Investigating YouTube as a learning tool in higher education: Perceptions of pre-service teachers

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Abstract

The purpose of this paper is to investigate the effect of using YouTube as an educational tool on pre-service educators in the United Arab Emirates and further delve into various factors that might influence this impact. The methodology employed is an analytical descriptive framework, gathering data via a comprehensive 36-item questionnaire distributed to a diverse group of 486 male and female student participants. The insights gleaned from this research highlight the critical necessity of integrating YouTube into the educational process, with the cumulative mean score of responses to the scale items reaching 3.86, which translates to a proportion of 77.2%. In a compelling finding, the investigation unveiled no discernible statistical variances in the mean scores of students' uses of YouTube in relation to their field of academic study or the quality of their Internet connectivity. However, the study identified meaningful discrepancies predicated on the respondents' command of the English language or their aptitude for computer proficiency. From an overarching perspective, the research indicated that students from various academic fields exploit YouTube as an instructional resource, regardless of whether they specialize in the sciences or the arts. Consequently, the research advocates for the widespread adoption of YouTube as an instrumental learning tool in tertiary education settings and other academic environments.

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Introduction
The widespread use of the Internet has changed the way people access information and interact with each other. In particular, the rise of video-sharing platforms such as YouTube has had a significant impact on how individuals consume and share content. The platform has become one of the largest sources of online video content, with millions of users worldwide uploading and watching videos daily (Tkacová, Králik, Tvrdoň, Jenisová, & Martin, 2022). In recent years, YouTube has also been increasingly used as a learning tool in the higher education system (Ahmad, Jameel, & Raewf, 2021; Hashim, Tlemsani, & Matthews, 2022). The proliferation of digital technology has resulted in a vast array of digital devices and electronic resources for instructors across the educational spectrum, including smartphones, interactive whiteboards, and tablet computers. Among these resources, YouTube, a ubiquitous video hosting platform, has proven to be an indispensable tool in the higher education classroom (Sasikala, Rajam, & Prema, 2021). Despite its relatively recent inception, having only been established just over a decade ago, YouTube has come to play a pivotal role in the expansion of the worldwide academic community and the evolving digital media landscape (Uğur & Guliz, 2020).

However, Almobarraz (2018) noted that despite the use of online YouTube in teaching and learning activities for several years across different stages, some Arab educators still regard the practice as a new norm due to their limited choice of solely relying on online learning materials, rather than being an optional resource. In addition, Kormos & Morgan (2023) argued that although the popularity of using online platforms such as YouTube for T&L purposes has increased, the effectiveness and value of the available content for educational activities on these platforms remains an unresolved matter. AL-Shehri & Al-Razgan (2017) stated that in the Arab higher education setting, YouTube became a popular online platform over the past decade, Arab educators have been using YouTube in various ways to supplement traditional teaching methods, support student learning, and provide access to educational resources. This current study sheds light on how YouTube is being used in higher education and explores the benefits and challenges of implementing this platform for educational purposes. Sharma & Sharma (2021) argued that the use of YouTube in Arab higher education has the potential to provide numerous benefits to educators and preserve educators alike. From the creation and distribution of educational

videos to the use of the platform as a research tool, to the increased accessibility it provides, YouTube has become an important resource in the world of higher education. However, Sasikala, Rajam, & Prema (2021) stated that it is important to be aware of the challenges associated with using YouTube in an educational setting and to take steps to mitigate those risks. By using the platform responsibly and strategically, educators and students can leverage the many benefits of YouTube to support their learning and achieve their educational goals.

Existing research emphasizes the advantages and challenges of using YouTube in Arab higher education. However, there is a lack of insight into how Arab pre-service teachers view YouTube's role and effectiveness in their learning and future careers. Chand, Alasa, Chitiyo, & Pietrantoni (2022) define pre-service students as 'teacher candidates'. These individuals are enrolled in teacher education programs, working towards their teaching certification. Their education involves hands-on training in real classrooms, supervised by both university professors and experienced K-12 teachers. Emerging from higher education institutions, these future teachers are in the midst of transitioning into professional educators, typically with little to no prior teaching experience.

