



## THE IMPACT OF USING THE PADLET APPLICATION ON IMPROVING 7TH GRADERS' ENGLISH SPEAKING AND DEDUCTIVE THINKING SKILLS

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### **Abstract:**

In today's digital era and the revolution of online education, students move from face-to-face interaction to digital one. They have fewer opportunities to cooperate and do real interactions with each other. There comes the need to integrate technology tools to assist students to build their own digital community. Speaking is the basis for communication, and different reasons make speaking a difficult task to master, such as; limited time and other internal elements. Padlet can be an alternate solution for these issues. Accordingly, this study aims at investigating the impact of using the Padlet application among the 7th graders to improve their English speaking and deductive thinking skills. The study sample was 30 students who were randomly chosen from Deer Al Balah Prep Boys C school in the middle area of the Gaza Strip, Palestine. The quantitative approach was used, as the students had to set for a pre and post-application of the speaking test as well as the deductive skills test to collect the needed data, and the SPSS was implemented to provide detailed findings. Based on the data analysis and comparing the results of the experimental and controlled group, it is shown that the Padlet is effective in teaching English speaking skills besides improving the deductive skills and abilities of school students in the English classes. The

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researchers recommend emerging technologies in teaching speaking and consider deductive thinking skills while using such technologies to upgrade the students' 21st-century skills.

**Keywords:** Padlet application; 7th graders; speaking skills; deductive thinking skills

## 1. Introduction

Language is a set of sentences each finite in length and constructed of finite in length and constructed of a finite set of elements (Chomsky, 1957); similarly, Widdowson (2003) has defined language as a system of arbitrary vocal symbols that permit all people in a given culture to communicate or to interact. In today's digital era and the revolution of online education, students move from face-to-face interaction to digital one. They have fewer opportunities to cooperate and do real interactions with each other. There comes the need to integrate technology tools to assist students to build their own digital community.

Oral skills are an important part of second language learning and teaching. "*To have productive discussions in all subject areas at school, children need to be able to express ideas clearly and succinctly*" (Wilson, 2015). Speaking efficiently is a necessity for all learners of English not only for school but also for the world beyond school. This goes with the objectives of the English for Palestine curriculum, where students are provided opportunities to develop both fluency and accuracy. According to Syahrizal & Rahayu (2020), oral skills are the basis for communication. Different reasons make speaking a difficult task to master, such as; limited time and other internal elements. However, evaluating the students' speaking competence, according to Khamkhien (2010), is measured based on four basic criteria namely; choice of words, pronunciation, relevance, and grammar.

Recent studies have focused on the development of thinking in all its aspects for students, and among the thinking skills that have been addressed are the skills of deductive thinking. The study of Mafada, Kusmayadi, and Fitriana (2020) indicated that deductive thinking is one of the higher thinking skills that can be developed. Through deduction, students can develop their own understanding to solve any problem they encounter. The success of teaching deductive thinking skills depends on the availability of other elements in addition to the availability of a qualified teacher, and the education strategy is a very important element for the effective implementation of the program to teach inferential thinking, and whether the teacher uses a direct or indirect method in teaching any of the thinking skills. Therefore, the researchers, in this article, address the concept of deductive thinking and the studies that focused on its development to benefit from them in building the deductive thinking test for the current study.

There are many web tools such as Google+, Edmodo, Prezi and so on. For this purpose, one of these tools, the Padlet application can be an alternate solution for these issues. This article discusses the Padlet as one of the technologies that can be used to

improve the students' English-speaking skills as well as their deductive skills. The Padlet features an online wall web-based where ideas are collated via virtual posts from the users. Padlet is a web tool for interaction on a virtual wall and has been used for simple instructional tasks, as well as for more complicated tasks among experts (Dewitt et al., 2017). Padlet is a free application to create an online bulletin board that students and other users can use to display information on any topic. Padlet is a very useful web tool to promote collaborative learning among our students. It's like a piece of paper, but on the Web. Padlet is a web app that lets users post notes on a digital wall. The uses for this site in the classroom are virtually endless (Jaganathan, 2016).

Accordingly, this study aims at examining the effect of using the Padlet application on the student's level of speaking skills learning in the English language classroom. It also strengthens students to speak English fluently and motivates them to be more active in discussions. This study provides a background for English language teachers to be more sophisticated in designing their speaking activities and choosing new and up-to-date technologies with their students. In this regard, this study is dedicated to testing the effectiveness of integrating teaching speaking skills with deductive skills through tech tools like the Padlet could improve the process of teaching English in general and speaking in particular for third grade.

