The effectiveness of video - based instruction in enhancing physiotherapy students' English language Academic medical terminology

فاعلية التعليم القائم علي الفيديو في تحسين المصطلحات الطبية باللغة الانجليزية الطبية لدي طلاب العلاج الطبيعي .

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ABSTRACT:

Purpose: This paper investigates the effectiveness of video-based instruction, English for Physiotherapy course, first year. The aim of this study is to determine the impact of video-based instruction, English for academic purposes, Egyptian Chinese university Physiotherapy students' in enhancing their English language academic medical terminology. This study was conducted in a quantitative design with many participants, first year physiotherapy students (English for specific purpose).

Methodology: The study used a quantitative approach. a survey, a pre and a posttest were used to collect data.

Findings: The results revealed that the digital video-based instruction was affective for physiotherapy students (English for specific purpose students) in enhancing their medical terminology.

Practical implications: video-based instruction was approved for English for specific language teaching and learning.

Keywords: video-based instruction, English for academic purposes, medical terminology.

1-Introduction:

E-learning has been increasingly an important part of education in many universities around the world. This is a learning environment that creates favorable conditions for students to improve their learning process. New technology-based models of teaching and learning have achieved good results. People approach technology and use it as a new model in teaching and learning foreign languages. The research focuses on analyzing the contributions of technology application to improve academic language teaching and learning. The findings also analyze the benefits of using video-based learning to develop a blended learning model and applying video-based learning (VBL) as an innovative method in teaching to develop English Language medical terminology for first year students in Faculty of Physiotherapy, Egyptian Chinese university, to promote their self-study ability. The present study proposes the strengthening of English for specific purposes in

medical students through an English language medical terminology implementation that provides them with the definition and pronunciation in English of the most prevalent medical terminologies in this field, which would significantly increase the professional skills of future physiotherapists. The present research proposal is also justified by the fact that many medical students did not have advanced preparation in the English language at school, which is why the proposed video-based instruction would represent an added complementary value to the curricular programming and instruction of this subject, which would help to make the learning of English viable in a much more specific and contextualized way in this branch of science. English for Specific Purposes is subdivided into "English for Academic Purposes" (EAP) and "English for Vocational Purposes" (EVP). "English for academic purposes" is further subdivided into "English for general academic purposes" and "English for specific academic purposes". Within medicine, the term "English for medical purposes" (EMP) is used. EMP is usually subdivided into EVP, which is related to professionals working in the health sector, and English for specific academic purposes, which is mainly related to university studies. Physicians must communicate with patients in more or less colloquial language. Meanwhile, they must use the medical language in their presentations with other professionals in academic and scientific contexts, which are highly technical. For this reason, physicians and health science professionals, physiotherapists', nurses or even laboratory technicians, etc., must be able to master both technical terms in English according to English for academic medical purposes previous studies. Therefore, the aim of this study is to determine the impact of video-based instruction, English for academic purposes, Egyptian Chinese university Physiotherapy students' in enhancing their Academic medical terminology.

2-Literature Review

2.1. Video -Based Instruction:

2.1.A. Definition of Video-based Instruction:

Video-based learning (VBL) is now recognized by Technology-Enhance Learning (TEL) researchers as a powerful learning resource in online and teaching activities. In recent years, various video-based learning tools have been developed (Brooks et al., 2011) and empirical studies have been conducted (eg, Giannakos & Vlamos, 2013; Harris & Park, 2008). To explore the future of research on video-based learning. Video-Based Learning (VBL) has emerged as a transformative approach in mathematics education, enhancing knowledge acquisition through visual representations and self-paced learning. Studies by Yousef et al. (2014), Dodson et al. (2018), and Sablic et al. (2020) highlight VBL's ability to simplify abstract concepts, foster engagement, and cater to diverse learning needs. Yousef et al. (2014) provided a comprehensive

review of VBL research, categorizing its effectiveness, methods, design, and reflection while emphasizing innovations like flipped classrooms. Lalian (2018) demonstrated VBL's positive influence on students' cognitive and affective outcomes, while Mayer's Multimedia Learning theory and Sweller's Cognitive Load Theory offer strategies to optimize its use. Practical applications, such as Khan Academy and flipped classrooms, show VBL's impact on critical thinking and problem-solving skills, supported by empirical studies from Galatsopoulou et al. (2022) and Smith (2021). Collectively, these findings establish VBL as a powerful tool for inclusive and effective education. Video-Based Teaching: Insights & Future of VBTL Recent research highlights the potential of Video-Based Teaching and Learning (VBTL) in enhancing education, particularly for junior high school students. Scholars have focused on integrating the worked example effect, a cognitive load principle introduced by Sweller (2020) and elaborated by Ayres (2012). This effect emphasizes the value of worked examples—explicit problem descriptions paired with step-by-step solutions—in reducing cognitive load and fostering knowledge construction. The use of instructional videos is increasingly common in higher education. Instructional videos are designed to teach specific content, skills or concepts, and differ from other educational videos such as narrative films, or those designed primarily to facilitate communication or collaboration. A growing body of literature affirms that instructional video is not only popular with students (Henderson, Selwyn, & Aston, 2015), but can also enhance student learning. For example, videos can facilitate learning by giving students control over the pace of instruction (Murray, Koziniec & McGill, 2015). An emerging advantage is that videos are also easily trackable for learning analytics (Kim, et al., 2014). In comparison with traditional texts such as static readings or diagrams, effectively designed videos have been found to facilitate greater learning (Castro-Alonso et al., 2019; Hoffler & Leutner, 2007) and increased motivation (Abeysekera & Dawson, 2014). Importantly, instructional videos are also believed to be advantageous because they are scalable, enduring, and re-usable. Scalability is an increasingly important factor in the context of increasingly massified classes. Such videos are also enduring and re-usable, allowing them to persist over time for re-use by students within a class, and re-use by educators for different classes or cohorts. Given such advantages, it is understandable that universities are embracing the affordances of instructional videos. While videos created at universities previously consisted largely of lecture capture, many universities and other institutions of higher learning now create more deliberately produced content (see Chorianopoulos, 2018 for a taxonomy of video styles). These can be expensive, with Hollands and Tirthali (2015) estimating that a single hour of high quality, finished MOOC video can cost $US4300 to produce. Even videos made by individual educators using low budget tools cost time and take educators away from other activities. Unfortunately, this time and expense does not guarantee that the videos are efficient at teaching students the desired content, concept, or skill as many simply transfer questionable teaching methodologies from the lecture hall to the screen (Guo, et al., 2014; Ibrahim et al., 2012).