Additionally, there is a lack of research exploring the factors that may impact the utilization of YouTube as an educational resource by pre-service teachers across the Arab region. Understanding these perspectives and factors could inform the development of effective strategies for integrating YouTube into teacher education programs and enhancing the use of digital tools in teaching practices. Therefore, this paper will examine the perspective of pre-service teachers regarding the significance and efficacy of YouTube as a tool for their education and eventual pedagogy, as well as their perceived aptitude and level of engagement in digital innovation. Furthermore, it attempts to examine the factors that may impact the utilization of YouTube in their prospective professional endeavors as educators.

The present study aims to investigate the effect of using YouTube on pre-service teachers enrolled in the Postgraduate Professional Diploma in Teaching (PPTD) program at Al Ain University in the UAE and the effect of some variables impacting it. The study attempts to answer the following research questions. *First,* how important is the use of YouTube videos in the learning process of pre-service teachers enrolled in the PPTD program? *Second,* are there any statistically significant differences in the use of YouTube by pre-service teachers in the PPTD program due to the variables of their academic specialization, their level of English language, their computer literacy, and the strength of the available Internet connection?

This study is considered significant due to the ability of pre-service teachers in the PPTD program to identify the importance of using YouTube in learning, methods of using it, the problems they face, and the ways they can be used in higher education institutions. Therefore the results of the research may add new insights and ideas to the literature regarding the use of YouTube by pre-service teachers in the PPTD program. We also believe that the study may pave the path for other researchers, especially those interested in modern technologies, to conduct relevant studies, and be of interest to universities and other educational institutions outside the UAE.

Literature Review

Benefits of YouTube Videos in Learning

YouTube is a leading video-sharing platform that affords both registered and unregistered individuals the opportunity to generate, disseminate, and curate user-created video content (Patalinghug, & Patalinghug, 2022). While unregistered users can only view and provide feedback on uploaded videos, registered users can upload a plethora of video file types, including music videos, documentaries, animations, short films, movie excerpts, and slide presentations, and create playlists for convenient access to their preferred videos. Furthermore, registered users can subscribe to channels and write their comments on videos. Given the pivotal role of videos in the educational realm, various video-sharing websites, such as Google Video, Teacher Tube, School Tube, United Streaming, MSN Soapbox, One WorldTv, and YouTube, have been extensively utilized over the years to enhance the pedagogical experience (ibid). The integration of YouTube in the teaching and learning experience offers a multitude of advantages, such as arousing students' interest, capturing their attention, promoting creativity, fostering collaboration, simulating hard-to-observe experiences, making learning enjoyable, and enhancing comprehension (Alkhudaydi, 2018).

Furthermore, YouTube provides users with access to a diverse range of video genres, including animated videos, moviemaker videos, participatory videos, and student presentations (Jenkins, & Dillon, 2013). Kormos and Morgan (2023) stated that its impact on education has been pronounced and substantial, as evidenced by numerous studies such as (Cihangir, 2021; Tess, 2013), those scholars suggested that the use of YouTube videos in the educational process can improve student englut as engagement and retention of lesson content across multiple subjects.

The numerous benefits of employing YouTube as an educational platform are apparent. By utilizing YouTube as a pedagogical tool, users can engage

in collaborative efforts to create educational content (Cihangir, 2021; Fynn, Kwegyiriba, & Mensah, 2021; Jamil, & Alazrak, 2023), educators may establish their channels, record instructional sessions, and upload them online for students to peruse, fostering a deeper comprehension of the course material. Furthermore, Qomaria and Zaim (2021) noted that YouTube can also facilitate the formation of a collaborative learning community and serve as a virtual repository of useful video resources for students. The use of YouTube for academic purposes proves to be highly advantageous for students, given its user-friendly interface, ability to engender online dialogues, and expedient accessibility to information. Moreover, Cihangir (2021) stated that YouTube's features render it a suitable platform for educational videos, as it is effortlessly simple to upload and disseminate content. In addition, the implementation of YouTube has been demonstrated to encourage independent learning, foster collaboration between students and between students and teachers, allow for personalization of the learning experience, and provide opportunities for student feedback (Norman, & Olipas, 2022).

