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The Effect of Audiovisual Aids on Jordanian Secondary School Students' Comprehension Ability

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ABSTRACT

In this modern era where the teaching-learning process is rapidly changing various new methods and techniques have entered in the field of education. One of these methods is the use of audiovisual aids. Audiovisual education has enabled teachers to convert monotonous learning environment of the classroom into an interesting and effective phenomenon. By stimulating multiple senses these audiovisual aids enhance students' analytical and critical thinking thereby improve their comprehension skills and make learning permanent. The current study is a quasi-experiment with 'One-Group Pretest-Posttest Design' which investigates the effectiveness of audiovisual aids on secondary school students' ability to elicit meaning from the text. Study population was consisted of 40 secondary school students. Students were subjected to a 'theme-based comprehension' test twice, before and after exposure to an audiovisual clip. An evaluation of both answers of each participant was held by comparing them with the four predefined possible themes. *Likert Scale* based rating of both answers of every participant was then performed and each of these two answers was assigned a score (*i.e.*, level of comprehension 1, 2, 3, and 4). The pre and post intervention results were analyzed using *paired samples t test*. The results suggest that audio-visual aids are effective in increasing the students' ability to comprehend meaning from the text as indicated in the significantly improved meaning-extraction-ability scores for post-intervention assessment. But the underlying cause of improvement is still unclear *i.e.*, to what extent the individual comprehension skills namely, *prediction-ability; visualizing-power; questioning-ability; connecting-skill; identification-power; inference-power and evaluation-capacity* were improved.

Keywords: *Audio-Visual Aids, Meaning Extraction, Comprehension Skills, Active Learning*

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1. Introduction

As it is known that a teacher uses various approaches to teach his students and enhance their active learning. Over the years, with the effort of teachers, different methods and techniques have entered in the field of education. One of these methods used by the teachers to make effective learning possible, is the use of audiovisual aids (Al Mamnun, 2014). The audiovisual resources kindle the interest of learners and aid the teachers to describe the concepts easily. These audiovisual resources are basically the instructional aids that are used in the classroom to assist and encourage the students to extract meaning from the context. According to Burton (1955), audiovisual aids stimulate and support effective learning. Also, Kinder (1942) states that, with the use of audiovisual resources the learning experience can be made more real, accurate and active. "Individuals learn better when they receive

information in their preferred learning style (for example, visual, auditory or kinesthetic)" (Coe et al., 2014). The reason for choosing the significance of audiovisual resources for learners in drawing the explicit meaning from the given context is the fact that most learners in this age of technology and revolution are visual learners. It has been observed that, now-a-days, students learn information the most by seeing it in the form of an example, such as, a picture, or a map, or a video. Moreover, these students are brilliant at visualizing objects; planning and anticipating the outcomes in a spatial sense; finding delight in inferring their answers in various colors to portray their complex thought process. Audiovisual resources-based learning can be an extremely significant tool (Tang & Intai, 2018). Typically, this type of learning is not developed in most of the school systems. It requires a lot of knowledge and expertise to implement this learning in the classroom.

Many teachers which implement these audiovisual resources in their classrooms, lack the expertise required for attaining the immense benefits of these tools. They rather use these resources to take the burden of explaining the context to students, off their own shoulders. For instance, some teachers use textual description, pictorial or video presentation of the topics they want to teach and without explaining anything properly, they just run the presentation and so the lecture time passes easily. Teachers should plan properly before using audiovisual aids (Rasul et al., 2011). In addition, teachers do not work on the visual literacy (the ability to be an informed critic of visual information, able to ethically judge accuracy, validity, and worth.) of their students.

As not every student is visually literate thus, despite the availability of audiovisual aids, student struggle on their own to read and examine the verbal and visual messages, grasp meaning, inquire irrelevant data, and build an audio/visual response to it. Therefore, the experts refer audio-visual education as 'careful and integrated' use of wide range of audiovisual aids (Lanza, 1954). Although it is always challenging to make proper use of audiovisual resources with secondary school students but, in this research authentic audiovisual resources have been used. Considering the actual understanding level of the students, the context was clearly explained. This research was conducted on 40 (20 males and 20 females) secondary school students. Also, current inquiry was taken place in a public school in a village in the north of Irbid-Jordan. The aim of this research was to examine the effect of audiovisual aids on secondary school students' ability to extract meaning from the given context. The following literature review section includes the main aspects that make up the research question. Then a detailed methodology of the process will be followed by ethical considerations and analytical discussion of the findings. The final section is a reflective discussion and conclusion on audiovisual education as a practice.

2. Literature Review

2.1 The Role of Audio-Visual Aids

In rich as well as poor countries the educational scene is rapidly changing. With the large-scale production of books, and other teaching materials in the rapidly developing modern world, it has become difficult to keep up to date. So, the "audio visual media has been thoroughly used by

teachers and learners and has become an interesting teaching tool for teaching-learning process" (Daulay et al., 2020). In fact, now the audiovisual resources are being used in the schools to an increasing extent, to provide a means for furthering the students' understanding (Muir & Bucknell, 1967). In fact, audiovisual media of television and internet is playing a vital role as a replacement for personal contact. Cruz Raudez et al. (2019) state that "as the saying goes, a picture is worth a thousand words, comprehension of vocabulary and concepts is more accessible if the children are able to have a visual representation of something that is taught by the teacher". Thus, these audiovisual resources are important aids to the efforts at education for enhancing students' understanding. How to make the best use of these resources, prevent their pitfalls and correct the resultant misinformation is a subject that merits the highest attention (Muir & Bucknell, 1967).