2.1.B. Origin of Video-Based Learning:

The design of instructional videos should take into account how humans process information, or "the effectiveness of instructional design is likely to be random" (Paas & Sweller, 2014, p. 27). Cognitive Theory of Multimedia Learning (CTML), which is based on Cognitive Load Theory (CLT) presents theoretical propositions and ASCILITE 2019 Singapore University of Social Sciences 418 Personalised Learning. Diverse Goals. One Heart. CONCISE PAPERS experimental data that aim to guide the process of multimedia design from the perspective of how the learner processes novel information. CTML is based on the premise that humans have a limited capacity to process new information, and that learning involves consciously organising this information into long term memory, which is effectively limitless (Ayers, 2015). By limiting extraneous processing imposed by poor instructional design, cognitive overload is avoided. This in turn allows cognitive processing to be allocated to the task of generating long term conceptual change, or schemas, which can also be encouraged through purposeful design (Muller et al., 2008). For a fuller explanation as to how each theory conceptualises human cognitive architecture, see Sweller, Ayers, and Kalyuga (2011) for CLT and Mayer (2014) for CTML. The two theories, while offering slightly different conceptions of human cognitive architecture, commonly agree on recommendations for instructional design. These principles of design have been shown to decrease extraneous cognitive load and therefore contribute to a more efficient learning experience, specifically for low proficiency learners (De Jong, 2010). Conversely, "poorly constructed materials" (Ayres, 2015, p. 632) that don't take into account cognitive load tend to lead to inferior learning outcomes in experimental conditions. It is possible, therefore, as Mayer (2014) has done, to synthesise the experimental literature from the two fields into a single set of instructional design recommendations.

2.2. English for Academic purposes:

English for Academic Purposes is an approach to language education based on a close identification of the specific language features, discourse practices, and communicative skills of target academic groups, and which recognizes the particular subject-matter needs and expertise of learners (Hyland, 2006). EAP has emerged as a field of activity as English has established its grip as the international language of scholarly communication. countless students and academics around the world must now gain fluency in conventions of a relatively 'standardised' version of academic writing in English to understand their disciplines, to establish their careers or to successfully navigate their learning. There is a growing awareness that students, including second speakers of English, have to take on new roles and engage with knowledge in new ways when they enter university (Lea & Street, 2000; Hyland, 2009). They find that they need to write and read unfamiliar genres and participate in novel speech events, and that communication practices are not uniform across academic disciplines but reflect different ways of constructing

knowledge and engaging in teaching and learning. These experiences, moreover, have powerful influences on students' understandings of their disciplines, their learning, and themselves (Hyland, 2012; Lillis, 2001). In other words, Engagement in forms of academic communication, as a student, teacher or researcher, involves new ways of behaving, interacting and thinking about the world. It is a 'social practice', rather than a skill, in that it is related both to what people do and to the wider social structures in which they do it. For EAP practitioners this means that they seek to accurately identify and describe the particular linguistic preferences, discourse features and communicative practices used in specific academic contexts so they can be taught to students and relayed to academics seeking to publish in English. Pedagogically, teaching practices attempt to offer systematic, locally managed approaches which draw on a number of central ideas, the most important of which I set out below before briefly touching on current areas of research

2.3. Medical terminologies and vocabularies through video based instruction

Medical English is a specialized area of ESP (English for academic purposes) for students or medical professionals working or studying in English. It focuses on the specialized language and vocabulary used by healthcare professionals and clinicians within a medical environment. Study topics are pathology, medical procedures, treatment, prevention, medication, clinical research, writing reports, etc.… The successful integration of video into the classroom in the field of English for Academic Purposes hinges on thoughtful presentation and interaction. By understanding the stages of video use—pre viewing, while-viewing, and post-viewing—educators can create a rich learning experience that not only enhances language skills but also prepares students for real-world applications in their specific fields. Embracing video as an educational tool opens up new avenues for exploration, creativity, and collaboration, ultimately fostering a more engaging and effective learning environment. Using video in the classroom involves several key stages to ensure effective integration and maximize learning outcomes. Here's a structured approach: 1. Pre-Viewing Stage Set Objectives: Define what you want students to learn from the video. Background Knowledge: Activate prior knowledge by discussing related topics or key vocabulary. Preview the Video: Provide a brief overview or summary to give context. 2. While-Viewing Stage Guided Viewing: Distribute a worksheet with specific questions or tasks to focus attention. Pause and Discuss: Stop the video at key points to discuss important concepts or clarify doubts. Note-Taking: Encourage students to take notes on important information or themes. 3. Post-Viewing Stage Discussion: Facilitate a class discussion to reflect on the video's content, themes, and relevance. Follow-Up Activities: Assign tasks like writing a summary, creating a presentation, or discussing how the video relates to real-world applications. Feedback and Assessment: Provide feedback on students' understanding and assess their grasp of the material through quizzes or assignments. 4. Reflection and Evaluation Self-Assessment: Encourage students to reflect on what they learned and how they can apply it. Teacher Reflection: Evaluate the effectiveness of the video in meeting learning objectives and consider adjustments for future use. In addition to investigating the role of memory in learning

vocabulary, recently, movies and videos have been suggested to become integral parts of the curriculum as they proved to improve language skills (Yaseen & Shakir, 2015). As modern learners engage a dynamic and interconnected academia, the role of visual content in enhancing language acquisition is a topic that demands wide-ranging investigation. Recent studies, such as that of Martinez et al. (2023), underscore the ability of videos to immerse learners in diverse linguistic settings, providing exposure to authentic speakers and real-life situations that enrich the learning experience. Hence, this study was built upon this foundation, investigating into the varied dimensions of VBL's influence on students' language learning journey The literature has documented the positive effects of integrating videos in English classes. Kusumarasdyati (2004) highlighted that they effectively motivate learners and stimulate their imagination. In the Saudi context, Kabooha (2016) reported the positive attitudes of both Saudi English as a foreign language (EFL) learners and teachers towards the integration of English Youtube videos in their classes to develop students‟ language skills. Similarly, Yaseen & Shakir (2015) investigated the relationship between effective learning and students‟ movie preferences. The 20 students from Iraqi school at Kuala Lumpur-Malaysia revealed that they preferred to have Arabic subtitles to help them learn vocabulary while watching the movies. To support the use of subtitles, Zhu et al (2017) used videos movies for vocabulary learning and confirmed its advantage over the dictionary by a 30% increase in vocabulary retention. Moreover, Kurt‟s and Bensen‟s (2017) study reported that the practice of videos improved participants' vocabulary. The results of the post-test and the content analysis of the semi-structured interviews revealed that participants‟ enjoyed the experience and were motivated. According to Bao et al (2016) the content of immersive videos increased rapidly the past few years due to the emergence of VR tools. most studies in integrating Videos have only been carried out in disciplines such as medicine, military, and nursing (Rosenthal et al, 2008; Rizzo et al, 2015; Bertram, Moskaliuk, & Cress, 2015). Therefore, in view of all that has been mentioned so far, one may understand that although videos proved to be great source of enhancing language learning, there remains a paucity of evidence on their abilities to encourage ESP learners deepening their knowledge of terms and issues related to their fields.

3-Problem identification

3.1. Purpose of the Study:

The purpose of the study was to investigate the effectiveness of using video-based instruction to foster physiotherapy students’ English language medical terminology.