Challenges of using YouTube in higher education

While YouTube has gained prominence and popularity as an online video-sharing platform, several studies have assessed its acceptability and usefulness among users (Ali, & Ali, 2018; Yaacob, & Saad, 2020). Likewise, Uğur and Guliz (2020) inferred that receptivity to media for instructional purposes is motivated by comfort, digital literacy, familiarity, and self-rated competence levels with digital tools. In addition, researchers identified perceived usefulness (Adeyemi, & Issa, 2020), ease of use and playfulness (Dumpit, & Fernandez (2017) and the quality of videos as other factors that must also be considered. According to U ur & Guliz (2020), the receptiveness to media for educational purposes is driven by factors such as comfort, digital literacy, familiarity, and self-assessed competence with digital tools.

Additionally, Adeyemi and Issa (2020) recognized perceived usefulness as another important factor, while Dumpit and Fernandez (2017) emphasized ease of use and playfulness and emphasized the quality of videos. These factors must also be taken into account when considering the use of YouTube. However, other scholars have addressed various challenges to maximize its efficacy. As posited by Alkhudaydi (2018) one of the most critical challenges posed by the use of YouTube in education is the credibility and reliability of the information available on the platform. The lack of a guarantee that the information presented is accurate or up to date due to the ability for anyone to upload videos can lead

to students being misinformed or exposed to outdated information. Vargas-Urpí (2021) emphasized that in such scenarios, teachers must adopt a discerning approach in selecting videos for classroom use and provide students with the tools to evaluate the authenticity of the information they encounter online. Nacak, Bağlama and Demir (2020), as well as Waller, Lemoine and Richardson (2019) proposed another impediment to the use of YouTube in education is the issue of accessibility.

In certain regions across the world, there may be limitations or restrictions concerning Internet and YouTube access, making it challenging for students to use the platform. Fadhil Abbas and Ali Qassim (2020) believed that this is especially prevalent in rural or underdeveloped areas such as some Arab countries, they addressed that the lack of access to high-speed Internet or advanced technology may affect the use of video sharing from YouTube in their learning setting and that Arab teachers may need to explore alternative methods of incorporating YouTube into their pedagogy. In addition, maintaining student engagement remains a challenge when leveraging YouTube as an educational tool. Although videos can effectively demonstrate complex concepts and render them more comprehensible, according to Almobarraz (2018), students may become distracted by the plethora of videos and content available on the platform and teachers must devise methods to keep students invested and focused on the learning material, such as through interactive learning activities, collaborative discussions, or regular evaluations.

Factors of Arab user's acceptance

In the Arab world, teacher's perception of using YouTube in learning is a topic of much discussion and debate. While some teachers see it as a valuable resource, others are more skeptical of its benefits. Several Arab scholars have investigated the use of YouTube in learning, in particular in higher education systems (see e.g. Alkhudaydi, 2018; Qomaria, & Zaim, 2021; Ali, & Ali, 2018; Yaacob, & Saad, 2020; Almurashi, 2016; & Saja, Mearaj, Ramli, Sopian, Qayyum, & Razak, 2021). These studies suggested that one of the main benefits of using YouTube in higher education learning in the Arab region is that it provides students with rich information at their fingertips. With the vast array of videos available, learners can easily access tutorials, lessons, and explanations on a variety of subjects. According to Tariq et al (2020), this makes it an ideal resource for students who are looking to expand their knowledge or who are struggling to understand a particular concept. Additionally, YouTube is a platform that Arab learners are already familiar with and comfortable using, so it can help engage

them in learning and make it more enjoyable (Sharma, & Sharma, 2021). Hasan et al (2018) highlighted the idea that for Arab learners video-sharing can be used to provide students with a visual representation of a concept, which can help enhance their understanding and memory of the material.

On the other hand, other Arab scholars have reservations about using YouTube in the classroom (Al-Shehri, & Al-Razgan, 2017; Hussaeni, Pratama, Arifin, Winda, & Widianingsih, 2020). One of the main concerns is that students may become distracted by the many other videos and content available on the platform. In addition, some teachers worry that the information available on YouTube may not be accurate or reliable. To address these concerns, Kumar and Nanda (2019) suggested that it is important for teachers to carefully select the videos that they use in the classroom and provide students with guidance on how to evaluate the credibility of the information that they find online.