2.2 The use of Audio-Visual Aids in Education

Integrating the audiovisual aids in the curriculum is not always easy especially, in some schools where the curriculum is slightly rigid. However, when not integrated meticulously, these aids get isolated and ineffective. The educational phenomena even when occurring in public contexts like schools, are largely hidden from the public eye. The teacher and the students are the actors that are present on the stage; what occurs in the time, space and relations within a classroom belongs exclusively to their view (Farné, 2017). A teacher must keep in mind four important points while dealing with audiovisual resources for school: proper selection, proper production, proper utilization and finally, proper evaluation (Muir & Bucknell, 1967). Audiovisual resources can help students acquire knowledge in many disciplines such as history, geography, languages, culture, civics, and economics etc. Although these resources have great emotional impact and they can be great help but, in order to develop the spirit extracting the meaning from the context the essential element is the encouragement by the teachers (Muir & Bucknell, 1967).

2.3 Aspects of Teaching Method to be Considered in the Use Audio-Visual Aids

The proper use of these technological media with novel teaching practices can render the process of "teaching and learning" more meaningful, effective, and exciting. For making audiovisual



sessions productive, a teacher requires to test and experiment the resources before starting classroom instructions. Whereas, when a teacher fails to do proper planning and acts as being self-literate about the audiovisual resources present in the course that ends up in frustration (Mathew & Alidmat, 2013) and, students find audiovisual resources irrelevant. Frustration is more visible in the students when the materials and used in an audiovisual session do not match with their cognitive levels. Therefore, the use of audiovisual aids needs more care since it provides a chance for effective communication between students and the teacher, in the classroom. The instructional material presented through audiovisual media must meet students' interest and needs (Majeed & Hameed, 2020). Audiovisual aids must contribute to the curriculum rather than dominate it and while utilizing them a teacher should hold a positive attitude (Mathew & Alidmat, 2013). One study recommends that "stakeholders should use suitable media, resources, methodologies and personnel to advance audio-visual teaching materials in EFL Classes" (Wondimtegegn, 2020).

2.4 Impact of Audio-Visual Aids on Students' Comprehension

Audiovisual aids when joined with 'survey, question, read, recite, and review' (SQ3R) can boost the students' reading skill and change classroom environment into a teaching-learning activity. In 2018, Atmaja analyzed the use of audiovisual aids to improve the students' reading skill and suggested that these aids enabled the students to determine the main idea, meaning of the word, purpose of the given text. The improvement of students' comprehension was very clear as they identified explicit as well as implicit information. Irmawati et al. (2020) suggested that the audiovisual clips attract students' attention and resultantly strengthen their learning motivation. Specialists agree on the significant role audiovisual aids play in enhancement of the learning of students that are a part of a generation already familiar with the 'visual-interface' of multimedia technologies. According to Pateşan et al. (2018), audiovisual aids help teachers to grab and maintain students' attention, keep them motivated and engaged. In this way the students learn better and retain information for a long time. In her study '*The Effect of Audio-Visual Media on The Students' Participation in English Classroom*', Sukma (2018), proposed that

the information when given in the form of audiovisuals provides students with the stimuli to grasp new knowledge far beyond what is served. She implies, the audiovisual media plays an important role to make students actively participate in the classroom. But these audiovisuals which provide students with the actual description of any particular context demand the simultaneous use of sense of sight and sound to perceive the gist. Moreover, audiovisual media when used to deliver '*Metacognitive Strategy Based Instruction*' encourages students critical thinking in a systematic manner (Salasiah et al., 2018). But a teacher should always be very selective in choosing they type of audiovisual aids for teaching (Sari Manik, 2019). Ibe and Abamuche (2019) studied how audiovisual aids influence the students' interest and achievement in a particular secondary school subject; they stated that students subjected to lessons based on audiovisual media contents achieved higher test-scores than those who were not exposed. Such lessons not only enhanced students' comprehension but their interest as well.

One similar research by (Tang & Intai, 2018), suggests the use of audiovisual aids increases student's comprehension and they become active learners. In 2018, Kurniati employed one of the modern audiovisual medium, 'Digital Fairy Tale Book' to teach reading comprehension, proposed that such teaching technique renders the students eager to learn the text and comprehend the meaning of the text. Experts agree that audiovisuals arise students' curiosity and motivation (Saripalli et al., 2018). These interactive media also develop analytical/critical thinking and reasoning. Audiovisuals become clue in interpreting the meaning of the text and students build clear and accurate concepts (Ulloa & Díaz, 2018).

Teacher's mindfulness and expertise regarding teaching aids directly influence the classroom environment. They observe their teacher's attitude, his teaching styles, and novel techniques that he uses. Students then build opinions and assumptions on daily basis. A study found that video "attracts the attention of students by remembering that the contents of the video message are more striking and have a long-lasting memory" (Ariawan & Sulistyani, 2020). Therefore, with the proper use of audio-visual aids by their teachers "the students reflect a high level of gratification, self-efficacy and they feel

reinforced in their learning process” (Bărbuceanu, 2020). Moreover, Olagbaju and Popoola (2020) proposed that “social media tools with audio-visual properties such as YouTube and WhatsApp can be used to enhance the process of teaching and improve learning outcomes in reading comprehension”. These tools heighten interest, retention, and achievement of the students in reading comprehension.

3. Methodology

3.1 Overview

In this research ‘The inquiry cycle model’ was followed. The inquiry cycle model can be best described as “a process of discovering new causal relations, with the learner formulating hypotheses and testing them by conducting experiments and/or making observations” (Pedaste et al., 2012). Following this model, the research question was raised, and its validity was tested. An explanation of the research design, methodology, instruments for gathering and analyzing data, and plan of strategic teaching follow accordingly to hold the continuum. In the final section, a focused evaluation of the results will be made to improve students’ outcomes and inform future practice.

3.1.1 Research Question: Is there a significant difference in secondary school students' ability to elicit meaning from the text (level of comprehension) following participation in an audiovisual session?

