = 0.05$ between the performance averages of the experimental and control groups on the creative written expression test scores due to the teaching method (ordinary vs. digital learning platform)?

In order to answer this question, the arithmetic means, standard deviations, and arithmetic averages adjusted for the scores of school dropouts were extracted on the written creative expression test depending on the group variable (i.e., experimental or control), as illustrated in Table 4.

Table 4. Means, standard deviations, and arithmetic averages adjusted for scores on the written creative expression test depending on the group variable (i.e., experimental or control).

Group		Dimensional Arithmetic Mean	Standard Deviation	Average	Standard Error	The Number
Creative written expression test	experimental	2.20	0.188	2.201	0.031	60
	Control	2.87	0.144	2.82.871	0.031	60
	the total	2.54	0.376	2.536	0.022	120

Table 4 presents the apparent variance in the arithmetic averages, the standard deviations, and the modified arithmetic averages for the scores of the study sample individuals on the written creative expression test. Because the group variable contained two different categories (i.e., experimental and control), and to indicate the significance of the statistical differences between the arithmetic averages, this was accompanied by a one-way analysis of variance, with results as shown in Table 5.

Table 5. The results of the one-way analysis of variance with respect to the effect of the group on the creative written expression test scores.

Contrast Source	Sum of Squares	Degrees of Freedom	Mean Squares	Statistical Value (p)	Statistical Significance (H)	Impact size
test	0.000	1	0.000	0.017	0.896	0.000
method	6.667	1	6.667	234.022	0.000	0.804
error	1.624	57	0.028			
average total	8.360	59				

4.2. Reading Skills Test and Writing Skills Test (Post-Test)

It is evident from Table 5 that there were statistically significant differences (a = 0.05) resulting from the effect of the group, with a *p* value of 234.022 and a statistical significance of 0.000, with these differences being in favor of the use of digital education platforms (Teams, platform LMS, Nahla and Nahil).

In order to reveal the extent of the effectiveness of digital education platforms (Teams, LMS platform, Nahla and Nahil) at in enabling students to improve their creative written expression, the Eta square (η^2) was determined, which revealed an effect size of 0.804, meaning that it explained 80.4% of the variance in the scores obtained by members of the study sample on the creative written expression test, while the remainder was due to other uncontrolled factors.

We attribute the aforementioned results to the use of digital education platforms of all kinds (The Teams, platform LMS, Nahla and Nahil), which allow the teacher and the students to discuss and view the educational content, while also helping the teacher in dissemination, collection and correction duties, which is generally undertaken by female students, as well easing the rapid revision of the answers and directly sending the results.

For students, there is also a set of motivational medals available on the platform. Whenever a student is briefed on the enrichment activities and the existing courses, they are given a group of motivational medals to increase their engagement. It also helps the teacher in sharing videos and files for students to view, and allows writing by students to be displayed on the platform by photographing what students have written, and including their writing in posts of the Arabic language curriculum, enabling all students to see each other's writing and comment on it, whether individually or via the teacher, in order to provide feedback.

The creative written expression skills test indicated the following:

- The platforms played a large role in capturing the students' attention, prompting them to engage in positive interaction.
- The benefit from multimedia networks and access to additional information.
- They provide the opportunity for students and the teacher to add comments, and thus work to enhance the spirit of competition among students.
- The use of videos and images contributed to the difference between the students' scores in the before and after the intervention.

5. Discussion

Summarizing the main results, this study showed statistically significant differences in the students' performance in literacy skills—reading and writing—between students who learned using a digital environment and those who learned via the traditional method, with the difference favoring the use of the digital environment. These results might be expected due to the fact that the students were digitally native, and were addicted to digital devices that lend themselves to being exploited as effective tools for enhancing learning outcomes in general and attainment of literacy in particular.

The results of this study are in line with some research studies locally and globally. For example, Patronis [30] stated that the iPad could be used to help Emirati students in their reading and writing performance. In the same context, the study of Abuhattab [1] showed statistically significant differences in reading achievements, reading strategies, and reading motivation between students who used Tablet Digital Texts and their counterparts using printed texts, favoring those using Tablet Digital Texts.