Hasan et al (2018) highlighted another factor that teachers may face when using YouTube in the classroom the issue of accessibility. In some parts of the Arab world, access to the Internet and YouTube may be limited or restricted, making it difficult for students to access the platform. In these cases, teachers may need to find alternative ways to incorporate the platform into their teaching, such as by downloading videos and playing them in the classroom. The literature focused on exploring studies that examined the integration of YouTube as a digital media platform in higher education. The majority of these studies suggested the significance of utilizing digital platforms in the learning process. However, they also emphasized the need for both teachers and pre-service teachers to be aware of the challenges and strive to overcome them in order to provide students with an optimal learning experience. By addressing these obstacles, teachers can ensure that students receive accurate and reliable information while also promoting their engagement and motivation to learn (Dunas, Babyna, Salikhova, & Gladkova, 2023).

Methodology

The study adopted the analytical descriptive approach, which is the approach that studies, describes, compares, and measures phenomena (McNabb, 2020). The study aims to investigate the effect of using YouTube on the learning process of pre-service teachers enrolled in the PPTD program at Al Ain University in the United Arab Emirates and the effect of some variables impacting it. The study participants consisted of 486 male and female students from the PPTD program at Al Ain University, during the first semester of the academic year 2022-2023, distributed as in *Table 1*.

Table 1

Number and percentage of the students participating in the study

Percentage	Frequency	Qualification	Group
79	382	Human sciences	Qualification
21	104	Natural science	
100	486	Total	
18	88	Beginner	English level
70	340	Intermediate	
12	58	Advanced	
100	486	Total	
11	50	Basic knowledge	Computer literacy level
54	264	Intermediate	
35	172	Advanced	
100	486	Total	
10	48	Poor	Internet connection level
56	274	Average	
34	164	Strong	
100	486	Total	

Source: Authors, 2024

The investigators conceived an instrument intended to quantify the application of YouTube in educational pursuits. Initially, this tool comprised thirty-six items, categorized into three distinct dimensions: motivations for viewing YouTube content, advantages accrued from utilizing YouTube, and the simplicity of YouTube usage. To ascertain its validity, the instrument was submitted to a panel of nine experts comprised of curriculum and teaching methodology specialists, media professionals, educational supervisors, and highly experienced teachers with a master's degree. Based on their expertise, they suggested excising certain items and revising others. Additionally, the construct validity of the questionnaire was ascertained by administering it to a

pilot sample of thirty students of varying genders. The correlation coefficient, as determined by Pearson›s method, was computed between the score of each item, the total dimension score to which it was assigned, and the overall score. The range of correlation coefficients spanned from a maximum of 0.83 to a minimum of 0.74, and any items that were not statistically significant were eliminated. The instrument›s reliability was assessed using the Cronbach›s alpha coefficient, yielding a value of 0.78. This indicates a robust and statistically significant level of reliability at a 0.01 level. In its finalized format, the instrument is composed of twenty-two items, distributed as follows: motivations for viewing YouTube content (six items), advantages accrued from using YouTube (seven items), and the ease of using YouTube (nine items).

Results

To address the study's initial question *"How significant is the application of YouTube videos in learning?"* the arithmetic mean was computed. This was done by dividing the arithmetic range of 4 (which is obtained from 5-1) into three levels, yielding a result of 1.33. Consequently, the intervals for each level were established as follows: the low-level equals 1 plus 1.33, giving 2.33; the average level equals 2.33 plus 1.33, summing to 3.66; and the high-level equals 3.66 plus 1.33, totaling 4.99. As per these calculations, the arithmetic means are detailed in *Table 2*.

Table 2

Arithmetic averages

Level	Mean	No.
Low	1.00 – 2.33	1
Intermediate	2.34 – 3.66	2
High	3.67 – 5.00	3

Source: Authors, 2024

Drawing on the data from *Table 2*, the items were sequenced as exhibited in *Table 3*. This table presents the items that evaluate the significance of using YouTube videos for learning purposes. It showcases the arithmetic means, standard deviations, and the level, which signifies the order of importance.

