

The Effect of Multi-Media Usage in Cognitive Demands for Teaching EFL among Jordanian Secondary School Learners

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Abstract

The role of teaching methods in EFL context is too essential and it should receive a continuous improvement due to time, environment and need changes. Several studies have examined whether certain methods improve and develop teaching process. However, cognitive demands for teaching EFL focusing on planning and critical thinking among students need further attention and focus. Accordingly, this study is aimed at investigating the effect of multi-media usage in cognitive demands for teaching EFL among Jordanian secondary school learners. This study adopted quantitative research design by distributing a questionnaire. The target population was EFL teachers at public and private secondary school. The findings indicated that multimedia (YouTube, Video, Picture, and PowerPoint) enhance cognitive demands of for teaching EFL. Multimedia more specifically, allow students to improve critical thinking and plans well when learning EFL. The study concluded that pictures help in enhancing critical thinking and planning of EFL learners as well as multimedia provide an opportunity that allow these learners to think out of the box and plan their lessons and topic effectively.

Keywords: Multimedia, Cognitive Demands, Teaching EFL, Critical Thinking, Planning, Jordanian Secondary School Learners

1. Introduction

Undoubtedly, effective teaching strategies that can encourage students to study through a variety of real-world situations from daily life is necessary for EFL material learning. The issue of such studies is frequently connected to knowledge that has been or will be researched (Serevina, et al., 2018). The recent trend to enhance the cognitive demands for teaching is supported by a wealth of common knowledge. One of the key strategies has been to incorporate artistic, technical, and creative elements into EFL learning and teaching techniques, particularly when relating them to other fields of study and culture. Cognitive psychology has shaped designs for technology-mediated teaching and learning environments and has had a significant impact on research, theory, and practice in teaching and learning (e.g., Koenig & Atkinson, 2009; Sweller, et al., 1998). As online learning environments (OLEs) have developed, a dispute about the applicability of experimentally determined cognitive concepts to these settings has become predictable but nonetheless significant. Accordingly, it is essential to highlight the following question in this vein, do various viewpoints warrant or demand different strategies? To what extent do technological affordances and the needs of the setting impact the applicability of cognitive principles? (e.g., Barnett, & Francis, 2012; Van Merriënboer et al., 1992).

The world is always changing, accordingly, the scope and structure of EFL teaching should be revised as a result of the basic issues with how EFL is normally taught as shown by research on EFL instruction and learning (e.g., Abu-shihab, et al., 2014; Alzahrani & Rahma, 2020; Farah, 2010; Naser & Hamzah, 2018, 2022; Rass, 2017; Tümen-Akyildiz, et al., 2021). According to Drbseh (2013) English, in Jordan, has been taught from grade one since the 1990s, while before that, it had been taught from grade 5. English is also the first foreign language that has been taught in Jordan, so English has a unique position. In addition, "English also enjoys a prestigious status as a medium of instruction in most colleges and as an important foreign language in other subjects" (Bani-Khaled, 2012, p.55). English is considered a prestigious language that Jordanian learners intent to learn (Alhababha et al., 2016). In this vein, Drbseh (2013) reveals that English is an important language among learners. Besides, English plays an important role in some other aspects such as infiltrating into the political, educational, and sociolinguistic life of Jordanian people.

In order to enhance English education, it is essential to highlight useful tools and strategies. Multimedia learning has several advantages,

particularly in developing a learning environment as such tools focus on the needs of the students (e.g., Alpizar, et al., 2020; Kanellopoulou, et al., 2019). Through multimedia, students may access material more quickly, from any location, at any time, and with a wider variety of learning opportunities. The integration of multimedia into EFL process skill instruction is thought to benefit students' training and development of these skills. The activities that are stressed in this research—observing, inquiring, arguing, drawing conclusions, and communicating—must be completed by the students. The effectiveness of process skill activities using learning multimedia must be evaluated (Elfeky, et al., 2020; Tinapay et al., 2021).

Indeed, even while the benefits of teaching process are becoming increasingly obvious, there are still considerable obstacles standing in the way of their inclusion in school courses (McCowan, 2018; Stromquist, 2022). An example of this is the time commitment needed for instruction. It is seen as a main obstacle. Every teacher is aware that they only have so much time with their pupils, so they must plan carefully how to use that time to accomplish the objectives of the course. This brings up the age-old argument between covering as much content as possible and adopting a "less is more" strategy that prioritises skill development and inquiry while focusing on a more constrained number of topics (Greenhill, 2010; Sulaiman, & Ismail, 2020). As previously mentioned, the majority of the incorporation of EFL process skills has thus far been concentrated on course-wide redesigns and long-term education (Abu-Shihab, 2022; Alawneh, 2022; Al-qadi & Naser, 2018; Alzobidy, & Naser, 2022; Qiu, & Luo, 2022). The instructor must devote a significant amount of time to these extensive adjustments, and class time must be rearranged (e.g., Crogman, et al., 2015). Other attempts to emphasise EFL process skills have concentrated on including their incorporation into laboratory and research settings, however not all courses and instructors have access to this option (e.g., Milliner, & Dimoski, 2021; Voorhees, et al., 2022).