3.2. Objectives of the Study:

1- Enhancing and promoting first year, physiotherapy students’ English language medical terminology.

2-Developing video-based instruction to Foster Physiotherapy students’ English language medical terminology.

3.3. Statement of the Problem:

The problem of the present study was that first year, level two, at the faculty of the physiotherapy, Egyptian Chinese university are weak in their English language medical terminology, so the research made an attempt to investigate the effectiveness of video-based instruction to foster physiotherapy students' English language medical terminology, so the following main questions was tried:

-What is the effectiveness of video-based instruction in enhancing physiotherapy students' English language medical terminology?

This question can be divided into the following sub questions:

1-What is the video-based instruction needed for physiotherapy students 'to foster English language medical terminology?

2- How far do ESP physiotherapy students acquire their English language medical terminology?

3-What is the effect of the video-based instruction in fostering the first year, physiotherapy students' English language medical terminology??

3.4. Limitations of the Study:

The present research limits first year students', ESP students, Faculty of physiotherapy, Egyptian Chinese University. Students were assigned to two groups randomly; one group was considered as an experimental group and the other one is considered a control group. each group consisted of 100 students.

4-Methodology

4.1. Research Design:

This study was conducted quantitatively to collect data from a large number of participants according to Heale and Twycross (2015), a quantitative research design allows researchers to generalize the findings from vast data. For this current study which includes 100 participants, participants in this current study: ESP students, Faculty of physiotherapy, Egyptian Chinese University. Students were assigned to two groups randomly; one group was considered as an experimental group and the other one is considered as a control group. each group consisted of 100 students.

4.2. Research Tools and Data collection procedures:

Research tools which are used to collect data can be considered as follows:

1-Video-based medical English Language instructional tool. (Experimental treatment tool) (Appendix 2).

2- Pre and Post English Language Medical Terminology Test. (Appendix 3).

4.3. Instrument and Experiment:

The study had a pre -post groups design. An experimental and a control group were pre-posttests "Pre and Post English Language Medical Terminology Test.". The experimental group was instructed and trained in an EAP Video-based instruction, while the control group received no such training. Pre and Post English Language Medical Terminology Test was used to measure the students' English Language medical terminologies which are needed for their academic life.

4.4. Video-based medical English Language instructional tool. :(Appendix 2)

4.4.A The objective:

The Video-based medical English Language instructional tool was designed for the purpose of:

-Instructing the English Language medical terminology physiotherapy students' needs for the most needed academic life through their video-based English language instructional tool.

4.4.B. Design:

In order to design the vide-based instructional tool, the researcher did the following:

-Reviewing the ESP literature that focused on English for academic purposes video-based medical English Language terminology instruction.

-Reviewing the previous studies that already developed academic medical terminology.

4.4.C validity

The instructional tool was validated by jury members (appendix 1), English language professors and instructors who are specialized in English methodology and ESP COURSE design and physiotherapy professors. Based on the jury members' recommendation, the researcher made the suggested changes and modification to reach to its final form.

4.4.D. Administration

The instructional tool was administrated to the first year, level two. physiotherapy students' Egyptian Chinese university, through Microsoft teams (online), to be, the researcher explained the purpose of the tool.

4.4.E. Description

The video-based instructional tool consists of forty medical terminologies to be instructed though power-point Microsoft teams according to the steps of the previous studies related to video-based instruction.

4.5. Medical Terminology Pre-Post Test:(Appendix 2).

4.5.A The objective:

The medical terminology pre-posttest test was designed for the purpose of:

-Surveying the physiotherapy students' acquisition *for* their English language medical terminology.

4.5.B Design:

In order to design the test, the researcher did the following:

-Reviewing the ESP literature that focused on English for academic purposes medical terminology test.

-Reviewing the previous studies for designing English for academic tests that already developed the English language medical terminology.

4.5.C validity

The test was validated by jury members (appendix 1), English language professors and instructors who are specialized in English methodology and Esp course design. Based on the jury members' recommendation, the researcher made the suggested changes and modification to reach to its final form.

4.5.D. Administration

The test was administrated to the first year (the control and the experimental groups) , physiotherapy students, Egyptian Chinese university, pre and post teaching the EAP content for the control group through the normal content and for the experimental group through teaching the designed English for academic purpose content through using video-based instruction, the researcher explained the purpose of the test.

4.5.E. Description

The test consists of fifty MCQ test which is important for the physiotherapy students' academic life according to their content. Every question was out of two marks, the total mark for whole test was out of 100.

Psychometric Properties of Physiotherapy Students' English Language Academic Medical Terminology pre-post Test :

The researcher verified the availability of the psychometric Properties (validity, reliability, coefficient of difficulty and ease, discrimination coefficient) of the test as follows:

First : Validity

In this research, the researcher relied on the validity of the jury members to emphasize the validity of the content, also the internal consistency, and Intrinsic Validity, The following is an explanation for this:

A. Content validity :

The researcher presented the test in its initial on jury of experts form field of English language to express their opinions on the appropriateness of items of the test, Based on the viewpoints agreed upon by the jury members, the researcher has done the modifications agreed upon by the jury of experts (80.00% and more). Cooper's equation has been used to calculate the percentage of agreement among the jury members.

The rate of agreement among the jurors on skills of test ranged between (88.89% - 100.00%), as the percentage of agreement on the test as a whole reached (92.67%), which is a high percentage indicating the validity of the test, after making the modifications approved by the jury members, which included an amendment to the formulation of some of the questions of the test, The researcher made the modifications referred to by the jury members, which included modifying the wording of test.

B. Internal consistency validity:

Internal consistency was calculated through the application of the test on (60) student during the pilot study as follows:

Calculation of the correlation coefficients among the test items and total test as follows:

Table (1)

Correlation coefficients between items of English language Academic medical terminology test and total test (N=60)

Items	Correlation Coefficient	Items	Correlation Coefficient	Items	Correlation Coefficient
1	0.813**	18	0.302**	35	0.830**
2	0.749**	19	0.400**	36	0.741**
3	0.780**	20	0.815**	37	0.658**
4	0.800**	21	0.840**	38	0.819**
5	0.811**	22	0.830**	39	0.319*
6	0.820**	23	0.758**	40	0.307*
7	0.309*	24	0.752**	41	0.800**
8	0.774**	25	0.762**	42	0.822**
9	0.582**	26	0.823**	43	0.710**
10	0.716**	27	0.815**	44	0.742**
11	0.807**	28	0.844**	45	0.827**

Items	Correlation Coefficient	Items	Correlation Coefficient	Items	Correlation Coefficient
12	0.813**	29	0.728**	46	0.816**
13	0.777**	30	0.801**	47	0.824**
14	0.821**	31	0.743**	48	0.819**
15	0.826**	32	0.829**	49	0.813**
16	0.845**	33	0.769**	50	0.800**
17	0.651**	34	0.811**		

*** Correlation is significant at the at level (0.05)**
**** Correlation is significant at the at level (0.01)**

The previous table (1) shows the correlation coefficients between the total test and items of the test have ranged between (0.302) and (0.845), all of which are a statistical significant at the level of (0.01), and level (0.05); this indicates the correlation and coherence of the test items, and the test as a whole, which indicates that the test It has internal consistency.