## **2. The Questions of the Study**

- 1) What is the impact of using the Padlet application on improving the 7<sup>th</sup> graders' English-speaking skills?
- 2) What is the impact of using the Padlet application on improving the 7<sup>th</sup> graders' deductive thinking skills?

## **3. Theoretical Framework**

### **3.1 The Padlet Application**

This tool offers various benefits to the users without having a special account. As long as the user has a Google email, they can use the Padlet application. Users can create 5 limited walls (for a trial version for each g-mail account) but unlimited for premium users. The Padlet also allows the user to invite others to collaborate on their walls, In the classroom setting, Padlet works well with activities such as brainstorming, discussion and project work (Stannard, 2015). Students can learn through Padlet at any time, anywhere, with internet-enabled devices such as smartphones, tablets, and computers with an internet connection (Haris, Yunus, & Badusah, 2017)

The creator of the Padlet can also moderate posts before letting others view them. The content of a wall is permanent unless it is deleted or the wall is deleted. One other feature of Padlet is that it allows any number of writers to post comments or upload a file at the same time (Goh & Sandar, 2016). Posting on a Padlet wall will be viewed in

real-time. Like any other web tool, the speaking activities on Padlet require an internet connection.

Padlet is an application that is very easy to use. There is no need to set up an account to host a wall for others to comment on. There are layout and background options, as well as levels of privacy that can be set. Learners don't have to create accounts, they would navigate to the website and post their thoughts by adding texts, videos, voice recordings, or files (up to 25 MB). It is suitable for several styles of learners, especially visual ones. Students can comment on a post or video uploaded by their classmates and give a star, upvote, or like the post. Many features such as adding animations or images to the wall, catching students and stimulating more interaction with the content. *"Padlet replaces the traditional use of whiteboards to share and store information; enables students to interact with each other and with teachers, ask questions, and request feedback"* (Huwamel & Alabbad, 2020). Because of these benefits, several studies and surveys toward Padlet have proved its validity in increasing interest and motivation (Awaludin & Karim, 2017)

Padlet is a web tool that helps cross boundaries of place and time. Students were asked to perform a speaking task, whether through a video or voice recording and then uploaded to the wall. Students enjoy the instant results that may be achieved through their efforts. They see their responses appear on the wall and they also can view others' comments and responses. Moreover, Padlet helps in engaging students to share their opinions and feedback in a different way, other than verbally expressing themselves. This gives a chance to shy and more reserved students to participate actively. Some students feel comfortable knowing that they have a longer time to do the job.

In the same context, students watching each other's videos can make models and learn from each other. By use of this tool, teachers can hear from students who wouldn't speak up in the classroom. In the classroom setting, Padlet works well with activities such as brainstorming, discussion and project work. Students can learn through Padlet anytime anywhere with any internet-enabled devices such as smartphones, tablets, and computers with an internet connection. There is no software needed to be downloaded to use Padlet. Students can then share their works on Facebook, Google+, e-mail, or even embedded the URL into their blog (Haris et al., 2017).

In Palestine, during the current status of the schools' closure after the Covid- 19 Pandemic, the researchers noticed that students, especially those who are in the elementary stage, lack the main skills of the language. Also, teachers don't have the efficiency of teaching these skills online and don't have enough experience to use the newly used educational platforms. As teachers, we and the other teachers in schools used to use WhatsApp as an alternative method for school learning to introduce lessons and skills to students during distance learning, yet, it was not an effective way to teach all the main skills to students, especially the oral production skills. This is because there is no chance to practice speaking through WhatsApp lessons. Thus, various teachers used interactive platforms.

According to Schreiner (1960:5), language is essentially speech, and speech is basically communication by sounds and according to him, speaking is a skill used by someone in daily life communication whether at school or outside. Speaking skill in this research is the learner's ability to speak, to make a dialogue, to practice a real discussion for fluent English with a minimum of correct grammar and a range of useful vocabulary which help others to communicate with them easily through the Padlet wall. In this study, the researchers define Padlet as a free interactive multimedia wall that allows real-time interaction both among students and between the students and the teacher and that facilitates whole-class participation.

Many studies were conducted on the use of the Padlet as a tech tool to enhance collaboration (Martin, 2019; Fisher, 2017; Ellis, 2015) but very few cover the efficiency of using Padlet to improve speaking skills or deductive thinking skills among school students. Therefore, this paper discusses Padlet as one of the technologies that can be used to improve students' speaking skills besides their deductive thinking skills.