3.2 Research Design and Methodology

In this research ‘One-Group Pretest–Posttest Design’ has been followed. This reason for using this specific type of research design was to determine the behavioral change in the participants and effect of the audio-visual intervention on their comprehension ability. Current research design has two characteristic features. The first feature is use of a single group of students—a one-group design. This feature represents that all students are part of a single condition or all students will be given the same information, aid, and assessments. The second feature of this research is ‘linear ordering’; assessment of the dependent variable, that is, meaning extraction ability (level of comprehension) before and after the implementation of the audio-visual intervention, *i.e.*, a pretest–posttest design. Since, within pretest–posttest research design the effect of the intervention is determined by measuring the difference between first and second assessment of the dependent variable, it was the best match for the current research

question: Is there a significant difference in secondary school students' ability to elicit meaning from the text following participation in an audiovisual session? It enabled us to understand the role of audio-visual aid in extracting meaning from the text.

3.3 Instruments and Procedures

3.3.1 Participants: For the current research, a structured inquiry plan of 90 minutes was implemented on 40 participants (secondary school students: both male and female). All the participants were considered as one group and they were provided with the information and pre-test, post-test assessments.

3.3.2 Audio-Visual Aid: An educational audio-visual clip with English subtitles was handcrafted, having length of 5 minutes. With an aim to make student learning permanent, the clip was made in way that it contained pictures with audio and text description associated with the theme of the essay/passage (“*The smallest world is family: The largest family is world*”) that was used to assess the comprehension level of the students.

3.3.3 Data collection Instruments: The personal data of participants was obtained using ‘Student Information Form’ (See Appendix 4). To obtain data regarding comprehension level of the students, ‘Suggest a theme’ (See Appendix 5), a comprehension test was used. The same practice test was used before and after the intervention to evaluate student comprehension in both conditions. Every participant was given ‘Suggest a theme’ document twice. Post-intervention questionnaire (See Appendix 7) was used to determine whether the participants found the audio-visual intervention helpful.

3.3.4 Analysis Tools: The obtained data included two continuous numeric variables (columns) which were used in the statistical analysis. The two variables represent the paired variables for each participant (row) (See Appendix 11). To analyze gathered data the paired sample *t*-test was applied because it compares two means that are from the same individual (See Data Analysis Plan: Appendix 11). This parametric test was run in *IBM SPSS Statistics for Windows, Version 21.0*. Comprehension ability of each participant was measured twice (*i.e.* pre-test and post-test), resulting in ‘pairs’ of observations. The purpose of choosing this statistical procedure was to determine whether the mean difference between two sets of observations is zero.



Steps of the data analysis procedure were defining problem statement, hypotheses, and, calculating descriptives (i.e., sample mean, sample standard deviation, test statistic and probability of the test statistic under the null hypothesis). Statistical significance was measured by looking at *p-value* and practical significance was analyzed to draw meaningful conclusions (See Appendix 11, 12).

3.4 Ethical Considerations

3.4.1 Ethical Approval and Access to the Participants:

The ethical approval was sought and granted from the 'Ethics Committee' of the school where the research was conducted. Upon receiving the ethical approval, request was sought from the principal of the school to conduct the inquiry research and get access to the participants. 'Letter of Request' along with the 'Lesson-Plan' (See Appendix 1, 2) was used for obtaining permission, informing about the researcher's identity, and provide them with a concise and clear outline of the study.

3.4.2 Informed Consent and Voluntary Participation

To make sure that every student was able to make an informed decision if they wanted to participate in the study or not, they were given the 'Informed Consent Form' (See Appendix 3). Students were made fully aware of the purpose of the study, how the data and results will be used, if there will be any possible adverse impacts of their participation. Also, it was made sure that students participate in the study free from coercion. Additional information was also provided in case where any student became distressed in any way during his participation.

3.4.3 Anonymity and Confidentiality

The anonymity and the confidentiality of all the students were preserved by not revealing their names and their identity at and step during the inquiry, i.e. data collection, analysis, or reporting. Privacy and confidentiality were managed carefully during the entire session. The information in the 'Student Information Form' (See Appendix 4) was kept confidential.

3.4.4 Minimizing the Risk of Harm

It was made imperative that the inquiry process would not cause harm to any participant, in any way (unintended or otherwise). Both physical and psychological harms in any form (stress, anxiety, decreasing self-esteem or breach of privacy) were prevented.

3.4.5 Assessment of Relevant components

The assessment of only those components that were of relevance to the inquiry (comprehension skills) was ensured. The evaluation was kept as simple as possible and the focus was held on the aim of the inquiry.

4. Results

In the pre-intervention phase, after a brief introductory session about 'International Understanding', students were given a comprehension test 'Suggest a Theme'. To collect the evidence regarding their ability to extract meaning from the text, they were asked to infer the theme of the provided passage and the answers were gathered. Then an English-subtitled Video based on the content of the passage was shown to the students. This intervention was aimed to develop and support active learning classroom environment. In the post-intervention phase, students were given the same comprehension test again and the answers data was saved. The answers thus obtained provided the pre and post intervention comprehension level or meaning inferring ability of each student. An evaluation of both answers of each participant was held by comparing them with the four predefined possible themes (See Answer Key: Appendix 6). *Likert Scale* based rating of both answers of every participant was then performed and each of these two answers was assigned a score (i.e., level of comprehension 1, 2,3, and 4) (See Appendix 8,9, 10). Student's scores data can be seen in table 1. This pre and post intervention scores data gave insight into the comprehension skills (i.e., *Prediction Ability; Visualizing Power; Questioning Ability; Connecting Skill; Identification Power; Inference Power and Evaluation Capacity*) of every student in both conditions.

Table 1: Pre-Test and Post Test Meaning Extraction Scores of the 40 participating students.