Since, English language vocabulary as well as other needed skills are still main challenges for EFL Jordanian students and the Ministry of Education in Jordan gives more emphasis on English language to be taught in schools and universities. Moreover, EFL students' main problems regarding to learning EFL are not solved completely. In addition, several researchers (e.g., Alhabab et al., 2016; Elmawdi & Shepherd, 2014; Mohsen & Shafeeq, 2014; 2014; Naser & Hamzah, 2022) have confirmed that EFL students in Jordan are still in need for mastering English language. An investigation regarding the role of multimedia in cognitive demands based on teachers' perspectives for the Jordanian EFL students at school is needed.

2. Literature Review

2.1 Multimedia

The term "multimedia" refers to the blending of many media formats. The combination of text, music, still images, animation, video, and interactivity also contribute to its understanding (Li, et al., 2004). For instance, slides integrate text, graphics, and occasionally video with other material to create a multimedia presentation (Abdulrahman, 2020; Palioura, & Dimoulas, 2022). The quick advancement of information technology has given us cutting-edge multimedia teaching tools. It is true that using multimedia in teaching instruction has several benefits, including providing more knowledge, saving more time, igniting students' imaginations and creativity, etc. In reality, using multimedia in the classroom could help teachers and teaching materials alike. It can also help students learn by their own, undoubtedly, multimedia instruction has even replaced traditional classroom methods as a teaching method (Chen, et al., 2018).

When used for instruction, multimedia can take the form of teacher-created PowerPoint presentations, for-profit software (like multimedia encyclopaedias) that is used for reference and instruction, or activities that directly involve students in using multimedia to effectively teach a language. Video, audio, and photos are dispersed over various videos, videos, VCDs, and related web materials, depending on the demands of the teacher (Yong, 2019). The term "multimedia approach" refers to a teaching strategy that uses a variety of media to enhance learning and teaching (e.g., Atiku, 2021; Sasan, & Rabillas, 2022). One such innovation that aims to enhance teaching and learning process is the multimedia approach. A relatively recent topic, educational technology seeks to address issues with teaching and learning.

2.2 Multimedia Learning According to Cognitive Theory (MLCT)

According to this MLCT, learning through multi-media enhances brain function. According to this notion, using words and visuals during the learning process is essential (Mayer, 2014). The basic objective of this theory is to use multi-media when teaching a language in order to assist students to create a coherent mental representation of the information delivered. Mayer (2005) adds that in order to build their new knowledge, students must make meaning of these materials. According to Mayer (2011), when students are engaged in the following 5 cognitive processes, learning can be meaningfully derived from the pictures and words that are employed. These processes include using pertinent language and imagery, grouping the chosen words and images, and finally fusing the visual and verbal representations with past knowledge and with one another. The integration of YouTube while teaching EFL in a classroom enhances learning process of English through experience as well as improving learners' cognitive skills, according to the theory of multi-media, which makes learning deeper, meaningful and opposes memorization.

2.2.1 Cognitive Demand

Cognitive demand is more than just rigor. It is that mental state a person experiences when they are so deeply engaged with a task that they use all of their mental resources and do not notice time passing (e.g., Lombardi, et al., 2010; Norman, 1980).

2.2.2 Critical Thinking

Analyzing the information at hand—facts, evidence, observations, and arguments—in order to make a decision is known as critical

thinking. The topic is complicated, and there are many various definitions of what it means to analyse or evaluate factual data in a reasonable, sceptical, and objective manner (e.g., Alsaleh, 2020; Renatovna, & Renatovna, 2021). Self-directed, self-disciplined, self-monitored, and self-corrective thinking are all characteristics of critical thinking (Yulduz, 2021). It assumes agreement with strict criteria of excellence and careful command of their application. It requires strong problem-solving and communication skills as well as a commitment to overcoming ingrained egocentrism and sociocentrism (Zhou, 2022).

2.2.3 Planning

A document that is used for learning development over time and may be electronic or interactive is referred to as a learning plan (Assunção Flores, & Gago, 2020; Mishra, et al., 2020). A learning plan can be used by any entity. It can be used by teams, communities of practise, or organisations in addition to individuals, who frequently use them to plan and manage their own learning (Bryson, & George, 2020; Hettiarachchi, 2021). An organisational level plan may consist of the sum of its individual plans or may include details on the organization's overall emergent learning needs (Karalis, 2020). A person's life can be improved by actively creating and maintaining a learning plan, and a community can be made stronger by sharing learning plans.

2.3 Multimedia Related Studies

Several studies multimedia effect on teaching and highlighted some important notes (Chen, et al., 2018; Jayanthi, 2019). Chen et al., (2018) investigated learning satisfaction and learning outcomes of students by applying computer multimedia teaching to automobile vocational education. Their study recommended using such methods in teaching. Jayanthi (2019) studied multimedia and metacognition based teaching on achievement in mathematics in classroom. Jayanthi found that multimedia affected positively teaching mathematics. This study confirms that using multimedia is useful for teaching and learning.