On the other hand, some studies, like Patronis [30] reported findings that technology is not able to completely replace traditional methods of reading and writing. To use technology to its fullest potential, students must have basic reading and writing skills that only traditional practice is able to provide them with. Additionally, Wells [33] observed no statistically significant difference in reading comprehension level based on book format between the students reading digital texts and the students in the control group using printed texts.

Although this study described the impact of the digital environment on literacy skills, it is necessary to research this topic more deeply and thoroughly, since literacy skills are essential, and they are the basis of students' attainment and progress in all the subjects.

6. Conclusions

The goal of this study was to ascertain the extent to which fourth-grade pupils in the United Arab Emirates (UAE) were able to improve their reading comprehension and creative writing skills. To accomplish the study's goals, a quasi-experimental methodology was adopted, using a sample consisting of (60) male and female students who were evenly split into two groups: a control group and an experimental group. The results of the study indicated that the use of digital learning platforms (Teams, platform LMS, Nahla and Nahil) resulted in an improvement in the students' achievements in reading and writing, on the basis of the differences between the tribal and remote measurements, favoring the dimensional measurements of the experimental group. Based on the use and growth of these platforms, this study suggested that reading comprehension and creative expression be included in students' educational courses.

7. Recommendations

On the basis of these results, it is suggested that students' needs and learning styles should be met by shifting towards the use of digital environments, but gradually and cautiously. More research is needed to guide practice, as the sample used in this study was small, and the results may not be generalizable; nevertheless, they give us some hints and indicators to build upon in combination with other data. This study recommends the use of technology integration to ensure the inclusion of reading skills and creative expression throughout the curriculum.

References

1. Abuhattab, S.Y. The Impact of Digital Text vs. Print Text on the Seventh-Grade Students' Reading Achievement, Metacognitive Strategies, and Motivation. Ph.D. Thesis, United Arab Emirates University, Al Ain, United Arab Emirates, 2017. Available online: https://scholarworks.uaeu.ac.ae/all_theses/637 (accessed on 2 July 2020).
2. Alexander, E.S.; Onwuegbuzie, A.J. Academic procrastination and the role of hope as a coping strategy. *Personal. Individ. Differ.* **2007**, *42*, 1301–1310. [CrossRef]
3. Alotaibi, A.; Khalil, I.; Wardat, Y. Teaching practices of the mathematics male and female teachers according to the PISA framework and its relation to their beliefs towards their students. *Elem. Educ. Online* **2021**, *20*, 1247–1265. [CrossRef]
4. Chamberlain, L.; Lacina, J.; Bintz, W.P.; Jimerson, J.B.; Payne, K.; Zingale, R. Literacy in lockdown: Learning and teaching during COVID-19 school closures. *Read. Teach.* **2020**, *74*, 243–253.
5. Kim, Y.S.; Petscher, Y.; Schatschneider, C.; Foorman, B. Does growth rate in oral reading fluency matter in predicting reading comprehension achievement? *J. Educ. Psychol.* **2010**, *102*, 652.
6. Gningue, S.M.; Peach, R.; Jarrah, A.M.; Wardat, Y. The Relationship between Teacher Leadership and School Climate: Findings from a Teacher-Leadership Project. *Educ. Sci.* **2022**, *12*, 749. [CrossRef]
7. Huntley, D.E. An Applied Research on Promoting Proficiency in Fourth-Grade Reading. Ph.D. Thesis, The University of Mississippi, Oxford, MS, USA, 2021.
8. Warner-Griffin, C.; Liu, H.; Tadler, C.; Herget, D.; Dalton, B. *Reading Achievement of U.S. Fourth-Grade Students in an International Context: First Look at the Progress in International Reading Literacy Study (PIRLS) 2016 and ePIRLS 2016 (NCES 2018-017)*; U.S. Department of Education: Washington, DC, USA, 2017.
9. Torres, R. Factors Affecting the Reading Comprehension of Intermediate Level Learners: Basis for an Intervention Program. 2019. Available online: https://www.researchgate.net/publication/351451654_Factors_Affecting_the_Reading_Comprehension_of_Intermediate_Level_Learners_Basis_for_An_Intervention_Program/citation/download (accessed on 2 July 2020).
10. Hughes, J.; Kwok, O.M. Influence of student-teacher and parent-teacher relationships on lower achieving readers' engagement and achievement in the primary grades. *J. Educ. Psychol.* **2007**, *99*, 39. [PubMed]
11. Abdul-Ameer, M.A. Improving vocabulary learning through digital stories with Iraqi young learners of English at the primary level. *J. Stud. Soc. Sci.* **2019**, *8*. Available online: https://www.infinitypress.info/index.php/jsss/article/view/821 (accessed on 2 July 2020).
12. Abu Elenein, A.H. The effect of utilizing digital storytelling on developing oral communication skills for 5th grade students at rafah primary schools. *Int. J. Lang. Lit. Stud.* **2019**, *1*, 30–46.
13. Ali, M.M.; Bashir, A.; Ikram Anjum, M.A.; Mahmood, M.A. Impact of Mobile Assisted Language Learning on the Young ESL Learners' Vocabulary in Pakistan. *J. Res. Reflect. Educ.* **2020**, *14*. Available online: http://jrre.ue.edu.pk/index.php/JRRE/article/view/98 (accessed on 2 July 2020).