Students' Scores Data (n=40)					
Student ID	Before Intervention	After Intervention	Student ID	Before Intervention	After Intervention
	Pre-Test Score	Post Test Score		Pre-Test Score	Post Test Score
1	1	2	21	2	2
2	2	3	22	3	3
3	1	2	23	2	4
4	1	3	24	1	3
5	1	3	25	2	2
6	2	2	26	2	3
7	2	2	27	1	2
8	1	3	28	4	4
9	1	2	29	1	1
10	1	3	30	1	2
11	1	3	31	1	3
12	1	2	32	1	2
13	1	1	33	2	2
14	2	3	34	1	2
15	1	2	35	1	2
16	2	4	36	2	3
17	1	2	37	1	2
18	2	3	38	1	3
19	1	3	39	2	3
20	3	2	40	1	2

Although these scores provided information regarding effect of the intervention upon comprehension ability of each student (See Figure 1a, 1b and 2), but it cannot be said which of the above-mentioned comprehension skills was enhanced and to what extent it was enhanced individually. The students' response data was analyzed according to the data analysis plan (See Appendix 11). Considering the research question: 'Is there a significant difference in secondary school students' ability to elicit meaning from the text following participation in an audiovisual session?'; for the paired sample t test, null and alternative hypotheses were generated in the following manner: Hypotheses Null Hypothesis (H_0): There is no significant change in secondary school students' ability to elicit meaning from the text following participation in an audiovisual session. Alternative Hypothesis (H_1): There is a significant change in secondary school students' ability to elicit meaning from the text following participation in an audiovisual session. The variables were defined as:

Independent Variable: Time
 Dependent Variable: Meaning extraction ability (level of comprehension) score measured on two occasions
 Dependent Variable Conditions
 Condition 1: Pre-Test (Before Audio-visual Intervention)
 Condition 2: Post-Test (After Audio-visual Intervention)

Upon defining the variables and their conditions the following equations were obtained.

($H_0: \mu_1 - \mu_2 = 0$) i.e., the difference between the paired population-means is zero.
 ($H_1: \mu_1 - \mu_2 \neq 0$) i.e., the difference between the paired population-means is not zero. Where μ_1 and μ_2 are the population means of the first and second condition of the dependent variable.

Table 2. This table displays side by side descriptive statistics for the two conditions of the dependent variable.

Descriptives								
		Statistic	Std. Error					
Pretest Score	Mean	1.50	.113	Posttest Score	Mean	2.50	.113	
	Lower Bound	1.27			95% Confidence interval for mean	Lower Bound	2.27	
	Upper Bound	1.73			Upper Bound	2.73		
	5% Trimmed Mean	1.42			5% Trimmed Mean	2.50		
	Median	.513			Median	2.00		
	Variance	.716			Variance	.716		
	Std. Deviation	1			Std. Deviation	1		
	Minimum	4			Minimum	4		
	Maximum	3			Maximum	3		
	Range	1			Range	1		
	Interquartile Range	1.543	.374		Interquartile Range	.220	.374	
	Skewness	2.612	.733		Skewness	-.118	.733	
	Kurtosis				Kurtosis			

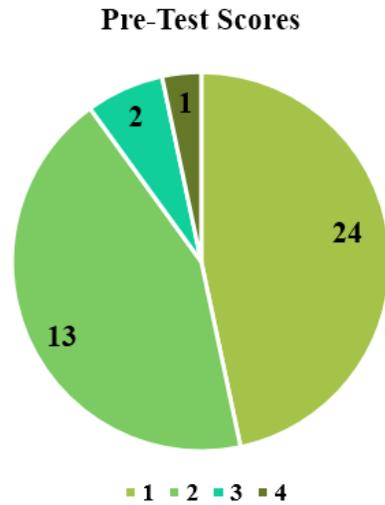


Figure 1a. Pie chart representation of the pre-test score frequencies. Where 1= poor; 2= average; 3= good; 4= strong

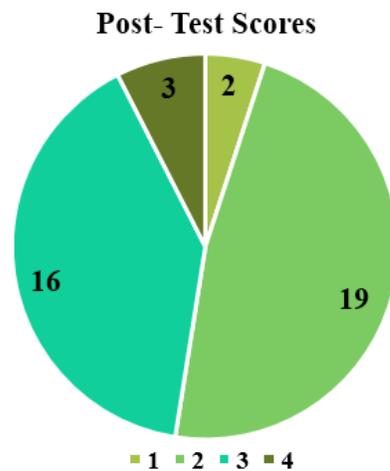


Figure 1b. Pie chart representation of the post-test score frequencies. Where 1= poor; 2= average; 3= good; 4= strong

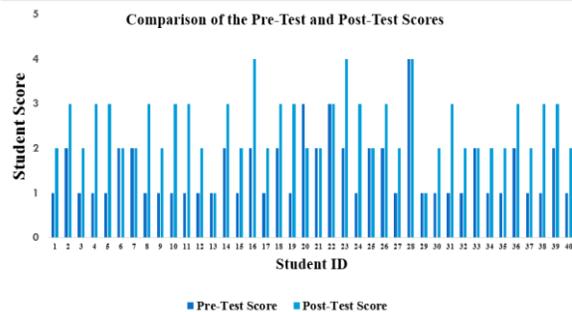
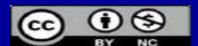


Figure 2: Side-by-side comparison of the pre-test and post-test score of all the students. Where 1= poor; 2= average; 3= good; 4= strong.

As stated earlier, paired sample t test was conducted to evaluate whether a statistically significant difference existed between the mean "meaning extraction ability scores" before and after the audiovisual session. Assumption testing indicated no gross violation of assumptions. The results of the paired sample t test were significant, $t(39) = 8.06, p < .000$, indicating that there was a significant increase in "meaning extraction ability scores" from the pretest ($M = 1.50, SD = 0.71, N = 40$) to the posttest ($M = 2.50, SD = 0.71, N = 40$). The effect size was large based on Cohen's



conventions (1988). The mean increase was 1.00, with the 95% confidence interval for the difference between the means of 1.25 to 0.75 (See table 3.1, 3.2, 3.3). Therefore, the null hypothesis was rejected.