Further studies (e.g., Almekhlafi & Shaban 2021; Inomzoda, 2021; Murod, et al., 2021; Ratnawati, et al., 2021) also investigated the use of multimedia as effective factor on learning and teaching. Inomzoda's (2021) study analyzed the teacher's pedagogical skills, knowledge, and skills related to the choice of profession, as well as personality traits in the choice of profession, the reader's psychology, the criteria indicating the readiness of students to choose a profession, the content, and other related factors. On the subject, methodological suggestions have been suggested. Murod, et al., (2021) investigated the fundamentals of developing and using a multimedia-based interactive training course are covered in this article. The article focuses on the usage of interactive e-learning courses, how to develop interactive e-learning courses, and lecture sessions as part of the learning process.

Ratnawati, et al., (2021) conducted a study to create a lectora, a multimedia-based learning tool, for elementary teaching techniques. The study involved Social Science Education Major Students. Lectora, a multimedia-based learning tool for teaching lessons that covers the fundamentals, is the outcome of all the testing and is suitable for use and sharing with others. In addition, Almekhlafi and Shaban (2021) conducted a study investigating both teachers and students, indicating that teaching and learning are difficult and demanding responsibilities. Teachers spend a lot of time teaching pupils content and assisting them in understanding it. Additionally, in order to succeed in technology-enhanced classrooms where smart mobile learning (SML) takes place, students must put in a lot of effort and have a positive outlook toward both learning and teaching. The use of SML and its effects on teaching and learning were investigated from the perspectives of students and faculty members. At the United Arab Emirates University, 401 students and instructors completed a questionnaire that included both closed- and open-ended items. Results revealed that both students and teachers had extremely favourable opinions of standard mobile learning (SML). Students also noted a variety of benefits for SML in terms of picking up new information and communicating with others.

Alsalmi, et al., (2021) investigated how blended learning affects students' academic performance in a statistics Bluman course at the University of Ajman. The study was quasi-experimental in design. In the study, 268 students were randomly chosen and split into two groups: an experimental group (n = 135) that participated in blended learning and a control group (n = 133) that received traditional instruction. After confirming the achievement test's validity and reliability, the researchers created it as a research instrument. The results showed that the mean scores on the students' post-test in the two study groups varied significantly statistically. This is in favour of the experimental group's blended learning-based education. Additionally, according to the results, the experimental group students' scores varied based on the variable of gender (in favour of females) and according to the academic year of the students (supporting those students in the fourth academic year). According to the variable of the college they studied at, there were no statistically significant differences between the students. According to the findings, blended learning should be used more widely across all subject areas.

Even though these studies have investigated the role of multimedia in various aspects, they did not include cognitive demands for teaching EFL. They did not also implement MLCT as a main theory. Hence, there is a gap in addressing the cognitive perspectives of learners as being enhanced with the use of multimedia. More precisely, this study attempted to investigate the effect of multimedia (YouTube, Video, Picture, and PowerPoint) on cognitive demands for teaching EFL focusing on critical thinking and planning.

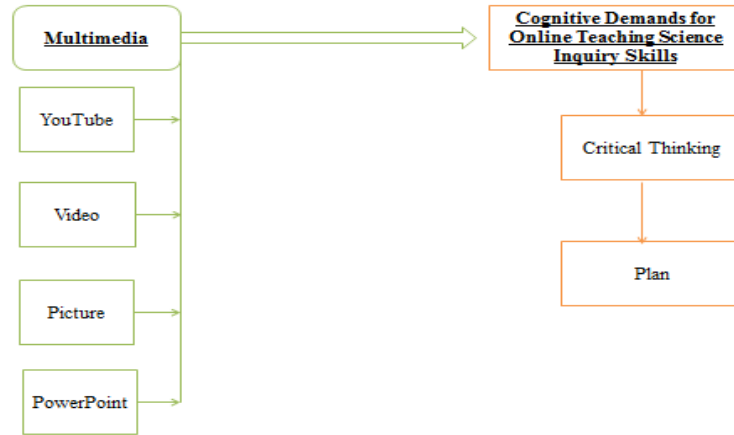


Figure 1. Study Model

3. Methodology

This study adopted quantitative methods using a questionnaire in order to reach to a large number of respondents (Wilkinson & Birmingham, 2003). In a similar vein, Wellington and Szczerbinski (2007) said that the goal of the quantitative method is to manage, understand, and forecast social processes. Additionally, Sekaran (2003) pointed out that a quantitative approach makes an effort to explain and resolve difficult problems. Additionally, a quantitative approach is capable of achieving the study's goals by using empirical valuations that incorporate measurements and analyses, as well as numerical values (Zikmund, et al., 2013). They also emphasised that testing particular research questions or hypotheses is a typical objective of quantitative research.

Sekaran (2003) said that a quantitative study design enables researchers to focus on a specific subject, to pursue a rigorous methodology, and to produce reliable conclusions. A questionnaire, according to Awang (2010), is a set of organised questions meant to gather the data needed for study. Because it's simple to create and can quickly acquire a lot of the necessary information, the questionnaire is one of the tools that's most used and well accepted in the social sciences (Dörnyei, 2007). As a result, the quantitative survey methodologies used in this study are adequate given the nature of the research. More deeply, this study attempted to identify the effect of multimedia (YouTube, Video, Picture, and PowerPoint) on cognitive demands for teaching science, English, and other courses' inquiry skills focusing on critical thinking and planning. The target population is Jordanians' governmental and private school teachers of EFL in the secondary stage. The sample size of this study is 384 respondents based on Krejcie and Morgan (1970).