C. Intrinsic Validity

Intrinsic validity of the test was also obtained by using the following formula:

$$\text{Intrinsic validity} = \sqrt{\text{Reliability item}}$$

Intrinsic validity $= \sqrt{0.859} = 0.910$

Intrinsic validity $= 0.910$

Intrinsic validity equal (0.91); which confirms that the test is validity.

Second: Reliability

The reliability of the test was calculated in a number of ways, the Cronbach's Alpha, and the Split-Half, as follows:

A. Cronbach's Alpha: The researcher used this method to calculate the reliability of the test by applying it to a sample of (60) student, The following table ( ) shows the reliability coefficients

Table (2)

Results of the reliability coefficient value For the English language Academic medical terminology test

(N=60)

Test	Number of items	Cronbach's Alpha Coefficient
The test as a whole	50	0.859

The Cronbach's Alpha coefficients for the value of the Cronbach's Alpha for the overall test was (0.859).

These values indicate that the test has an appropriate degree of reliability.

B. The Split-Half: The coefficient of test reliability was calculated with the Split-Half method, and the Guttman equation was used. The following table shows the reliability coefficients:

Table (3)

Results of The reliability coefficient values for English language Academic medical terminology test (The Split-Half)

Test	Number of items	Correlation between forms (Pearson)	(Spearman- Brown) Coefficient	Guttman Split-Half Coefficient
The test as a whole	50	0.730	0.902	0.900

These values indicate that Scale has an appropriate degree of stability, and this means that the values are appropriate to be reliable and indicate the validity of the test for application.

Third: The Difficulty Coefficient Calculation

The researcher calculated the difficulty coefficient of the items of test. The following table (4) shows the difficulty coefficient of the items as follows:

Table (4)

Values of difficulty coefficient of English language Academic medical terminology test

(N=60)

Items	Coefficients of difficulty	Items	Coefficients of difficulty	Items	Coefficients of difficulty
1	0.51	18	0.48	35	0.51
2	0.49	19	0.52	36	0.52
3	0.50	20	0.50	37	0.49
4	0.52	21	0.53	38	0.50
5	0.50	22	0.50	39	0.50
6	0.52	23	0.51	40	0.49
7	0.50	24	0.50	41	0.52
8	0.53	25	0.51	42	0.51
9	0.51	26	0.49	43	0.48
10	0.50	27	0.50	44	0.53
11	0.51	28	0.48	45	0.50
12	0.48	29	0.49	46	0.51
13	0.50	30	0.48	47	0.48
14	0.49	31	0.51	48	0.51
15	0.52	32	0.53	49	0.48
16	0.48	33	0.50	50	0.52

Items	Coefficients of difficulty	Items	Coefficients of difficulty	Items	Coefficients of difficulty
17	0.50	34	0.52		

Fourth: Discrimination Coefficient Calculation

It is clear from the previous table ( ) that the difficulty coefficients ranged between (0.48 - 0.53), which are good difficulty coefficients, and the difficulty coefficient for the test as a whole was (0.50). These results indicate the validity of the test for use.

The discrimination is the test's ability to discriminate between the high-ability students and low-ability students. The following table (5) shows the discrimination coefficients of the test:

Table (5)

Values of discrimination coefficients of English language

Academic medical terminology test

(N=60)

Items	Discrimination Coefficients	Items	Discrimination Coefficients	Items	Discrimination Coefficients
1	0.70	18	0.58	35	0.63
2	0.73	19	0.60	36	0.68
3	0.59	20	0.63	37	0.70
4	0.63	21	0.70	38	0.75
5	0.74	22	0.74	39	0.71
6	0.65	23	0.70	40	0.65
7	0.66	24	0.69	41	0.69
8	0.72	25	0.62	42	0.60
9	0.71	26	0.64	43	0.66
10	0.70	27	0.73	44	0.70
11	0.75	28	0.70	45	0.62
12	0.66	29	0.75	46	0.70
13	0.61	30	0.70	47	0.65
14	0.67	31	0.68	48	0.60

Items	Discrimination Coefficients	Items	Discrimination Coefficients	Items	Discrimination Coefficients
15	0.63	32	0.61	49	0.70
16	0.59	33	0.59	50	0.73
17	0.70	34	0.66		

From the previous table ( ) , it is found that the values ranged from (0.58 to 0.75) , which are acceptable values and indicate the ability of the test to distinguish between the students. Then the test became in its final form after the adjustments. The test as a whole discrimination coefficient was (0.67). These results indicate the validity of the test for use.

By verifying the psychometric properties of the English language Academic medical terminology test, it was confirmed that the test is reliable for application to the main sample of students from the faculty of Physiotherapy.

- **The Statistical Methods:**

The Social Sciences Statistical Package SPSS ver.27 was used to perform statistical analyzes, and the methods used in this research are:

- Cooper's equation to find agreement ratios among jurors of experts.
- Cronbach's Alpha, and Split-Half to calculate Reliability of the test.
- Intrinsic Validity to calculate Reliability of the test.
- Pearson correlation coefficient to estimate internal consistency of the test.
- The difficulty coefficient calculation and discrimination coefficient calculation for the test.
- "t-test" for the independent groups to examine the equivalence in English language Academic medical terminology test between experimental students group & control students group, and its significance was verified by the value of (t).
- "t-test" for the independent groups to examine the significance of the differences between the degrees of students (experimental students group & control students group) to determine the difference in the level of the English language Academic medical terminology test in both groups, and its significance was verified by the value of (t).
- "t-test" for the paired groups to examine the significance of the differences between the degrees of students (experimental students group) to determine the difference in the level of the English language Academic medical

terminology test in pre and post application, and its significance was verified by the value of (t).

- Effect size scale "η^2" to demonstrate the impact of the experimental treatment on English language Academic medical terminology test.
- The ratio of Blake to verify of effectiveness.

4.6. Hypotheses of the Study: -

In the light of the results of the theoretical background, the following hypotheses can be stated:

1-There is a statistically significant difference between the mean scores of the experimental and control groups in the post administration of the English Language Academic Medical Terminology test favoring the experimental group

2 -There is a statistically significant difference between the mean scores of the experimental group students in the pre and post administrations of the English Language Academic Medical Terminology test favoring the post administration ".

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3- Video-based instruction are effect in enhancing physiotherapy students 'English language academic medical terminology.