14. Amelia, L.C.H.; Abidin, M.J.Z. Young ESL learners' perception on the effects of using digital storytelling application in English language learning. *Pertanika J. Soc. Sci. Humanit.* **2018**, *26*, 179–198.

15. Chiong, C.; Ree, J.; Takeuchi, L.; Erickson, I. *Comparing Parent-Child Co-Reading on Print, Basic, and Enhanced e-Book Platforms*; The Joan Ganz Cooney Center: New York, NY, USA, 2018.

16. Creswell, J.W.; Clark, V.L. *Designing and Conducting Mixed Methods Research*; SAGE Publications: Thousand Oaks, CA, USA, 2011.

17. Ghalebandi, S.G.; Noorhidawati, A. Engaging children with pleasure reading: The E-reading experience. *J. Educ. Comput. Res.* **2019**, *56*, 1213–1237. [CrossRef]

18. O'Sullivan, A. Reading and Arab college students: Issues in the United Arab Emirates Higher Colleges of Technology. In Proceedings of the First International Online Conference on Second and Foreign Language Teaching and Research: Beyond Borders, Symposium Conducted at First International Online Conference on Second and Foreign Language Teaching and Research. 2004. Available online: https://www.academia.edu/1012284/Reading_and_Arab_college_students_Issues_in_the_United_Arab_Emirates_Higher_Colleges_of_Technology (accessed on 20 June 2022).

19. Mustafa, G.S.H. English Language Teaching and Learning at Government Schools in the United Arab Emirates. Ph.D. Dissertation, University of Exeter, Exeter, UK, 2001. Unpublished.

20. Hamad, S.; Tairab, H.; Wardat, Y.; Rabbani, L.; AlArabi, K.; Yousif, M.; Abu-Al-Aish, A.; Stoica, G. Understanding Science Teachers' Implementations of Integrated STEM: Teacher Perceptions and Practice. *Sustainability* **2022**, *14*, 3594. [CrossRef]

21. binti Talib, N.; binti Ahmad, N.; binti Sakarji, S.R. Students'problems in learning english as a second language among mdab students at uitm malacca. *Int. J.* **2019**, *2*, 01–12.

22. Street, B. *Literacy and Development: Ethnographic Perspectives*; Routledge: London, UK, 2001.

23. Leong, A.C.H.; Abidin, M.J.Z.; Saibon, J. Learners' perceptions of the impact of using digital storytelling on vocabulary learning. *Teach. Engl. Technol.* **2019**, *19*, 3–26.

24. Chamcharatsri, B.; Iida, A. (Eds.) *International Perspectives on Creative Writing in Second Language Education: Supporting Language Learners' Proficiency, Identity, and Creative Expression*; Routledge: London, UK, 2022.