The five-stage Likert scale was adopted to correct the study measures, where each of its items is given one score out of its five degrees (strongly agree, agree, neutral, disagree, strongly disagree), and it is represented numerically (5, 4, 3, 2, 1). The following scale was adopted for the purposes of analyzing the results as shown by using the following equation:

$$\frac{\text{The upper limit of alternatives - the limit the minimum for alternatives}}{\text{The number of levels}} = \frac{3}{5-1}$$

The values of the mean of the individuals' responses were calculated according to the following equation: The response range is $5 - 1/3 = 4/3 = 1.33$, so the values are as follows:

- A. The mean value from (1 to less than 2.33), the response is of a low degree.
- B. The mean value (2.34 to less than 3.67) is of moderate degree.
- C. The mean value from (3.68 to less than 5) the response is high.

Accordingly, the effective relationship was measured based on the responses ranked from strongly agree to strongly disagree. Such responses allowed the researchers to evaluate whether respondents found that multimedia implementation is effective or not. Hence, mean and standard deviation were the focus of the analysis. In addition, this study attempted to identify the effect of gender and school type. Thus, regression analysis was implemented.

4. Analysis and Discussion

4.1 Demographic Information

Table 1. Distribution of respondents according to Gender and School Type

Demographic Factors	Frequency	Percent
Gender		
Male	197	53
Female	175	47
School Type		
Public	172	46.4
Private	200	53.6

The gender and school types were reported. The participants were (384) EFL teachers in different schools in Amman (male=197, 53%; female=175, 47%; see table 1). As for school types, they were as follows: (172) teachers from public school (46.4%) and (200) teachers from private school (53.6%).

4.2 Descriptive Statistics

In order to identify the effect of multimedia use on enhancing cognitive demands for teaching EFL focusing on critical thinking and planning, the mean, standard deviation, and rank are presented.

Table 2. The Descriptive Statistic of the Questionnaire items looking at Mean, Standard Deviation, and Rank

	Mean	Std. Deviation	Rank
I use any pictures or gestures to help me enhance critical thinking and planning of students when teaching EFL	3.87	.757	High
Draw pictures to help me enhance critical thinking and planning of students when teaching EFL	4.03	.750	High
Making a mental image when teaching EFL due to the use of multimedia enhancing critical thinking and planning of students	4.20	.729	High
Using flashcards to enhance critical thinking and planning of students when teaching EFL	3.83	.701	High
Using multimedia (YouTube, Video, Picture, and/or PowerPoint) enhance critical thinking and planning of students when teaching EFL	3.82	.815	High
Multimedia present many useful details that enhance critical thinking and planning of students when teaching EFL	4.06	1.036	High
Multimedia provide an opportunity that allow students to think out of the box	3.70	.857	High
Multimedia provide an opportunity that allow students to plan their lessons and topic effectively	4.23	.961	High
Valid N (listwise)			

Table 2 illustrates mean and standard deviation of the questionnaire items. It shows that teachers highly agreed on the items' selection as being effective. This means that pictures gestures help students enhance their critical thinking and planning when they study EFL. Besides, teachers emphasized that multimedia can create a mental image when they teach EFL and such mental image is due to the use of multimedia. Hence, this can enhance critical thinking and planning of EFL students. In addition, this study went further to identify the effect of other uses of multimedia. In this vein, the study proposed how effective are the use of flashcards in order to enhance critical thinking and planning of students when teaching EFL, accordingly, teachers agreed that flashcards could enhance students' critical thinking and planning. In addition, the use of multimedia including YouTube, Video, Picture, and/or PowerPoint enhance critical thinking and planning when teaching EFL as they present many useful details in this regard. EFL teachers also indicate that multimedia tools provide an opportunity that allow students to think out of the box and plan their lessons and topic effectively.

In addition, this study identified the effect of gender and school types of teachers. This is highly preferred in order to examine the role of gender as well as the role of school type whether it is private or governmental school.

Table 3. Items Responses based on School Types

		Total	School Type		P. Value
			Public	Private	
I use any pictures or gestures to help me enhance critical thinking and planning of students when teaching EFL	Disagree	12	6	6	0.533
	Neutral	98	42	56	
	Agree	188	96	92	
	Strongly Agree	73	28	45	
Draw pictures to help me enhance critical thinking and planning of students when teaching EFL	Disagree	22	7	15	0.740
	Neutral	32	13	19	
	Agree	229	105	124	
	Strongly Agree	88	47	41	
Making a mental image when teaching EFL due to the use of multimedia enhancing critical thinking and planning of students	Disagree	6	2	4	0.941
	Neutral	51	23	28	
	Agree	177	81	96	
	Strongly Agree	137	66	71	