### **3.2 The Concept of Deductive Thinking**

The multiplicity of the concepts that dealt with deductive thinking and its skills, where Al-Harbi and Al-Subaie (2013, p. 218) combined deductive thinking, following the teaching method in their treatment of the different implications, their derivation of various theories, from presumed premises and their validity. The term deductive thinking was defined by Ahmadi (2019, p. 48) as the ability to use a set of processes to organize ideas and link knowledge with prior knowledge, while Al-Maamaria (2011, p. 6) emphasized that deductive thinking is extracting a case from one or several other cases, or concluding one or several other results. Additionally, Abdel Malak (2018, p. 190) stated that deductive thinking is the ability to reach logical conclusions and the ability to justify them logically based on arguments and evidence. Al-Iraqi (2013, pg. 4) also mentioned that the ability to demonstrate and deduce, by inference by deduction by inference, principles, and postulates, should be in a logical way. Accordingly, we conclude that deductive thinking is the ability to process cognitive contents through a set of mental processes in order to reach logical conclusions and work to justify them logically based on arguments and evidence.

### **3.3 The Skills of Deductive Thinking**

Based on reviewing the related literature, the researchers built the deductive thinking test, we noticed the multiplicity of deductive thinking skills that were addressed, where the studies of (Obeid, 2019; Abdul Majeed, 2018; Bayoumi and Al-Jundi, 2017; Seifen, 2015; Al-Zahrani, 2014; Judah, 2014; Al-Saeed, 2013; Al-Saidi, 2012; Badr, 2010) indicated that the deductive thinking skills are inferential, while the study of (Al-Harbi and Al-Subai'i, 2013; Al-Olayani, 2012; Beshai, 2019; Abdul Rahman, 2018; Al-Shehri, 2016) was limited to the skills of induction and deduction. Also, the study of Al-Mamariya (2011) was limited to induction skills, and the Ahmadi study (2019) added the justification skills.

On the other hand, the study of Abdul-Malak (2018) mentioned that deductive thinking skills are inferential, use of relationships, proof, and interpretation. The study of Al-Badri and Al-Sayed (2017) indicated that inferential thinking skills are clarifying and justifying solutions, discovering and modifying inaccuracies, and formulating questions. Deductive thinking skills in the study of Al-Gharabli and Al-Abed (2015) were justification, analysis, generalization and allocation, solving non-routine problems, while the study of Mafada, Kusmayadi & Fitriana (2020) indicated that deductive thinking skills are guesswork, and the link between two or more components, providing valid proofs through regular steps, and a conclusion. Upon those givings, the researchers dealt with the skills of deductive thinking, which are: analysis, integration/synthesis, evaluation and justification, concluding, and generalization.

**Table 1:** Deductive thinking skills and their indicators

Domains	Indicators
Analysis	- Define and describe relationships. - Use of relationships.
Merge/Combine	- Connect different knowledge items and associated perceptions and actions to solve a problem.
Evaluation & justification	- Evaluate multiple solutions to problems. - Provide evidence and evidence that supports the solution.
Result extraction	- Reach correct conclusions based on information and evidence.
Circular	- Write a sentence expressing the relationships in a more general way so that it applies to a wider scope.

### 3.4 Methods for Developing Deductive Thinking among Students

There are many ways and methods in which researchers have tried to develop deductive thinking skills among students with different academic levels. Some studies have applied different teaching strategies, such as the studies of (Bashai, 2019; Hassan, 2018; Bayoumi and Al-Jundi, 2017; Al-Saeed, 2013; Al-Saeedi, 2012; Badr, 2010). While some studies have implemented educational models and programs for students, such as the studies of (Huda et al., 2020; Abdul Malak, 2018; Abdul Majeed, 2018; Seifen, 2015; Obaid, 2019), some studies have worked on developing students' deductive thinking by adding enrichment activities and materials, such as the Al-Badri and Al-Sayed (2017)'s study, and the Ma'mariya (2011)'s study. The study of Abdul Rahman (2018) and the study of Abu Aqil (2013) worked on developing students' deductive thinking through the activation of mind maps. The studies of (Al-Zahrani, 2014; Judah, 2014; Al-Olayani, 2012) worked on developing students' deductive thinking through the application of computer programs. On the other hand, some studies worked on developing students' deductive thinking skills through a training program for teachers, and this was done by Al-Ahmadi (2019)'s study and Al-Gharabli and Al-Abed (2015)'s study.