4.7. Results and Discussion:

After the research sample was chosen, the actual implementation of the research experiment has started, and this was represented in the following:

Applying the English language Academic medical terminology test was prior applied to the research sample students as follows:

- **Pre-test of the English language Academic Medical Terminology Test :**

The aim of the prior application of the English language Academic Medical Terminology test is to ensure the equality of the two groups in the level of English language Academic Medical Terminology before teaching. The prior application of the test was done on the students of the experimental and control groups, and the results were monitored and statistically processed using the (t) test for two independent samples.

the value of (t) was calculated for two independent groups and their significance for the difference between the mean scores of experimental students group and control students group in the total degree of the English language Academic Medical Terminology test , and a table ( ) shows that:

Table (6)

The value of "t" test and the level of its significance for the difference between experimental group and control group in pre-test of English language Academic Medical Terminology test

Variable	Groups	N	Mean	Std. Deviation	df	t	Sig.
English language Academic	Experimental Group	110	23.44	1.303	218	0.700	0.485
Variable	**Groups**	**N**	**Mean**	**Std. Deviation**	**df**	**t**	**Sig.**
Medical Terminology	Control Group	110	23.31	1.393			

It is shown from the previous table (6):

- The great Convergence between the mean scores of experimental group students and the mean score of control group students in total of the English language Academic Medical Terminology test, whereexperimentalgroup studentsgot an mean(23.44) with a standard deviation (1.303), while control group students got an mean (23.31) with a standard deviation (1.393), and the calculated value of (t) for the significance of the difference between the mean scores of experimental group and control group students in total of the English language Academic Medical Terminology test, which reached (0.700) and the significance level is (0.485) which is greater than the level of significance (0.05); Thus, there is no statistically significant difference at the level of significance (0.05) between responses for students of experimental group and control group in pre-application to total of the English language Academic Medical Terminology test .

- This means that the two groups (experimental & control) are equal in the English language Academic Medical Terminology test as a whole, and this indicates that there is no difference in scores of English language Academic Medical Terminology test as a whole among experimental group and control group in pre-test of the English language Academic Medical Terminology.

- This result can be illustrated by the following figure (1):

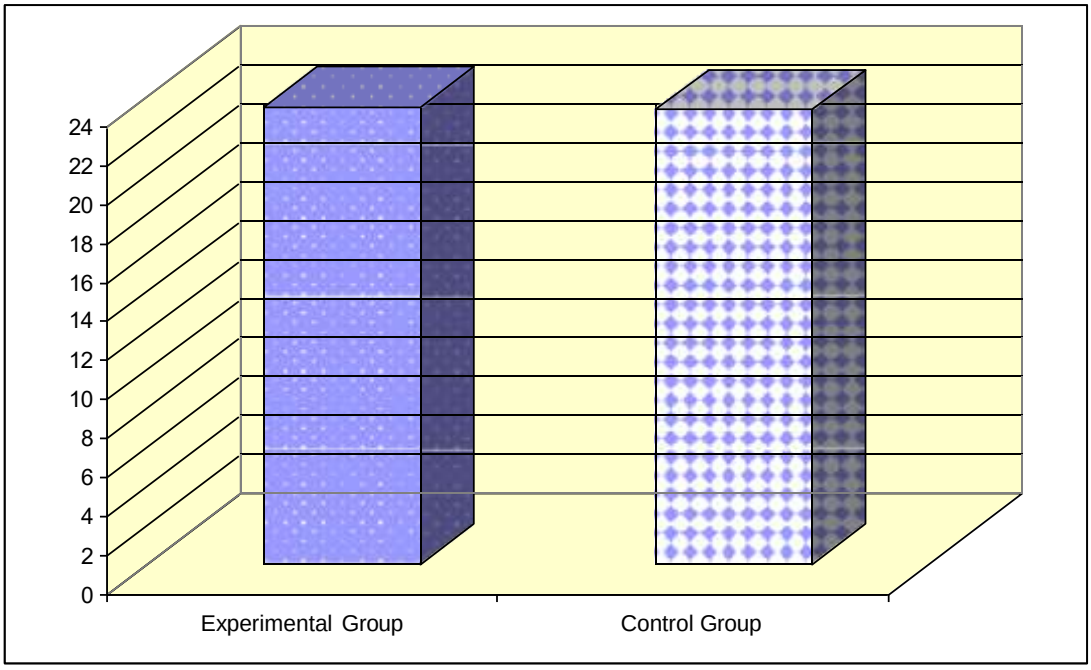

Figure (1)

A graph showing of mean scores of experimental group and control group in Pre-test to the English language Academic Medical Terminology test

Results

In this section, the researcher presents the results of the study by answering the research questions and testing the validity of each research hypothesis, and then the results are interpreted and discussed in the light of the theoretical framework for the research and previous studies.

- **First Hypothesis of the Research**

The first hypothesis Stated that " **There is a statistically significant difference between the mean scores of the experimental and control groups in the post administration of the English Language Academic Medical Terminology test favoring the experimental group** ".

To test the validity of this hypothesis, the (t) test was employed to two independent groups the experimental students group and the control students group in post-test of the English language Academic Medical Terminology test . The results are shown in the following table (7):

Table (7)

The value of "t" test and the level of its significance for the difference between experimental group and control group in post-test of the English language Academic Medical Terminology test

Variable	Groups	N	Mean	Std. Deviation	df	t	Sig.
Academic writing skills	Experimental Group	110	78.69	2.353	218	163.393	.000
	Control Group	110	23.93	2.612			

It is shown from the previous table (7):

- High of mean scores for experimental group students than mean score of control group students in total of the English language Academic Medical Terminology test, where

experimental group students got a mean (78.69) with a standard deviation (2.353), while control group students got a mean (23.93) with a standard deviation (2.612). it's mean the average scores of experimental group students was higher than the mean scores of control group students in the post-test of total of the English language Academic Medical Terminology test.

- The calculated value of (t) for the significance of the difference between the mean scores of experimental group and control group students in total of the English language Academic Medical Terminology test, which reached (163.393) and the significance level is (0.000) which is lower than the level of significance (0.05); Thus, there is statistically significant difference at the level of significance (0.05) between responses for students of experimental group and control group in post- application to total of the English language Academic Medical Terminology test in favor of experimental group.