Using flashcards to enhance critical thinking and planning of students when teaching EFL	Disagree	22	7	15	0.205
	Neutral	62	22	40	
	Agree	244	120	124	
	Strongly Agree	43	23	20	
Using multimedia (YouTube, Video, Picture, and/or PowerPoint) enhance critical thinking and planning of students when teaching EFL	Strongly Disagree	9	3	6	0.26
	Disagree	21	7	14	
	Neutral	45	16	29	
	Agree	249	119	130	
Multimedia present many useful details that enhance critical thinking and planning of students when teaching EFL	Strongly Agree	47	27	20	0.007
	Strongly Disagree	9	6	3	
	Disagree	21	9	12	
	Neutral	72	42	30	
Multimedia provide an opportunity that allow students to think out of the box	Agree	108	63	45	0.094
	Strongly Agree	161	52	109	
	Strongly Disagree	9	6	3	
	Disagree	34	12	22	
Multimedia provide an opportunity that allow students to plan their lessons and topic effectively	Neutral	53	29	24	0.484
	Agree	239	114	125	
	Strongly Agree	36	11	25	
	Strongly Disagree	6	2	4	
	Disagree	21	11	10	
	Neutral	39	22	17	
	Agree	120	52	68	
	Strongly Agree	185	85	100	

Table 3 presents that the following two items: “ (i) using multimedia (YouTube, Video, Picture, and/or PowerPoint) enhance critical thinking and planning of students when teaching EFL; and (ii) multimedia present many useful details that enhance critical thinking and planning of students when teaching EFL” have a significant relationship with school types comparing to other items. This could be due to the frequent use of YouTube, Video, Picture, and/or PowerPoint comparing to others. In addition, it can be observed that multimedia tools provide useful details and such details enhance students’ critical thinking and planning. Based on these two assumptions, it could be inferred how these two items significantly affected cognitive demands of EFL students.

Furthermore, table 3 also shows that school teachers have mostly agreed to the use of multimedia comparing to public school teachers. This could be due to the emphasis of school management on the implementation of multimedia as well as due to the infrastructure of schools. It could be observed that schools aim to an always improvements.

Table 4. Items Responses based on Respondents’ Gender

		Total		Gender		P. Value
		Male	Female	Male	Female	
I use any pictures or gestures to help me enhance critical thinking and planning of students when teaching EFL	Disagree	12	8	4	0.659	
	Neutral	98	42	56		
	Agree	189	111	78		
	Strongly Agree	73	36	37		
Draw pictures to help me enhance critical thinking and planning of students when teaching EFL	Disagree	22	9	13	0.330	
	Neutral	32	13	19		
	Agree	229	127	102		
	Strongly Agree	89	48	41		
Making a mental image when studying EFL due to the use of multimedia enhancing critical thinking and planning of students	Disagree	6	4	2	0.954	
	Neutral	51	23	28		
	Agree	178	94	84		
	Strongly Agree	137	76	61		
Using flashcards to enhance critical thinking and planning of students when teaching EFL	Disagree	22	9	13	0.047	
	Neutral	62	22	40		
	Agree	245	143	102		
	Strongly Agree	43	23	20		
Using multimedia (YouTube, Video, Picture, and/or PowerPoint) enhance critical thinking and planning of students when teaching EFL	Strongly Disagree	9	4	5	0.297	
	Disagree	21	7	14		
	Neutral	45	28	17		
	Agree	249	130	119		
Multimedia present many useful details that enhance critical thinking and planning of students when teaching EFL	Strongly Agree	48	28	20	0.110	
	Strongly Disagree	9	6	3		
	Disagree	21	10	11		
	Neutral	72	42	30		
	Agree	108	72	36		

	Strongly Agree	162	67	95	
Multimedia provide an opportunity that allow students to think out of the box	Strongly Disagree	9	6	3	0.441
	Disagree	34	12	22	
	Neutral	54	36	18	
	Agree	239	126	113	
Multimedia provide an opportunity that allow students to plan their lessons and topic effectively	Strongly Agree	36	17	19	0.877
	Strongly Disagree	6	3	3	
	Disagree	21	11	10	
	Neutral	39	25	14	
	Agree	120	59	61	
	Strongly Agree	186	99	87	

Table 4 shows that the following item: “(i) using flashcards to enhance critical thinking and planning of students when teaching EFL” has a significant relationship due to the gender factor comparing to other items. This could be due to the fact that teachers are more comfortable with the use of flashcard comparing to other multimedia platforms and/or facilities. In addition, teachers can keep such flashcards with them years and they frequently use them so they are enhanced more and more helping them to effectively use this multimedia component.

This study agrees with various studies in regard to the importance of the use of multimedia for teaching process, Almekhlafi and Shaban (2021) who indicated that for both teachers and students, teaching and learning are difficult and demanding responsibilities. Teachers spend a lot of time teaching pupils content and assisting them in understanding it. Additionally, in order to succeed in technology-enhanced classrooms where smart mobile learning (SML) takes place, students must put in a lot of effort and have a positive outlook toward both learning and teaching. In this regard, Lestari (2019) and Teng (2017) mentioned that active learning process including media enhance students’ EFL learning and satisfaction. In this vein, Chen, et al., (2018) and Jayanthi, (2019) also highlighted the essential needs of multimedia.

However, these studies empirically and theoretically indicated to the importance of multimedia, they did not examine the effect of multimedia on enhancing critical thinking and planning in general and among Jordanian secondary school students in particular. Accordingly, this study has added a value to the field of research by identifying the effect of multimedia on critical thinking and planning when teaching and learning EFL. This view was identified from the perspective of EFL teachers. Indeed, these teachers can be aware regarding to the effect of multimedia on student’s critical thinking and planning.