With the different methods that the researchers tried to develop students' deductive thinking through their application of different teaching strategies, adding enrichment activities and materials, applications for computer programs, and holding

training programs for their teachers, the researchers noticed the success of these studies in developing deductive thinking among students at different academic levels.

### **3.5 Mechanisms of Measuring Deductive Thinking among Students**

There were many tools that researchers used to measure the level of students' deductive thinking skills at different school levels. The researchers noted that some studies have adopted general tests and standards designed by other researchers. The study of Al-Harbi and Al-Subai'i (2013) used one of the tests of the Differential Aptitudes, and both Abu Aqeel (2013)'s study and Olayani (2012)'s study used the deductive thinking scale prepared in advance by one of the researchers, after piloting it on an exploratory sample. Whereas most of the previous studies used the deductive thinking test that each researcher prepared following the content of the subject and the study stage they are targeting previously, the researchers prepared the deductive thinking test for the current study, relying on the skills and indicators of the previously mentioned deductive thinking.

## **4. Related Literature**

The researcher didn't find many related studies that talked about using Padlet on improving the English Language skills, especially in teaching speaking, because it's a new trend in E-learning and it was not commonly used. The researchers have just found some published articles about using Padlet in foreign classes. For example, Ilham (2018) investigated the effects of Padlet on students' descriptive text writing senior High School Students as well as to find out their perceptions of using Padlet for learning descriptive text writing. The researcher used the two groups design, the control and experimental group with 54 subjects divided into 27-12. The result of this study revealed that using Padlet in instruction has provided a non-threatening space for the collection and curation of collaborative classroom work. All students have the ability to contribute and learn from one another and all voices can be heard on a graffiti wall.

Similarly, Munirah (2017) investigates the effectiveness of using Padlet in improving students' learning of English Grammar. The data was collected by the means of pre-post tests and questionnaire surveys. 30 students participated in this study. The data were analyzed in both descriptive and inferential analyses. The result indicated a significant improvement in students' performance and the survey showed high performance and positive attitudes towards using Padlet as a means of learning grammar.

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In the same concern, Hung (2013) focused on the English speaking skill of 11th-grade students at Thong Linh High school and was conducted to find out the relationship between background knowledge and English-speaking skill. Data used for analysis in this study are mainly collected through observations, surveys using questionnaires and interviews during the time of experimenting with a proposed

method. By means of the analysis of both qualitative and quantitative collected data, it was concluded that between background knowledge and speaking skill, there was an existing relationship. One of the significant results from data analysis was that building up awareness via supporting background knowledge related to topics of speaking lessons to English-learning students before letting them go to talk was an effective approach to improve English speaking skills. The researcher has benefited from this study in designing the activities and strategies that help in improving speaking skills. Mohammed (2012) conducted a study to examine the effectiveness of classroom online discussions on the speaking skill of 12<sup>th</sup> students. To achieve the aim, the researcher applied observation cards as a valid and reliable tool. The researcher uses the quasi-experimental design, he chooses 3 classes randomly and is divided into three groups, the experimental discussion group was 25 male students, the experimental online discussion was 15 male students and the control group was 25 male students. This research gives useful evidence about effective classroom and online discussion, as learners are more likely to engage with each other by using a special course for both experimental groups. The study recommended the necessity of implementing classroom and online discussion in teaching the English language to bring better outcomes in students' speaking skills.

## **5. Methodology of the Study**

This study followed the quasi-experimental approach. The sample of the study was chosen randomly from D/B prep Boys C school in Gaza Strip, Palestine. The sample of the study consists of 30 students assigned to one experimental group. A pre-post skills test was conducted by the researchers to measure the students' oral production skills. The pre-test was given to the participants as a means to examine their current understanding of the students' oral production skills. The criteria for assessment of the student's speaking competency were; word choice, pronunciation, relevance, and grammar. Additionally, the same students sat for well-prepared and validated deductive thinking skills. After a few weeks of learning these skills using Padlet, the participants were then asked to do the same test again. The test aimed at measuring the effect of the Padlet application on the speaking skills' improvement as well as their deductive thinking skills.