This result can be illustrated by the following figure (2):

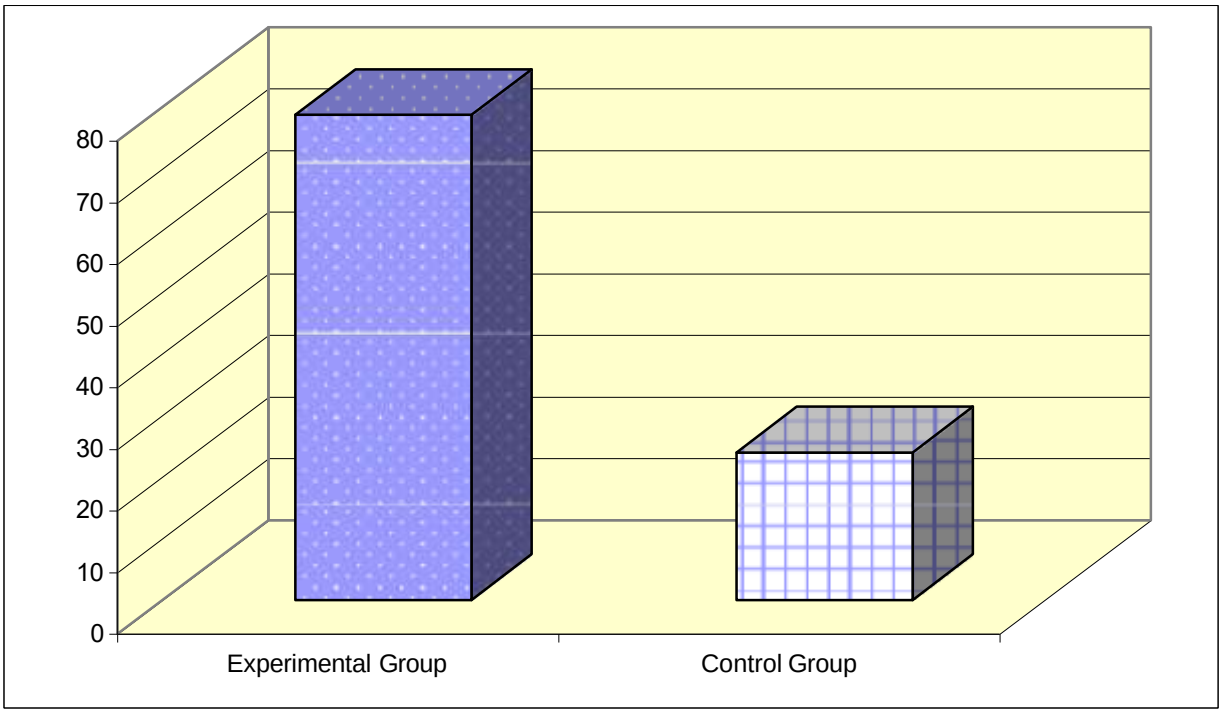

Figure (2)

A graph showing of mean scores of experimental group and control groups in Post-test of the English language Academic Medical Terminology test

- This means accepting the first hypothesis of research, and this indicates that there is difference at the level of (0.05) between the experimental and control group in the post-test of the English language Academic Medical Terminology test in favor of experimental group.
- **The Second Hypothesis of the Research**

The Second hypothesis Stated that " **There is a statistically significant difference between the mean scores of the experimental group students in the pre and post administrations of the English Language Academic Medical Terminology test favoring the post administration** ".

To test the validity of this hypothesis, the (t) test was employed to two paired groups in pre and post-test of the English Language Academic Medical Terminology test for the experimental students group. The results are shown in the following table ( ):

Table (8)

The value of "t" test and the level of its significance for the difference between the experimental group in the pre and posttest of the English Language Academic Medical Terminology test

Variable	Test	N	Mean	Mean paired differences	Std. Deviation	Std. Deviation paired differences	df	t	Sig
English Language Academic Medical Terminology	Pre- test	110	23.44	55.25	1.303	2.297	109	252.343	.000
	Post- test	110	78.69		2.353				

It is shown from the previous table (8):

- High of mean scores for post-test about mean score of pre-test for experimental group students in total test of the English Language Academic Medical Terminology, where experimental group students got an mean (23.44) in pre-test of total test with a standard deviation (1.303),, while got a mean (78.69) in post-test of the English Language Academic Medical Terminology test with a standard deviation (2.353),. it's mean the mean scores in post-test of the English Language Academic Medical Terminology test for experimental group students was higher than the mean scores in pre-test of the English Language Academic Medical Terminology test.
- Mean paired differences between the mean scores of the pre-test and post-test of the English Language Academic Medical Terminology test was reached (55.25).
- also the calculated value of (t) for the significance of the difference between the mean scores of the pre-test and post-test of the English Language Academic Medical Terminology test, which reached (252.343) and the significance level is (0.000) which is lower than the level of significance (0.05); Thus, there is statistically significant difference at the level of significance (0.05) between responses of experimental students in the pre-test and post-test of total the English Language Academic Medical Terminology test in favor of the post test.

- This result can be illustrated by the following figure (3):

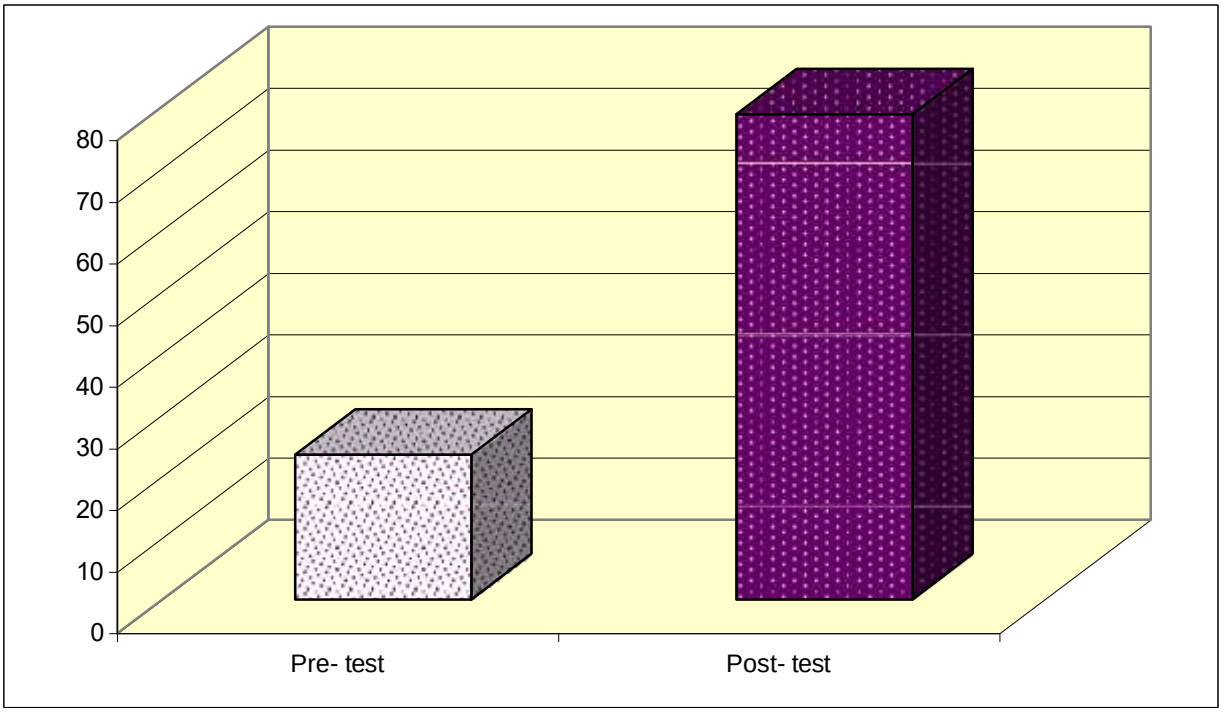

Figure (3)

A graph showing of mean scores for pre and posttest In the English Language Academic Medical Terminology test for experimental grou

- This means accepting the second hypothesis of research, and this indicates that there is difference at the level of (0.05) between the mean scores of the experimental group in the pre-test and post-test of the English Language Academic Medical Terminology test in favor of the post test.