5. Conclusion

The primary purpose of this research was to provide a comprehensive overview of EFL teachers’ perspective on the use of multimedia while teaching English and how it affects cognitive demands enhancing critical thinking and plan for secondary school students. The study is expected to enhance the understanding of the policymakers, learners, teachers, and researchers about the usefulness of multimedia for teaching process. On other words, this research of style and learning from authentic multimedia materials reveals several conclusions that are applicable in real-world settings. It demonstrates, as one might expect, how a student's cognitive type and the mode of presentation interact to influence learning outcomes. The fact that multi-media materials typically provide students greater control over their learning experience than do traditional materials—and that this control is expected to grow with each new generation of materials—is a key aspect of these materials. It also emphasizes the necessity for material designers to be conscious of style and concentrate on both the technological excellence and the instructional design elements of the products they are developing. It now shows that EFL students learn more effectively through multi-media than they do through conventional teaching techniques. However, it is possible that this disparity will disappear as technology advances and viewing screens get bigger. Lastly, this study recommends further investigations in this regard. For example, future researchers can focus on factors that may affect the use of multimedia and its role in enhancing learners’ motivation, attitudes, and self-confidence.

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Authors contributions

Sample: Dr. Soleman Alzobidy and Dr. Issa Naser were responsible for study design and revising. Dr. Maha Al-Qadi and Issa Naser was responsible for data collection. Dr. Saleh Belgacem Belhassen drafted the manuscript and Dr. Shahab Al Maaytah revised it. All authors read and approved the final manuscript.

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No additional data are available.

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References

- Abdulrahman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., ... Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon*, 6(11), e05312.
- Abu-Shihab, I. (2022). The Use of Metaphorical Expressions in Jordanian Arabic among Jordanians Living in Irbid District in the North of Jordan. *Journal of Positive School Psychology*, 6655-6664.
- Abu-shihab, E., Ramadan, S., Ababneh, T., & Abushihab, I. (2014). An Analysis of Spoken Grammatical Errors of Arab Learners of English as a Foreign Language at Al-Zaytoonah University of Jordan. *Journal of Al-Ma'moon College*, 24.
- Alawneh, H. (2022) Grammatical Rank and Arabic Grammar Theory in the "Late Night" Collection by Mahmoud Darwish, *Al-Zaytoonah University of Jordan Journal for Human and Social Studies*, 1, 54-66.
- Alhabahba, M. M., Pandian, A., & Mahfoodh, O. H. A. (2016). English language education in Jordan: Some recent trends and challenges. *Cogent Education*, 3(1), 1-14.
- Almekhlafi, A. G., & Shaban, M. S. (2021) Students' and Instructors' Perceptions of the Use and Impact of Smart Mobile Learning at the UAE University. *International Journal of Innovation, Creativity and Change*, 15(9), 345-367.
- Alpizar, D., Adesope, O. O., & Wong, R. M. (2020). A meta-analysis of signaling principle in multimedia learning environments. *Educational Technology Research and Development*, 68(5), 2095-2119.
- Al-qadi, M. J., & Naser, I. M. M. (2022). Lexical Relation Presentations In The Views Of Usage-Based Cognitive Semantics: The Case Of Antonymy, Synonymy, And Polysemy. *Journal of Positive School Psychology*, 2494-2499.
- Alsaleh, N. J. (2020). Teaching Critical Thinking Skills: Literature Review. *Turkish Online Journal of Educational Technology-TOJET*, 19(1), 21-39.
- Alsahli, N. R., Eltahir, M., Al-Qatawneh, S., Ouakli, N., Antoun, H. B., Abdelkader, A. F., & Al Jumaili, L. (2021). Blended Learning in Higher Education: A Study of Its Impact on Students' Performance. *International Journal of Emerging Technologies in Learning*, 16(14).
- Awang, Z. H. (2010). *Research methodology for business & social sciences*. University Publication Centre (UPENA). Malaysia.
- Alzahrani, S., & Rahma, E. (2020). Evaluating the Arabic Language-teaching Program for Non-Arabic Speakers in the Faculty of Arts at Taif University from the Point of View of Graduates, *Al-Zaytoonah University of Jordan Journal for Human and Social Studies*, 2(1), 87-129.
- Alzobidy, S., & Naser, I. M. M. (2022). The Presentations of Van Dijk Model in the Speech of Putin in the Independence of the Donetsk People's Republic and the Lugansk People's Republic. *Journal of Positive School Psychology*, 6(8), 2416-2424.
- Assunção Flores, M., & Gago, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal: national, institutional and pedagogical responses. *Journal of Education for Teaching*, 46(4), 507-516.
- Atiku, F. (2021). Multimedia in Education and the COVID 19 Era. *International Journal of Operational Research in Management, Social Sciences & Education*, 7, 146-152.