## **6. Results & Discussion**

The first question states "Are there statistically significant differences between the average scores of the students in the pre-application and the post-application of the English-speaking skills test?" To answer this question, the researchers verified the null hypothesis, which states that there are no statistically significant differences between the average scores of students in the pre-and the post-application of the domains of the English-speaking skills test. To verify this hypothesis, the researchers used Hotelling's



Paired-Sample T2 multi-variable test, which aims to verify the significance of the differences between the averages of two or more related groups in more than one dependent variable, in order to compare the average scores of students in the speaking skills (test domains). In the pre and post applications, the test results were as follows:

**Table 2: Hotelling's T2 Test Section**

Variable	T2	Test Prob Level
All	119.847	0.000

It is clear from the previous Table 2 that the value of the T2 test equals (119.847) and that the probabilistic value of the test is (0.000) which is less than 0.05, to indicate that there are statistically significant differences between at least two groups in the mean scores of the pre-and the post-application for each of the test domain. To reveal the differences between the groups, the test results were as follows:

**Table 3: Hotelling's Paired-Sample T2**

Skill	Pre\Post	Mean	SD	Mean Diff.	T2	Sig. value	sig. level
Word Choice	Post-Test	2.646	0.339	1.451	8.722	0.000	Sig
	Pre-Test	1.195	0.941				
Pronunciation	Post-Test	2.146	0.374	0.768	5.112	0.000	Sig
	Pre-Test	1.378	0.857				
Relevance	Post-Test	2.743	0.725	1.317	4.307	0.000	Sig
	Pre-Test	1.426	1.626				
Grammar	Post-Test	1.682	0.556	1.000	8.099	0.000	Sig
	Pre-Test	.682	0.620				
Fluency	Post-Test	2.5244	0.921	1.365	7.391	0.000	Sig
	Pre-Test	1.158	0.753				

It is evident from the results of the previous Table 3 that:

- The average scores of the students in the sub-speaking skill (choice of words) in the pre-application equals (1.195) and the post-application equals (2.646). The table also shows that the calculated t-value is (8.722) and the statistical significance of the differences is (0.000) which is less than (0.05). Since the differences between the averages are a positive value which is (1.451), it indicates the existence of statistically significant differences between the average scores of the students' scores means in the first domain (the skill of choosing words) in the pre and post applications, in favor of the post-application with the highest average.
- The average scores of students in the speaking sub-skill (pronunciation) in the pre-application equals (1.378) and the post-application equals (2.146), while the calculated t-value (5.112) and the statistical significance of the differences (0.000). Since the differences between the means are a positive value i.e. (0.768), it indicates that there are statistically significant differences between the average

scores of students in the second domain (pronunciation skill) in the pre and post applications, in favor of the post-application, which has the highest average.

- The average student scores in the speaking sub-skill (relevance) in the pre-application equals (1.426) and the post-application equals (2.743), the calculated t-value (4.307), and the statistical significance of the differences (0.000) which is less than (0.05). Since the differences between the means are a positive value i.e. (1.317), which indicates that there are statistically significant differences between the average scores of students in the third domain (relevance skill) in the pre and post applications, in favor of the post-application, which has the highest average.
- The average scores of students in the speaking sub-skill (grammar) in the pre-application equals (0.682) and the post-application equals (1.682), the calculated t-value (8.099) and the statistical significance of the differences (0.000), which is less than (0.05), and since the differences between the means are a positive value i.e. (1,000), which indicates that there are statistically significant differences between the average scores of students in the fourth domain (grammar skill) in the pre and post applications, in favor of the post-application, which has the highest average.
- The average scores of students in the skill (fluency) in the pre-application equals (1.158) and the post-application equals (2.524), the calculated t-value (7.391), and the statistical significance of the differences (0.000), which is less than (0.05), and since the differences between the averages are a positive value, which is (1.365), this indicates that there are statistically significant differences between the average scores of students in the fifth domain (fluency skill) in the pre and post applications, in favor of the post-application, which has the highest average.

The second question is “What is the effectiveness of the Padlet in developing the deductive thinking of the ninth-grade students?” To answer this question, the researchers tested the following null hypothesis: “There are no statistically significant differences at the level ( $\alpha \leq 0.05$ ) between the mean scores of the ninth graders in the pre and post applications, through the following steps:

**A.** Ensuring that the data of each of the pre and post-applications of the deductive thinking test is normally distributed, through the Kolmogorov-Smirnov test, which is used when the sample size is greater than (50), as shown in the following table:

**Table 4:** Results of the Kolmogorov-Smirnov test for normality

	<b>Pre-application</b>	<b>Post application</b>
The number of sample members	30	30
The means	2.31	8.219
Standard deviation	6.165	24.129
Shapiro-Wilk test value	1.196	0.155
Statistical significance Sig	<b>0.00</b>	<b>0.00</b>

The previous table shows that the level of statistical significance of the data normality test in both the pre and post-application of the deductive thinking test is less than (0.05), which means rejecting the hypothesis of the normality distribution of the data in the pre and post applications of the deductive thinking test. However, the researchers can bypass this condition in the case of large samples that are greater than (40), as the study sample reached (30) students.