Table 3.1 This table shows univariate descriptive statistics for the two conditions of the dependent variable i.e., pretest score and posttest score.

Paired Sample Statistics					
Pair	Mean	N	Std. Deviation	Std. Error Mean	
1	Pretest Score	1.50	40	.716	.113
	Posttest Score	2.50	40	.716	.113

Table 3.2 This table represents bivariate 'Pearson correlation coefficient' with a 'two-tailed' test of significance.

Paired Samples Correlations				
Pair	N	Correlation	Sig.	
1	Pretest Score & Posttest Score	40	.400	.011

Table 3.3 This table displays the result of the paired samples t test (hypothesis test result).

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the difference				
				Lower	Upper			
1	-1.000	.784	.124	-1.251	-.749	-8.062	39	.000

Thus, the findings revealed a clear variation in comprehension skills of the students after the intervention and the null hypothesis of no difference between pre and post intervention performance was rejected in the favor of alternative hypothesis. Moreover, resultant 'mean difference' of pre and post intervention scores provided an answer for the 'inquiry question' that audiovisual aids have positive effect on students' meaning inferring ability. Thus, current findings support the view that when audiovisual resources are appropriately used, new topics can be introduced in the classroom.

4. Discussion

The structured inquiry lesson plan included three successive phases. These phases were divided into different sub-phases considering the emotional, cognitive, volitional, and psychological needs of the secondary school students. The theoretical basis of current study revolves around the 'Visual, Aural/Auditory, Read/Write, Kinesthetic (V.A.R.K.) Learning Preferences Model' (Fleming, 2001). This model suggests that, teachers must consider all possible learning preferences (e.g., visual, auditory, read/write, and kinesthetic) of the

students while preparing a lesson plan. A visual learning pattern enables the learner to visualize words and help memorizing important facts whereas, auditory learning enables the learner to use verbal analogies and relative information to understand the main idea. Strategic execution of the devised plan rendered the students to involve actively and maximize engagement rate. Using audiovisual aid in combination with behavior management strategies and instruments such as proximity, mobility, questions, directions, verbal discretions, non-verbal signals, and the audiovisual intervention kept them focused on learning and comprehending meaning from the given text.

The results revealed a significant improvement in the students' ability to elicit meaning from the text and suggest a theme for the passage. Before the exposure to the audiovisual clip on 'International Understanding', themes suggested by the students were less close to exact theme of the passage while, after the exposure to the audiovisual clip more number of students were able to get close to suggesting the actual theme. As previously discussed in the results section the paired sample t test was significant, $t(39) = 8.06, p < .000$, indicating that there was a significant increase in "meaning extraction ability scores" from the pretest (M = 1.50, SD = 0.71, N = 40) to the posttest (M = 2.50, SD = 0.71, N = 40). There was a significant increase in the mean "meaning extraction ability scores". This can also be visualized in the figure below, a linear trend in pre and post test scores indicating the steady decrease of poor comprehension level and increase in average, good and, strong comprehension level.

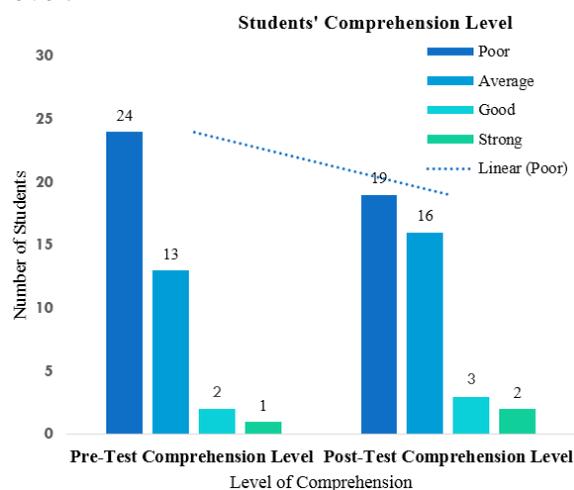


Figure 3: A linear trend in students' comprehension level before and after exposure to audiovisual clip.

As asserted by Fleming (2001); Mathew and Alidmat (2017), current study

results showed that the combination of different modalities such as visual and auditory, causes more embedded the learning. Results also validated the view proposed by Sukma (2018) that the information when given in the form of audiovisuals provides students with the stimuli to grasp new knowledge far beyond what is served. After exposure to the audiovisual clip, a significant improvement of students' s theme suggestions was noted suggesting improvement of one or more of individual skills constitute comprehension ability (*i.e., prediction-ability; visualizing-power; questioning-ability; connecting-skill; identification-power; inference-power and evaluation-capacity*) (See figure 4).

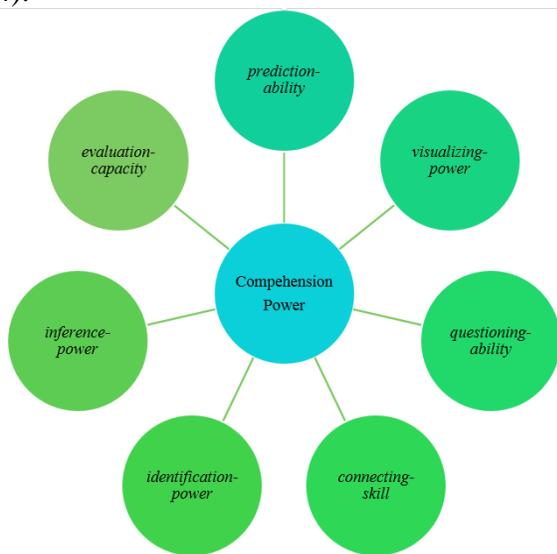


Figure 4: Intellectual skills that add up to build comprehension power.