- Bani-Khaled, T. (2012). Jordanian English language research: A meta-analysis. *International Journal of Humanities and Social Science*, 2(14), 55-66.
- Barnett, J. E., & Francis, A. L. (2012). Using higher order thinking questions to foster critical thinking: A classroom study. *Educational Psychology*, 32(2), 201-211.
- Bryson, J., & George, B. (2020). Strategic management in public administration. In *Oxford Research Encyclopedia of Politics*.
- Chen, Y. F., Luo, Y. Z., Fang, X., & Shieh, C. J. (2018). Effects of the application of computer multimedia teaching to automobile vocational education on students' learning satisfaction and learning outcome. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(7), 3293-3300.
- Crogman, T. H., Trebeau Crogman, A. M., Warner, L., Mustafa, A., & Peters, R. (2015). Developing a new teaching paradigm for the 21st century learners in the context of Socratic methodologies. *British Journal of Education, Society & Behavioural Science*, 9(1), 62-95.
- Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford University Press, England.
- Drbseh, M. M. H. (2013). The spread of English language in Jordan. *International Journal of Scientific and Research Publications*, 3(9), 1-5.
- Elfeky, A. I. M., Masadeh, T. S. Y., & Elbyaly, M. Y. H. (2020). Advance organizers in flipped classroom via e-learning management system and the promotion of integrated science process skills. *Thinking Skills and Creativity*, 35, 100622.
- Elmadwi, H. H., & Shepherd, R. (2014). A critical study of the problems faced by the Libyan students in reading and comprehension of English as a foreign language. *IOSR Journal of Humanities and Social Science*, 19, 1.
- Farah, S. (2010). Challenges of teaching English in the Arab world: Why can't EFL programs deliver as expected? *Procedia-Social and Behavioral Sciences*, 2(2), 3600-3604.
- Greenhill, V. (2010). 21st Century Knowledge and Skills in Educator Preparation. *Partnership for 21st century skills*.
- Hettiarachchi, H. A. C. K. (2021). The Planing of Instructional Designs for Comprehensive Lessons to Improve Oral Expression among the First-Year Students of University of Kelaniya.
- Inomzoda, A. A. (2021). Improving The Teaching Of" Education" On the Basis of Multimedia Technologies(On the Example of Primary Classes). *Texas Journal of Multidisciplinary Studies*, 2, 88-90.
- Jayanthi, C. E. (2019). Effectiveness of geogebra on achievement in mathematics of standard xi students. *Advance and Innovative Research*.
- Kanellopoulou, C., Keranidis, K. L., & Giannakouloupoulos, A. (2019). The dual-coding and multimedia learning theories: Film subtitles as a vocabulary teaching tool. *Education Sciences*, 9(3), 210.
- Karalis, T. (2020). Planning and evaluation during educational disruption: Lessons learned from Covid-19 pandemic for treatment of emergencies in education. *European Journal of Education Studies*.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ psychol meas*.
- Koenig, A. D., & Atkinson, R. K. (2009). Using narrative and game-schema acquisition techniques to support learning from educational games. In *Cognitive effects of multimedia learning* (pp. 312-325). IGI Global.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ psychol meas*.
- Lestari, N. (2019). Improving the speaking skill by vlog (video blog) as learning media: The EFL students perspective. *BEST PRACTICES IN EDUCATION MANAGEMENT: Teaching, Learning and Research*, 89.
- Levey, S., Levey, T., & Fligor, B. J. (2011). Noise exposure estimates of urban MP3 player users. *Journal of Speech, Language, and Hearing Research*, 54(1), 263-277.
- Li, Z. N., Drew, M. S., & Liu, J. (2004). *Fundamentals of multimedia* (pp. 253-265). Upper Saddle River (NJ): Pearson Prentice Hall.
- Lombardi, A., Seburn, M., Conley, D., & Snow, E. (2010). A Generalizability Investigation of Cognitive Demand and Rigor Ratings of Items and Standards in an Alignment Study. *Online Submission*.
- Mayer, R. E. (2005). Cognitive theory of multimedia learning. *The Cambridge handbook of multimedia learning*, 41, 31-48.
- Mayer, R. E. (2011). *Multimedia learning and games*.
- Mayer, R. E. (2014). Incorporating motivation into multimedia learning. *Learning and instruction*, 29, 171-173.
- McCowan, T. (2018). Five perils of the impact agenda in higher education. *London Review of Education*, 16(2), 279-295.
- Milliner, B., & Dimoski, B. (2021). The effects of a metacognitive intervention on lower-proficiency EFL learners' listening comprehension and listening self-efficacy. *Language Teaching Research*, 13621688211004646.
- Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, 100012.