- **Third Hypothesis of the Research**

The third hypothesis Stated that " **Video - Based Instruction is Effect in Enhancing Physiotherapy Students' English Language Academic Medical Terminology** ".

To test the validity of this hypothesis, the effect size of the Video - Based Instruction on enhancing Physiotherapy Students' English Language Academic Medical Terminology.

The following table (9) illustrates the effect size of the Video - Based Instruction on developing the English Language Academic Medical Terminology.

Table (9)

Value of (η^2) and the level of effect size

The Independent Variable	The Dependent Variable	Implementation	t	η^2	Effective Size	d	The Effective
Video - Based Instruction	English Language Academic Medical Terminology	Experimental Group - Control Group	163.393	0.992	99.2%	22.133	High
		Pre test - Post test	252.343	0.993	99.3%	24.060	High

The previous table (9) shows the following:

- The value of Eta-square (η^2) for experimental group - control group in English Language Academic Medical Terminology test was (0.992). This means that (99.2%) of variance in the level of English Language Academic Medical Terminology is due to use the Video - Based Instruction, The value of (d) equal (22.133) means the effect size of using the Video - Based Instruction on Physiotherapy Students' English Language Academic Medical Terminology is large, because the value of (d) is higher than (0.8).
- The value of Eta-square (η^2) for Pre test - Post test in English Language Academic Medical Terminology test was (0.993). This means that (99.3%) of variance in the level of English Language Academic Medical Terminology is due to use the Video - Based Instruction, The value of (d) equal (24.060) means the effect size of using the Video - Based Instruction on Physiotherapy Students' English Language Academic Medical Terminology is large, because the value of (d) is higher than (0.8).

- This means accepting the third hypothesis of research, and this indicates that the Video - Based Instruction is effect in enhancing Physiotherapy Students' English Language Academic Medical Terminology.

- **In order to verify the effectiveness of teaching by using the Video - Based Instruction, the modified earnings ratio of Blake and its significance was applied for developing Physiotherapy Students' English Language Academic Medical Terminology. the results were as shown in the following table (10):**

Table (10)

Blake's modified ratio and its significance for Developing Physiotherapy Students' English Language Academic Medical Terminology

Variable	Final Grade	Pre Mean	Post Mean	Ratio of Blake	Significance
Physiotherapy Students' English Language Academic Medical Terminology	100	23.44	78.69	1.274	Acceptable

It is clear from the previous table (10) that:

- Teaching by Using the Video - Based Instruction effectiveness in developing Physiotherapy Students' English Language Academic Medical Terminology, as the earning rate reached (1.274), which is considered an acceptable percentage; This indicates that the use of Teaching by Using the Video - Based Instruction is effective in developing the English Language Academic Medical Terminology for physiotherapy students' (the research sample).

- This result can be illustrated by the following figure (4):

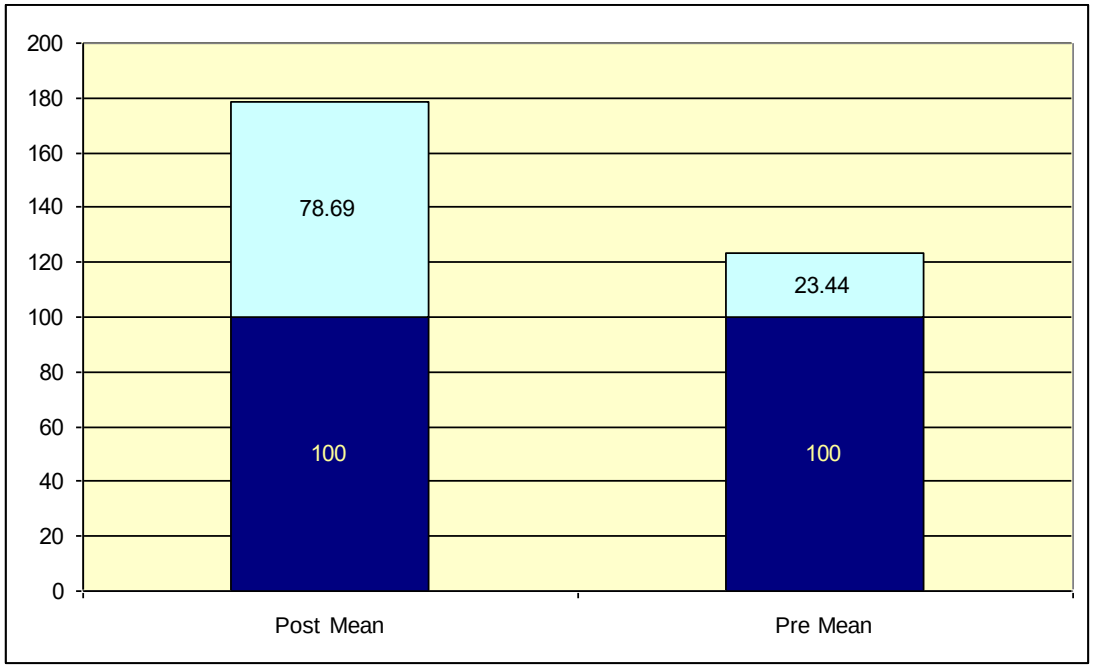

Figure (4)
A graph showing of mean scores for experimental group
In the English Language Academic Medical Terminology

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5-Interpretation, Recommendations and Suggestions:

Throughout the discussion of the previous results, it has become clear that video-based instruction is effect in fostering physiotherapy students 'English language academic medical terminology Through these results, a number of conclusions can be made:

1. The students tend to be more proficient in their medical terminology through using video-based instruction.
2. Video-based instruction was effective in enhancing physiotherapy students' academic English language medical terminology.
3. Academic learning language with their target skills can be effectively enhanced through using technology and computer assisted language learning.
4. Video-based instruction provided the students with positive teaching and learning environment.
5. Video-based instruction helped the students in being more active, initiative and creative.
6. Video-based instruction connected the students with academic real-life situations of language use and thus, this made learning more realistic to them.

5.1. Recommendation:

In the light of the results and conclusions of the present study, the following recommendation are recommended:

1-Students enrolled in the first year, faculty of physiotherapy should be trained in an effective EAP Video-based instruction.

2- EAP instructors in the faculty of the Physiotherapy should receive training in using effective Video-based instruction to improve the students 'English language academic medical terminology.

3-It is recommended that curriculum designers should depend on developing academic medical terminology through using technology and video-based instruction.

4-During performing the program, students should be provided with a relaxing and effective environment.

5.2. Suggestion for further researches:

-Out of the study results, conclusions and recommendations, the following areas of the study may be suggested for further research:

1- Developing a program through using video-based instruction for developing other skills are not dealt with in the present research and then it is needed to investigate its effect on the other communicative language skills.