The improvement in students' ability to comprehend the meaning of text conformed the results of the research by (Ulloa & Díaz, 2018), which implies the idea of interactive media to develop students' analytical/critical thinking, reasoning, interpreting the meaning of the text and build clear and accurate concepts.

The current results followed another model of audiovisual/multimedia learning, 'The Cognitive Theory of Multimedia Learning' by Richard E. Mayer which points toward the efficacy of audiovisual aids with regards to the channels of human mind processing the audiovisual information. These channels record sounds, images, and text (words) in the sensory memory (See figure 5).

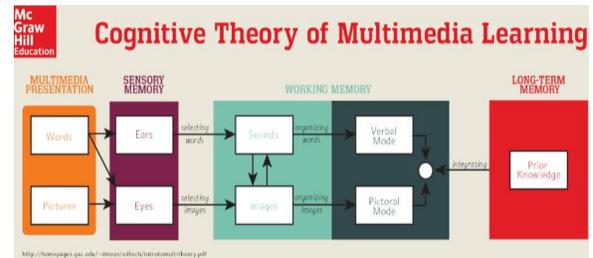


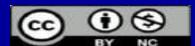
Figure 5: 'Mayer's Cognitive theory of multimedia learning' (McGraw-Hill).

According to this cognitive theory, words and pictures entering the eyes and ears are kept in the visual and auditory section of the 'short-term memory'. This model combines pictorial and verbal models along with the prior knowledge in the 'long-term memory', as learning strengthens (Mayer, 2002). Due to the influence of the audiovisual clip, most students kept pictorial and auditory information in their short-term memory then processing and critically analyzing it with the help of prior knowledge they were able to suggest improved themes. Therefore, when provided the right education in right manner, students can achieve higher comprehension level.

5. Conclusion

Current study concludes that the use of audiovisual media as a teaching method helps stimulate student thinking and infer meaning from the text. With an effective use of an audio-visual aid, a teacher can substitute monotonous learning environment in a classroom, provided that the aid has some direct relation to the course-content. Audio-visual aids are effective in increasing the students' ability to comprehend meaning from the text as indicated in the significantly improved meaning-extraction-ability scores for post-intervention assessment. The underlying cause of improvement is still unclear *i.e.,* to what extent and which of the individual comprehension skills namely, *prediction-ability; visualizing-power; questioning-ability; connecting-skill; identification-power; inference-power and evaluation-capacity* were altered. However, findings of current early and small-scale planned case study cannot be generalized to the larger population as this must be viewed as preliminary.

Further, it is suggested to work this plan with increased number of students and add a control group in the study design (*i.e.,* randomly assign students to groups) to see whether the factors that are beyond the control of researchers for instance, students' previous experience of audio-visual aids in and/or outside the school, have any threat to the validity of results. Age and gender-based



differences in performances must also be considered.

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Appendices:

Appendix 1

Letter of Request

Dear Principal,

My name is [redacted] I am writing to request permission to conduct a research study at your institution. As a requirement for the Teacher Education Professional Diploma (TEPD) at QRTA (Queen Rania Teacher Academy), I'm conducting a subject inquiry. 'How would using audiovisual resources with the 10th grade students help them learn to elicit the meaning from the context?'. I will give a brief lecture about "International Understanding". I will use an audiovisual clip entitled, "The smallest world is the family: The largest family is the world". The students will be asked to read a passage regarding the theme of the lecture. Data will be gathered through a questionnaire, which will support my current study. For that reason, I would like to ask your kind permission to get the 10th grade students to attend this session and answer the questionnaire question to obtain reliable data for the inquiry. There are no known risks related to the research study, although some discomfort may apply to the participants sitting and writing for an extended amount of time. Please find the attached document containing the "Lesson Plan", for further details.

Contact information : If any questions or concerns arise before, during, or after the research study, please contact me [redacted] by email at [redacted]@du.edu.jo or [redacted].

Your consent is highly appreciated.

Respectfully yours,
 Ghayeth Ershaidat
 [redacted]
 Date: [redacted]

Appendix 2

**Subject Inquiry Lesson Plan
(English, Grade 10)**

Instructor: [redacted]
 Allotment Time: 70 minutes
 Date: [redacted]

1. Objectives
 At the end of this at-least 75% of the students will be able to:
 a) explore and evaluate key features of text and how they contribute to meaning.
 b) read and view for understanding and to evaluate critically and respond to the given text.
 c) infer theme of the text and identify the main idea of the audio-visual clip.
 d) share appreciation and experience on the audio-visual aids.
 e) express and elaborate own idea based on the given situation.

2. Subject Matter
Topic: "International Understanding"
Sub-Topic: "The smallest world is family: The largest family is world"
Audio-Visual Clip: An authentic clip with total length of 9 minutes, containing 27 slides with colored pictures depicting the characters and settings stated in the comprehension passage. Each slide contains subtitles/captions; a sentence from the passage (total: 27).
Reference: Publications on education for international understanding no 9. "The Use of Audio-Visual Aids in Education for International Understanding". UNESCO Institute for Education, Hamburg.

3. Procedure
 Concept-based Teaching
 (a) Questioning
 (b) Discussion
 (c) Eliciting

(Pre-intervention session)

📌 **Set the scene**
 Before the lesson, stick a large World Map on the wall.

📌 **Orientation**
 (a) Give students an 'Informed Consent Form' to obtain their consent regarding participation in the inquiry.
 (b) Give 'Student Information Form' to those students who are willing to participate and also obtain information about the languages they know.
 (c) Provide them the objectives for which a specific lesson is going to take place.