**B.** Examining the homogeneity of the pre and post applications of the deductive thinking test, through the Levene test, where the results were as follows:

**Table 5:** Results of the test of homogeneity of variance

Comparison	Sig.	Levene
Pre	0.209	1.59
Post	0.699	0.36

From the previous Table 5, we note that the level of statistical significance for the value of the homogeneity test in both the pre and post-application of the deductive thinking test is greater than (0.05), which means accepting the hypothesis of homogeneity of the data of the pre and post applications.

Therefore, the researchers used the (T) test for two related samples to verify the null hypothesis which states: "There are no statistically significant differences at the level ( $\alpha \leq 0.05$ ) between the mean scores of the ninth-grade students before and after the deductive thinking test." The results of the statistical analysis were as follows:

**Table 6:** Metadata of the pre- and post-application of the deductive thinking test

The tool	Application	The number	Standard deviation	Mean
Deductive reasoning test	Pre	30	2.48	2.31
	Post	30	4.91	8.22

Table 6 indicates that the average grades of the ninth graders in the pre-application of the deductive thinking test are (2.31) and that the average scores of the ninth graders in the post-application of the deductive thinking test is (8.22), and this means that there are differences between the mean scores of the students in the pre and post-application of the deductive thinking test, thus the statistical significance of these differences can be judged through the following table:

**Table 7:** Results of the T-test for two related samples

Comparison	Pre-post application of the deductive thinking test				"T" Value	Degree of freedom	"Sig." Value
	Mean	Standard deviation	95% confidence interval for the variance				
			Minimum	Maximum			
Pre-post application of the deductive thinking test	5.90	3.55	5.167	6.646	15.687	29	0.00

Table 7 shows that the average differences between the pre-and post-application of the deductive thinking test for the ninth graders are (5.90), and through the confidence interval, it can be said that we are confident with a percentage of (95%) that the differences between the pre-and post-applications lie between (5.167 ) and (6.646), and because the confidence interval does not include zero, the null hypothesis can be rejected in favor of the alternative hypothesis, which states that there are statistically significant differences at the level ( $0.05\alpha\leq$ ) between the mean scores of the ninth-grade students in the two applications before and after the inferential thinking test. This was confirmed by the value of the level of statistical significance corresponding to the calculated T value (15.687), which was (0.00), and these statistically significant differences are in favor of the higher arithmetic mean, which is the arithmetic mean of the post-application of the inferential thinking test for ninth-grade students, which amounted to (8.22) compared to with the arithmetic mean of the tribal application, which amounted to (2.31).

To calculate the effect size, the researchers used the effect size law for the T-test for two related samples, which was mentioned by Afana (2016, p. 244) as follows:

$$r_{pb} = \frac{t^2}{t^2 + df}$$

Thus, the size of the effect according to the results of the T-test for two related samples, as in this hypothesis, is equal to (0.74), which is an average size, and this means that (74%) of the changes that occurred in the scores of the inductive thinking test among ninth-grade students are the result of their teachers joining the proposed training program.

## 7. Conclusion

In the 21<sup>st</sup> century, the teaching and learning process has limitless time and space, as both teachers and students cross the physical barriers and fences of schools and classrooms. In this regard, recent studies have focused on the development of thinking in all its aspects for students, and among the thinking skills that have been addressed are the skills of deductive thinking. The study of Mafada, Kusmayadi, and Fitriana

(2020) indicated that deductive thinking is one of the higher thinking skills that can be developed. Through deduction, students can develop their own understanding to solve any problem they encounter. Implementing tech tools is trendy in teaching the English language within the Arab context, especially during the time of the COVID-19 pandemic. Even though some students may encounter obstacles and problems in using certain applications and platforms, other students' levels of English are improved positively as a result of using those tec tools in school.

Based on the results of the current investigation it is concluded that Padlet is a very useful web tool for promoting English speaking skills as well as deductive thinking skills learning among our students since it's like a piece of paper, but it's on the web.

### **Conflict of Interest Statement**

The authors declare no conflicts of interest.