- Mohsen, M. A., & Shafeeq, C. P. (2014). EFL Teachers' Perceptions on Blackboard Applications. *English Language Teaching*, 7(11), 108-118.
- Murod, U., Suvankulov, B., Bakiyeva, M., & Nusratova, D. (2021). Fundamentals of Creation and Use of Interactive Electronic Courses on the Basis of Multimedia Technologies. *Annals of the Romanian Society for Cell Biology*, 6860-6865.
- Naser, I. M. M., & Hamzah, M. H. B. (2018). Pronunciation and conversation challenges among Saudi EFL students. *JEES (Journal of English Educators Society)*, 3(1), 85-104.
- Naser, I. M. M., & Hamzah, M. H. B. (2022). Pronunciation Difficulties and Challenges in the Field of Research in Jordan, *Journal of Humanities and Social Sciences*, 6(14), 140-157.
- Norman, D. A. (1980). Twelve issues for cognitive science. *Cognitive science*, 4(1), 1-32.
- Ozoda, X., & Maftuna, X. (2021). The role of multimedia in education. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(4), 1305-1312.
- Palioura, M., & Dimoulas, C. (2022). Digital Storytelling in Education: A Transmedia Integration Approach for the Non-Developers. *Education Sciences*, 12(8), 559.
- Rass, F. M. A. (2017). Problems Facing English Language Students at AL-Zaytoonah University of Jordan in Learning Perfect Tenses from their Perspective. *JEP*, 8(25).
- Ratnawati, N., Wahyuningtyas, N., Ruja, I., Habibi, M., & Anggraini, R. (2021). Developing Multimedia-Based Learning Media for Basic Skill of Teaching Material in Order to Equip Professional Teachers. *International Journal of Emerging Technologies in Learning (iJET)*, 16(7), 77-89.
- Qiu, Y., & Luo, W. (2022). Investigation of the effect of flipped listening instruction on the listening performance and listening anxiety of Chinese EFL students. *Frontiers in Psychology*, 13, 1043004.
- Renatovna, A. G., & Renatovna, A. S. (2021). Pedagogical and psychological conditions of preparing students for social relations on the basis of the development of critical thinking. *Psychology and education*, 58(2), 4889-4902.
- Sasan, J. M., & Rabillas, A. R. (2022). Enhancing English proficiency for Filipinos through a multimedia approach based on constructivist learning theory: a review. *Science and Education*, 3(8), 45-58.
- Sekaran, U. (2003). *Research Methods for Business: A Skill Building Approaches* (4th Ed). New York. United States: John Wiley & Sons
- Serevina, V., Astra, I., & Sari, I. J. (2018). Development of E-Module Based on Problem Based Learning (PBL) on Heat and Temperature to Improve Student's Science Process Skill. *Turkish Online Journal of Educational Technology-TOJET*, 17(3), 26-36.
- Stromquist, N. P. (2022). Women's Education in the 21st Century. *Comparative education: The dialectic of the global and the local*, 187.
- Sulaiman, J., & Ismail, S. N. (2020). Teacher competence and 21st century skills in transformation schools 2025 (TS25). *Universal Journal of Educational Research*, 8(8), 3536-3544.
- Sweller, J., Van Merriënboer, J. J., & Paas, F. G. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10(3), 251-296.
- Teng, M. F. (2017). Flipping the classroom and tertiary level EFL students' academic performance and satisfaction. *Journal of Asia TEFL*, 14(4), 605.
- Tinapay, A., Tirol, S., Cortes, J. A., & Punay, M. (2021). Attitude of learners towards science and their science process skills in the case of the spiral curriculum: A. *International Journal of Research*, 10(15), 13-24.
- Tümen-Akyıldız, S., Çelik, V., & Ahmed, K. H. (2021). The Impact of COVID-19 Pandemic on EFL Classes through the Lenses of Secondary Learners. *Shanlax International Journal of Education*, 9(4), 389-406.
- Van Merriënboer, J. J., Jelsma, O., & Paas, F. G. (1992). Training for reflective expertise: A four-component instructional design model for complex cognitive skills. *Educational Technology Research and Development*, 40(2), 23-43.
- Voorhees, D. H., LeMay, L. E., Nagy, E. A., & Perez, A. E. (2022). Successes with metacognition: Empowering faculty and transforming student learning. *New Directions for Community Colleges*, 2022(199), 17-33.
- Wellington, J., & Szczerbinski, M. (2007). *Research methods for the social sciences*. New York: United States: London; A&C Black.
- Wilkinson, D., & Birmingham, P. (2003). *Using research instruments A guide for researchers* (1st ed). London. England: Routledge Falmer.
- Yong, P. (2019). *Application and exploration of interactive teaching theory in college english in multimedia environment*.
- Yulduz, I. (2021). Cognitive competence as a scaffold to be boosting critical thinking. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(10), 1498-1501.
- Zhou, Z. (2022). Critical Thinking: Two Theses from the Ground Up. *Journal of the Scholarship of Teaching and Learning*, 22(1).
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. England: Cengage Learning.

Appendix A

Demographic Information

Gender		Male		Female
School Type		Public		Private

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I use any pictures or gestures to help me enhance critical thinking and planning of students when teaching EFL	1	2	3	4	5
2	Draw pictures to help me enhance critical thinking and planning of students when teaching EFL	1	2	3	4	5
3	Making a mental image when teaching EFL due to the use of multimedia enhancing critical thinking and planning of students	1	2	3	4	5
4	Using flashcards to enhance critical thinking and planning of students when teaching EFL	1	2	3	4	5
5	Using multimedia (YouTube, Video, Picture, and/or PowerPoint) enhance critical thinking and planning of students when teaching EFL	1	2	3	4	5
6	Multimedia present many useful details that enhance critical thinking and planning of students when teaching EFL	1	2	3	4	5
7	Multimedia provide an opportunity that allow students to think out of the box	1	2	3	4	5
8	Multimedia provide an opportunity that allow students to plan their lessons and topic effectively	1	2	3	4	5