1



Structuring

- Outline the content to be covered.
- Start with the overview of topic, i.e. *International Understanding*.
- Provide information about the topic through expressive oral presentation, without using audiovisual aid.
- Draw attention to the main ideas.

Brainstorm/ Questioning

- Elicit what they think the topic of the lesson is.
- Raise various types of questions such as, about the different aspects of the topic, at the appropriate difficulty level.
- Allow time for the students to respond.
- Deal with their responses.
- Encourage the teacher-student interactions.

Encouragement

- Encourage the students to use problem-solving strategies.
- Evaluate student's prior knowledge; what they already know what inferring is and how to infer.
- Provide scaffolds and help them to think and analyze.
- Put them in pairs and allow group discussions.
- Establish on-task behavior through the student-student interactions.
- Allow them to share the reactions, ideas and findings.

Input

Tell students they are going to infer a theme of a short essay about the 'International Understanding.

Task/Activity

- Organize the environment of the classroom.
- Give students a comprehension passage related to the topic to read and infer a theme for the passage.
- Allow time to think, infer and fill.

Assessment

- Collect data on student knowledge and skills.
- Check the students have understood the nature of the concept.
- Evaluate students' understanding before the intervention

(Intervention-Session)

Application

- Tell students that they are going to watch an audio-visual clip related to the passage in the 'Suggest a theme' activity.
- Use the selected audiovisual clip to aid students' comprehension skills.
- Expose the students to the audiovisual clip regarding the main idea of the lesson.
- Provide necessary explanation.

(Post-intervention Session)

Metacognition

- Elicit information from students.
- Ask questions after watching the audio-visual clip.
- Allow time for the students to respond.
- Deal with their responses.
- Give students the exact same comprehension passage related to the topic to read and suggest a theme for the passage.
- Allow time to think, infer and fill.

Assessment

- Collect data on student knowledge and skills.
- Give students 'Post-intervention Questionnaire' to fill.
- Evaluate students' understanding after the intervention.

Concept Check

- Check that if idea of 'International Understanding' is expressed in the brief scenario of what actually did happen in the text and audio-visual clip.
- Get students to reflect on the themes they were using in the 'Suggest a Theme' activity.
- Discuss some of the noted typical errors that directly relate to the theme of the concept and get students to understand correct version.
- Summarize the whole lesson for the students.
- To increase effective and active learning, spend time with students and get to know them and how they learn.

Appendix 3

Informed Consent Form

As a requirement for the [redacted] (Queen Rania Teacher Academy), I'm conducting a subject inquiry "How would using audiovisual resources with the 10th grade students help them learn to elicit the meaning from the context?"

The following will provide you with information about the experiment that will help you in deciding whether or not you wish to participate. If you agree to participate, please be aware that you are free to withdraw at any point throughout the duration of the session without any penalty.

In this study I will ask you to read a passage and suggest a theme for that passage. You will also be shown a video related to that passage, then you will be asked to re-read the same passage and suggest the answer again. All information you provide will remain confidential and will not be associated with your name. If for any reason during this session you do not feel comfortable, you may leave the classroom and receive credit for the time you participated and your information will be discarded. Your participation in this study will require approximately 90 minutes. When this study is complete you will be provided with the results of the experiment if you request them, and you will be free to ask any questions.

Please indicate with your signature on the space below that you understand your rights and agree to participate in the study. Your participation is solicited, yet strictly voluntary. All information will be kept confidential and your name will not be associated with any research findings.

Signature of Participant

Investigator

Appendix 4

Student Information

Name

First Name Last Name

Date of Birth

Day Month Year

Age

Email

Languages spoken at home

Investigator:

Appendix 5

Suggest a Theme

Instructor: [redacted] Name: _____
 Date: _____

Read the passage below. Drive a theme that best matches with the essay.

Instructions: Get involved with the paragraph to understand it. Underline important lines or parts of the passage. It will also help to understand the main idea of the passage. Determine the main idea. Look back at the paragraph when in doubt. Select the most appropriate theme.

Sam is a baby. His home is his first world - the smallest world. The baby's first human contact is with his mother. Next, he begins to know his own family: his father, his brothers and his sisters. Later, at school, he meets new friends, new facts and new ideas. He discovers people like the policeman, the shoemaker, the butcher, the baker, the newsagent and many others. His world gets larger. As he grows older, he begins to know his village or his city and the postal service, the fire department and many other things. Perhaps he will travel and see the countryside which helps to feed him. He finds that there are trains, ships, buses and planes to take him to other places. Through books, museums, press, radio, television and films, he learns that it is a big world with many people and cultures. He learns that his home and his country get many things from many other places. He learns of other countries. But how well does the child know his neighbors in other countries? Does he know that his numbers came from India, by way of Arabia? Does he know that his language comes from many sources? Does he know that his science comes from a hundred places? Does he think that an American look like this? And what is the African like? Or does an Eskimo look like this? Does he know of the huge African universities? Or the Eskimo technicians? Or that Greek home life is similar to his own - in very many ways? However much the individual knows about other cultures, there still seem to remain big walls of misunderstanding. How can we break down these walls? Personal contact is the best way. This can be established, among other ways, e.g. through pen clubs, by writing letters to people in other countries, through study in other countries; through having foreign guests. We cannot live without other countries and other cultures. There are differences in race and culture. We know that these differences are there and will always be there because of geographical and historical reasons. But we also know that we all belong to one family - the largest family - the family of the world.

Theme: _____

Appendix 6

Answer Key

Possible Themes of the passage:

"The smallest world"

"The largest family"

"The smallest world: The largest family"

"The smallest world is family: The largest family is world"

Appendix 7

Post-intervention Participant Questionnaire

Instructor: _____ Name: _____
Date: _____

Thank you for taking the time to complete this short questionnaire. In it I ask you for your views on the 'Audio-Visual Clip' you were shown. Please Tick the relevant boxes below. If you are unhappy about completing any of the questions, please leave them blank.