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### **References**

- Abd al-Rahman, M.; Hassouna, M.; Ghareeb, A. & Fekri, J. (2018). The effectiveness of using mind mapping strategy in teaching geometry to develop visual thinking and deductive thinking skills for preparatory stage students. The Sixteenth Annual Scientific Conference: Developing Mathematics Teaching and Learning to Achieve a Culture of Quality. *Egyptian Association for Mathematics Education*. 451-456.
- Abdel Malak, M. (2018). The effect of using the 2 \* 4E model in teaching a proposed unit in mental arithmetic on developing the skills of mathematical reasoning, mental arithmetic and arithmetic fluency among primary school students. *Journal of Mathematics Education: The Egyptian Society for Mathematics Education*. 21 (10). 178-247.

- Abdel Meguid, K.; Al Azab, A.; Mohammed, O.; & Bader, M. (2018). Developing inferential thinking in mathematics using Suchman's inquisitive model among middle school students: an empirical study. Sixteenth Annual Scientific Conference: Developing Mathematics Teaching and Learning to Achieve a Culture of Quality: *The Egyptian Association for Mathematics Education*. 293 -318.
- Abu Aqil, I. (2013). The effect of using conceptual maps in teaching calculus and developing inferential thinking among high school students, the scientific branch, Palestine. *Journal of the Association of Arab Universities for Education and Psychology: Damascus University - College of Education*. 11(3). 98 - 121.
- Al Seed, D. (2013). The effectiveness of using an open-ended problem-solving strategy in developing the mathematical inference skills of middle school students (unpublished master's thesis). *Taif University, Taif*.
- Al-Ahmadi, S. (2019). The effectiveness of a proposed training program for effective evaluation in developing the evaluation practices of female mathematics teachers and its impact on developing mathematical inference among their students. *Specialized International Educational Journal: Dar Simat for Studies and Research*. 8 (3). 46-62.
- Al-Badri, S. and Al-Sayyid, R. (2017). The effectiveness of a proposed enrichment program based on solving and formulating mathematical problems in developing the ability to infer and form a mathematical sense among high-achieving students in the tenth grade. *Journal of Educational and Psychological Studies: Sultan Qaboos University*. 11 (3). 645-665.
- Al-Gharabli, M.; & Al-Abed, A. (2015). The effect of a training program for mathematics teachers based on the international study orientations in mathematics and science TIMSS on their students' ability to mathematical knowledge, application and mathematical reasoning. *Studies - Educational Sciences: University of Jordan*. 42 (3). 1115-1135.
- Al-Harbi, H. and Al-Subaie, M. (2013). The relationship of mathematical reasoning to achievement in mathematics and academic excellence. *The World of Education: The Arab Foundation for Scientific Consultation and Human Resource Development*. 14 (44). 215-248.
- Al-Zahrani, B. (2014). The effectiveness of using computers in teaching mathematics on academic achievement, deductive thinking, and attitudes towards it (unpublished doctoral thesis). *Umm Al Qura University, Makkah*.
- Awaludin, F. A., Abd Karim, R., & Mohd Saad, N. H. (2017). Padlet: A digital collaborative tool for academic writing. *Journal of Education and Social Sciences*, 8(1), 179-184.
- Bader, B. (2010). The effectiveness of using the instrumental enrichment strategy in teaching mathematics on developing inferential thinking skills, achievement and academic achievement motivation among middle school students. *Arab Studies in Education and Psychology: Arab Educators Association*. 4 (4). 117-159.