2- Designing an effective video-based instruction for developing students 'in the pre-university stage.

3- Developing ESP video-based instruction language programs in different faculties.

4- Determing the long-term effect of using video-based instruction in effective different strategies.

References

- Abeysekera, L., & Dawson, P. (2014). Motivation and cognitive load in the flipped classroom: A review of the evidence. *Computers & Education*, *87*, 223-231.

- Ayres, P. (2012). The worked example effect. In *APA educational psychology handbook, Vol. 1. Theories, constructs, and critical issues* (pp. 379-391). American Psychological Association.

- Ayres, P. (2015). *Working memory and instruction*. Cambridge University Press.

- Bao, X., Wang, Q., Li, W., & Chen, H. (2016). The rapid growth of immersive video content due to VR tools.

- Bertram, J., Moskaliuk, J., & Cress, U. (2015). Virtual training: Making reality work? *Computers in Human Behavior, 43*, 284-292.

- Brooks, C., Ertmer, P. A., & Newby, T. J. (2011). Technology-enhanced learning in higher education: A review of emerging technologies and their impact. *Educational Technology Research and Development, 59*(5), 785-801.

- Castro-Alonso, J. C., Ayres, P., & Paas, F. (2019). Effects of instructional video with and without text on learning and cognitive load. *Learning and Instruction, 64*, 101211.

- Chorianopoulos, K. (2018). *Online video and media: Technology and applications*. Springer.

- De Jong, T. (2010). Cognitive load theory, educational research, and instructional design: Some food for thought. *Instructional Science, 38*(2), 105-134.

- Dodson, M., Brubaker, J. S., & Peppler, K. A. (2018). The power of video in STEM education: A review of the literature. *Journal of Science Education and Technology, 27*(5), 373-388.

- Galatsopoulou, F., Chorianopoulos, K., & Giannakos, M. (2022). Exploring the impact of interactive video-based learning on students' critical thinking and problem-solving skills in higher education. *Education and Information Technologies, 27*(2), 2683-2708.

- Giannakos, M. N., & Vlamos, P. (2013). The effect of self-regulated learning strategies on satisfaction and performance in a video-based learning environment. *Educational Technology Research and Development*, *61*(4), 603-620.

- Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. *Proceedings of the first ACM conference on Learning@ scale conference*, 41-50.

- Harris, A. L., & Park, S. B. (2008). Self-regulated learning in a video-based learning environment. *Journal of Educational Technology & Society*, *11*(4), 164-177.

- Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, *18*(3), 66-67.

- Henderson, M., Selwyn, N., & Aston, R. (2015). What works and why? Student perceptions of the use of social media in learning. *Computers & Education*, *89*, 157-167.

- Hoffler, T. N., & Leutner, D. (2007). Instructional animation versus static pictures: A meta-analysis. *Learning and Instruction*, *17*(6), 722-738.

- Hollands, F. M., & Tirthali, D. (2015). *Resource requirements and costs of massive open online courses (MOOCs)*. Teachers College, Columbia University.

- Hyland, K. (2006). *English for academic purposes: An advanced resource book*. Routledge.

- Hyland, K. (2009). *Academic discourse: English in a global context*. Continuum.

- Hyland, K. (2012). *Disciplinary discourses: Social interactions in academic writing*. University of Michigan Press.

- Ibrahim, M., & Hussain, R. (2012). Impact of video-based learning on students' academic achievement in higher education. International Conference on Education and New Learning Technologies.

- Kabooha, R. (2016). Saudi EFL learners' and teachers' attitudes towards using English YouTube videos in their classes to develop students' language skills. *English Language Teaching*, *9*(8), 105-115.

- Kim, Y., Guo, P. J., & Jo, J. O. (2014). Predicting student learning outcomes in massive open online courses (MOOCs). *Proceedings of the 2014 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 928-933.

- Kurt, S., & Bensen, N. (2017). The effect of using short videos on vocabulary learning. *Journal of Language and Linguistic Studies, 13*(2), 522-536.

- Kusumarasdyati, K. (2004). Listening to English songs to improve students' listening comprehension. *TEFLIN Journal, 15*(2), 173-189.

- Lalian, V. (2018). The impact of video-based learning on students' cognitive and affective outcomes. *Journal of Computer Assisted Learning, 34*(6), 737-748.

- Lea, M. R., & Street, B. V. (2000). Student writing in higher education: An academic literacies approach. *Studies in Higher Education, 25*(2), 163-174.

- Lillis, T. (2001). *Student writing: Access, regulation, desire*. Routledge.

- Martinez, L., Chen, Y., & Abdulrahman, A. (2023). The impact of video-based learning on second language acquisition: A comprehensive review. Journal of Language and Multimedia Learning, 45(2), 112–130.

- Mayer, R. E. (2014). *The Cambridge handbook of multimedia learning* (2nd ed.). Cambridge University Press.

- Muller, D. A., Stegmann, K., & Fischer, F. (2008). The effects of a problem-based learning environment on students' cognitive load and learning outcomes. *Instructional Science, 36*(2), 119-140.

- Murray, A., Koziniec, P., & McGill, T. (2015). Learning preferences for video-based instruction in higher education. *Journal of University Teaching & Learning Practice, 12*(4), 1-17.

- Paas, F., & Sweller, J. (2014). Implications of cognitive load theory for multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (2nd ed., pp. 27-42). Cambridge University Press.

- Rizzo, A. S., Koenig, S. T., & Talbot, T. B. (2015). Virtual reality and video-based simulation for medical and military training. Journal of Simulation in Healthcare, 10(3), 176–185.

- Rosenthal, R., Ackerman, R., & Gilad, D. (2008). Video-based instruction in the military: Cognitive load, motivation, and performance. Military Psychology, 20(1), 23–38.

- Sablic, M., Cergol Krek, A., & Škugor, B. (2020). The impact of video-based learning on student engagement and academic achievement: A meta-analysis. *Education and Information Technologies*, *25*(6), 5035-5056.

- Smith, J. (2021). The effectiveness of flipped classrooms in fostering critical thinking and problem-solving skills: An empirical study. *International Journal of Education in Mathematics, Science and Technology*, *9*(3), 399-415.

- Sweller, J. (2020). Cognitive load theory and instructional design. *Learning and Instruction, 66*, 101292.

- Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive load theory*. Springer.

- Yaseen, B. H., & Shakir, H. (2015). Movie effects on EFL learners at Iraqi school in Kuala Lumpur. *International Journal of Education and Literacy Studies*, *3*(3), 31-36.

- Yousef, F., Chorianopoulos, K., & Giannakos, M. N. (2014). Video-based learning: A review of the literature. *Educational Technology Research and Development*, *62*(6), 665-690.

- Zhu, Y., et al. (2017). The advantages of video movies for vocabulary learning over the dictionary. *Journal of Language Teaching and Research, 8*(1), 195-200.