1) Audio-Visual Clip
Do you think the 'Audio-Visual Clip' was interesting?
Yes If yes, go to Question 2
No If no, please return the questionnaire in the envelope provided

2) Do/Did you like watching 'Audio-Visual Clip'?
Very much Somewhat Neutral Not very much Not at all
If you would like to, please tell me more about this: -

3) Is there anything that has upset you about watching 'Audio-Visual Clip'?
Yes
No
If you would like to, please tell me more about this: -

4) Context of the 'Audio-Visual Clip'
Did you like the context of the 'Audio-Visual Clip'?
Very much Somewhat Neutral Not very much Not at all
If you would like to, please tell me more about this: -

5) Did it help you to create mental images of the characters, settings and events in the text?
Very much Somewhat Neutral Not very much Not at all
If you would like to, please tell me more about this: -

6) Did it help you to determine the author's purpose, find the important details, the main idea, and the theme of the text?
Very much Somewhat Neutral Not very much Not at all
If you would like to, please tell me more about this: -

7) How do you feel about attending audio-visual sessions in future? If you would like to make any further comments, please write them in the space below.

Thank you for answering the questions. Please return the completed questionnaire.

Appendix 8

Comprehension Skills Scale

Skill	Poor	Weak	Average	Good	Strong
Prediction Ability	Lack of ability to determine what will happen in the text	Weak ability to determine what will happen in the text	Satisfactory ability to determine what will happen in the text	Good ability to determine what will happen in the text	Strong ability to determine what will happen in the text
Visualizing Power	Lack of ability to create mental images of the characters, settings and events in the text	Weak ability to create mental images of the characters, settings and events in the text	Satisfactory ability to create mental images of the characters, settings and events in the text	Good ability to create mental images of the characters, settings and events in the text	Strong ability to create mental images of the characters, settings and events in the text
Questioning Ability	Lack of ability to ask oneself questions to see if text makes sense	Weak ability to ask oneself questions to see if text makes sense	Satisfactory ability to ask oneself questions to see if text makes sense	Good ability to ask oneself questions to see if text makes sense	Strong ability to ask oneself questions to see if text makes sense
Connecting Skill	Lack of ability to find ways to relate the text to oneself, other text, and the surrounding world	Weak ability to find ways to relate the text to oneself, other text, and the surrounding world	Satisfactory ability to find ways to relate the text to oneself, other text, and the surrounding world	Good ability to find ways to relate the text to oneself, other text, and the surrounding world	Strong ability to find ways to relate the text to oneself, other text, and the surrounding world
Identification Power	Lack of ability to determine the author's purpose, find the important details, the main idea, and the	Weak ability to determine the author's purpose, find the important details, the main idea, and the	Satisfactory ability to determine the author's purpose, find the important details, the main idea, and the	Good ability to determine the author's purpose, find the important details, the main idea, and the	Strong ability to determine the author's purpose, find the important details, the main idea, and the

	theme of the text	theme of the text	theme of the text	theme of the text	theme of the text
Inference Power	Lack of ability to use clues in the text and one's knowledge to fill in the gaps and draw conclusion	Weak ability to use clues in the text and one's knowledge to fill in the gaps and draw conclusion	Satisfactory ability to use clues in the text and one's knowledge to fill in the gaps and draw conclusion	Good ability to use clues in the text and one's knowledge to fill in the gaps and draw conclusion	Strong ability to use clues in the text and one's knowledge to fill in the gaps and draw conclusion
Evaluation Capacity	Lack of ability to think about the text as a whole and form opinion	Weak ability to think about the text as a whole and form opinion	Satisfactory ability to think about the text as a whole and form opinion	Good ability to think about the text as a whole and form opinion	Strong ability to think about the text as a whole and form opinion

Appendix 9

Criteria for Level of Comprehension

Level of Comprehension	Comprehension Skills
Poor	Logical ability
	Inference Power
	Analytical ability
	Reasoning ability
	Vocabulary power
	Reading speed
Average	Ability to understand the main motive or the idea of the author.
	Logical ability
	Inference Power
	Analytical ability
	Reasoning ability
	Vocabulary power
Good	Reading speed
	Ability to understand the main motive or the idea of the author.
	Logical ability
	Inference Power
	Analytical ability
	Reasoning ability
Strong	Vocabulary power
	Reading speed
	Ability to understand the main motive or the idea of the author.
	Logical ability
	Inference Power
	Analytical ability

Appendix 10

Rating Scale

Theme	Level of Comprehension	Score
"The smallest world"	Poor	1
"The largest family"	Average	2
"The smallest world: The largest family"	Good	3
"The smallest world is the family: The largest family is the world"	Strong	4

Appendix 11

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Data Analysis Plan

- Define research question.
- Define Null Hypothesis.
- Define Alternative Hypothesis.
- Specify specific statistics to address the research questions.
- State the assumptions of the statistics, and justify why they are the appropriate statistics; provide references.
- Justify sample size/power analysis.

Quantitative Results Section

- Clean and code dataset
- Conduct descriptive statistics (i.e., mean, standard deviation, frequency and percent, as appropriate).
- Conduct analysis to examine the research question.
- Write-up results.
- Provide tables and figures.

Appendix 12 (SPSS Analysis Screen-Shots)

ID	PreTest	PostTest
1	1	2
2	2	3
3	3	2
4	4	3
5	5	3
6	6	2
7	7	2
8	8	3
9	9	2
10	10	3
11	11	3
12	12	2
13	13	1
14	14	2
15	15	2
16	16	2
17	17	2
18	18	2
19	19	3
20	20	2
21	21	2
22	22	3
23	23	2
24	24	3
25	25	2