25. Zhang, S.; Duke, N.K. Strategies for Internet reading with different reading purposes: A descriptive study of twelve good Internet readers. *J. Lit. Res.* **2008**, *40*, 128–162. [CrossRef]

26. Davis, F.D.; Bagozzi, R.P.; Warshaw, P.R. User acceptance of computer technology: A comparison of two theoretical models. *Manag. Sci.* **1989**, *35*, 982–1003. [CrossRef]

27. Granić, A.; Marangunić, N. Technology acceptance model in educational context: A systematic literature review. *Br. J. Educ. Technol.* **2019**, *50*, 2572–2593. [CrossRef]

28. Williams, S.G. The Ethics of Internet Research. *Online J. Nurs. Inform.* **2012**, *16*. Available online: http://ojni.org/issues/?p=1708 (accessed on 2 March 2022).

29. Bennett, C. Genres of research in multicultural education. *Rev. Educ. Res.* **2011**, *71*, 171–217. [CrossRef]

30. Patronis, M. The Effect of using the iPad on students' performance in writing and reading comprehension: Pilot Study Report. *Arab. World Engl. J.* **2014**, *2014*, 67–80.

31. Ciampa, K. Reading in the Digital Age: Using Electronic Books as a Teaching Tool for Beginning Readers/La lecture à l'ère numérique: L'utilisation de livres électroniques comme outil d'enseignement pour les lecteurs débutants. *Can. J. Learn. Technol. /La Rev. Can. De l'Apprentiss. Et De La Technol.* **2012**, *38*. Available online: https://www.learntechlib.org/p/42890/ (accessed on 1 March 2022). [CrossRef]

32. Collins, A.; Brown, J.S.; Newman, S.E. Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In *Knowing, Learning, and Instruction*; Routledge: London, UK, 2018; pp. 453–494.

33. Wells, C.L. Do Students Using Electronic Books Display Different Reading Comprehension and Motivation Levels than Students Using Traditional Print Books? Ph.D. Thesis, Liberty University, Lynchburg, VA, USA, 2012.

34. Have, I.; Pedersen, B.S. Sonic mediatization of the book: Affordances of the audiobook. *J. Media Commun. Res.* **2018**, *29*, 123–140. [CrossRef]

35. Huang, Y.M.; Chiu, P.S. The effectiveness of a meaningful learning-based evaluation model for context-aware mobile learning. *Br. J. Educ. Technol.* **2014**, *46*, 437–447. [CrossRef]

36. Maboe, E.; Smith, C.; Banoobhai, M.; Makgato, M. Implementing tablets to teach Reading in Grade 5. *Read. Writ.* **2018**, *9*, 1–10. [CrossRef]

37. Maynard, S. The impact of e-Books on young children's reading habits. *Publ. Res. Q.* **2020**, *26*, 236–248. [CrossRef]

38. Ma, Y.-H.; Lin, W.-Y. A Study on the Relationship between English Reading Comprehension and English Vocabulary Knowledge. *Educ. Res. Int.* **2015**, *2015*, 209154. [CrossRef]

39. Nguyen, T.T.H.; Khuat, T.T.N. Learning vocabulary through games: The effectiveness of learning vocabulary through games. *Asian EFL J.* **2018**, *4*, 68–82.

40. Norte, P.; Negreiros, J.; Correia, A. Cultivating students' reading literacy using digital lexile-based reading in a Chinese primary school. *Int. Assoc. Dev. Inf. Soc.* **2017**, *18*. [CrossRef]

41. Şahin, A. Effects of linear texts in page scrolling and page-by-page reading forms on reading comprehension introduction. *Turk. Online J. Educ. Technol.* **2019**, *10*, 94–100.

42. Jones, J.; Staats, W.; Bowling, N.; Bickel, R.; Cunningham, M.; Cadle, C. An evaluation of the Merit reading and software program in the Calhoun County (WV) middle/high school. *J. Res. Technol. Educ.* **2005**, *37*, 177–195. [CrossRef]