- Bayoumi, Y. and Al-Jundi, H. (2017). The effectiveness of the fishbone strategy in developing achievement and deductive thinking skills and solving mathematical problems for primary school students. *Journal of Mathematics Education: The Egyptian Society for Mathematics Education*. 20 (6). 110-170.
- Beshai, Z. (2019). A proposed strategy based on differentiated education and learning styles for developing inferential thinking skills and productive mathematical inclination among middle school students. *Journal of Mathematics Education: The Egyptian Society for Mathematics Education*. 22 (9). 114-172.
- Chomsky, N. (1957). Logical structures in language. *American Documentation (pre-1986)*, 8(4), 284.
- Dewitt, D., Alias, N., & Siraj, S. (2015). Collaborative learning: Interactive debates using Padlet in a higher education institution.
- Donald, R. (2005). Teaching Speaking Skills. Online documents at URL. [http://www.teachingenglish.org.uk/think/speak/speak\\_skills.shtml](http://www.teachingenglish.org.uk/think/speak/speak_skills.shtml)
- Goh, P. S., & Sandar, J. (2016). An innovative approach to digitally flip the classroom by using an online "graffiti wall" with a blog. *Medical Teacher*, 858.
- Haris, M. & Hj Badusah, J. (2017) The effectiveness of using Padlet in ESL classroom. a research article, Universiti Kebangsaan Malaysia, Faculty of Education.
- Hassan, A. (2018). The effect of the "SWOM" strategy on the academic achievement of middle school students in mathematics and the development of deductive thinking (unpublished master's thesis). Tikrit University, Iraq.
- Huda, S.; Kharisma, H.; Qoma, I. & Jermisittiparsert, K. (2020). How Mathematical Reasoning Abilities Can Be Improved?: A Study Case at Islamic Boarding School. *Journal Matematika*. 3 (1). 1-6.
- Hung, L. (2013). Improving the English-speaking skill by supporting background knowledge for 11th-grade students at Thong Linh High School. Dong Thapa University. Taiwan.
- Judah, S. (2014). The effectiveness of using some electronic Java activities through the Internet in developing some inferential thinking skills in engineering and achievement among middle school students in the Kingdom of Saudi Arabia. Educational magazine: *Kuwait University - Scientific Publication Council*. 29 (113). 363-421.
- Khamkhien, A. (2010). Teaching English Speaking and English-Speaking Tests in the Thai Context: A Reflection from Thai Perspective. *English Language Teaching*, 3(1), 184-190.
- Maamaria, I. (2011). The effectiveness of using enrichment activities in developing inferential thinking skills and the attitude towards mathematics among fourth-grade students of basic education (unpublished master's thesis). *Mutah University, Karak*.
- Mafada, A. A., Kusmayadi, T. A., & Fitriana, L. (2020, February). Identification of Mathematical Reasoning Ability in Solving Higher Order Thinking Skills

- Problems. In *3rd International Conference on Learning Innovation and Quality Education (ICLIQE 2019)* (pp. 916-924). Atlantis Press.
- Mafada, A.; Kusmayadi, T. & Fitriana, L. (2020). Identification Of Mathematical Reasoning Ability in Solving Higher Order Thinking Skills Problems. Atlantis Press Sarl. *Learning Innovation and Quality Education*. 397 (1). 916-924.
- Obeid, N. (2019). The effectiveness of a program based on TIMSS standards in developing deductive thinking and solving problems in mathematics among eighth-grade students in Gaza (unpublished master's thesis). *The Islamic University of Gaza*.
- Olayani, S. (2012). The effectiveness of a computerized program in the light of the expansionist Riegluth theory in developing mathematical concepts and deductive thinking among ninth-grade students in the Sultanate of Oman (unpublished master's thesis). *Mutah University, Karak*.
- Sabbah, S. (2015) The Effectiveness of Using Debates in Developing Speaking Skills Among English Majors at University of Palestine. Thesis, Al Azhar University – Gaza, Faculty of Education.
- Saidi, H. (2012). The effectiveness of a multimedia computer-assisted education strategy in developing deductive thinking and retaining mathematics learning for fourth graders of primary school. *Education Journal: Al-Azhar University - College of Education*. 1 (148). 684-726.
- Sangeetha, S. (2016). Edmodo and Padlet as a collaborative online tool in Enriching Writing Skills in Language Learning and Teaching. *Global English-oriented research journal*, 1(4), 178-184.
- Schreiner, M. E. (1960). Foreign-Language Teaching: Theodore Huebner, How to Teach Foreign Languages Effectively (New York: New York University Press, 1959) 198 p. \$3.00. *Journal of Teacher Education*, 11(2), 318-318.
- Sevin, E. (2015). The effectiveness of a model based on the phases of generative learning in developing inferential thinking and achievement in engineering for the third preparatory grade students. *Journal of Educational Sciences: South Valley University - Faculty of Education in Qena*. (22). 464-512.
- Shehri, Z. (2016). The level of ability of third-grade secondary students to think of mathematical inference. *King Khalid University Journal of Educational Sciences: King Khalid University - College of Education - Educational Research Center*. (27). 173-186.
- Stannard, R. (2015). English teaching professional. *Web-watcher*, 97, 67.
- Syahrizal, T., & Rahayu, S. (2020). Padlet for English Speaking Activity: A Case Study of Pros and Cons on ICT. *Indonesian EFL Journal*, 6(2), 149-156.
- Taufikurohman, M. (2018) The Effectiveness of Using Padlet in Teaching Writing Descriptive Text. A research article, Galuh University, Faculty of Teacher Training and Education. <https://jurnal.unigal.ac.id/index.php/jall/index>



Wilson, K. H. (2015). The national and cosmopolitan dimensions of disciplinarity: Reconsidering the origins of communication studies. *Quarterly Journal of Speech*, 101(1), 244-2

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