Table 3

Means, standard deviations, and level of importance of the ease of using YouTube videos in learning

Item no.	Domain	Item	Mean	Std. deviation	Level	Order
5	A	I use YouTube to gain new practical knowledge	4.33	0.62	High	1
13	B	The school/ university provides me with the opportunity to use its network to access YouTube	4.31	0.68	High	2
1	A	I frequently use YouTube to learn	4.23	0.59	High	3
11	B	The diversity of YouTube sources increases my knowledge of what is happening in the outside world	4.2	0.74	High	4
6	A	I use YouTube to develop and promote culture and visual creativity	4.19	0.69	High	5
7	B	Using YouTube makes my learning deeper and more efficient	4.16	0.68	High	6
2	A	I always use YouTube to watch videos related to my studies	4.14	0.67	High	7
8	B	Using YouTube improves my productivity during my studying time	4.12	0.79	High	8
20	C	I have a device suitable for using YouTube	4.08	0.93	High	9
19	C	I enjoy learning when I use YouTube	3.98	0.84	High	10
21	C	Independent learning with YouTube makes learning easier	3.97	0.83	High	11
9	B	Using YouTube motivates me to study when I am outside the classroom	3.94	0.89	High	12

12	B	On YouTube, there are resources that are difficult to obtain at the university or school	3.94	0.83	High	13
22	C	The ability to download YouTube videos gives me the opportunity to learn even when the Internet is disconnected	3.91	0.96	High	14
4	A	I use YouTube to cover aspects that were not covered during the formal learning	3.89	0.92	High	15
18	C	Using YouTube gives me control over the time it takes to watch each video	3.88	0.90	High	16
17	C	The YouTube tab is easy for me to use, and helps me mark my learning progress	3.87	0.84	High	17
10	B	Using YouTube greatly increases my attention	3.84	0.89	High	18
3	A	I use YouTube in my studies to further control my learning time	3.73	0.85	High	19
16	C	I am afraid of YouTube addiction	2.79	1.15	Intermediate	20
15	C	My fear of false and contradictory information reduces my use of YouTube	2.75	1.00	Intermediate	21
14	C	I rarely use YouTube not to waste my studying time	2.67	1.04	Intermediate	22
Total means			3.86	0.83	Intermediate	

Source: Authors, 2024

Table 3 provides a detailed examination of individual items from the questionnaire, ranked according to their arithmetic mean, standard deviation, and their order of importance. Paragraph 5, which states "I use YouTube to gain new practical knowledge", holds the top position, with an arithmetic mean of 4.33 and a standard deviation of 0.62. This indicates that respondents find YouTube highly beneficial in acquiring practical knowledge. In contrast, paragraph 13, stating that "the school/university provides me with the opportunity to use its network to access YouTube", holds the second position with an arithmetic mean of 4.41 and a standard deviation of 0.68, which reflects a positive acknowledgement of the accessibility provided by educational institutions to YouTube.

However, paragraph 20, with an arithmetic mean of 2.79 and a standard deviation of 1.15, shows a lower level of agreement. The item for this paragraph is not provided here but is evident from the context that respondents demonstrated less agreement with this statement. Paragraph 15, which expresses "My fear of false and contradictory information reduces my use of YouTube" has an arithmetic mean of 2.67 and a standard deviation of 1.0, placing it towards the lower end of the ranking, indicating that misinformation is a considerable concern for the participants. Finally, paragraph 21, stating "I rarely use YouTube not to waste my studying time" is ranked last with an arithmetic mean of 3.86 and a standard deviation of 1.04. This suggests that concerns over potential time wastage limit some participants' use of YouTube.

Despite the mixed responses, the overall mean of the individual questionnaire items is 3.86 with a standard deviation of 0.83. According to *Table 2* criteria, this average suggests that the utilization of YouTube in learning is generally considered significant by the respondents. However, exceptions are seen in paragraphs 20, 20 (this appears to be a typo and may need correction), and 22, which garnered an average rating.

To answer the question *"Are there any statistically significant differences in the use of YouTube by pre-service teachers in the PPTD program due to the variable of their academic specialization (scientific and literary disciplines)?"* the arithmetic means and standard deviations of the students' scores were calculated on the students' use of the YouTube scale according to their specialization (scientific and literary disciplines), as shown in *Table 4*.

Table 4

The arithmetic means and standard deviations of students' scores on the students' use of YouTube scale, according to their specialization (scientific and literary disciplines)

Std. deviation	Mean	f	Specialization
9.05	85.00	382	Literary majors
6.46	84.54	104	Scientific disciplines

Source: Authors, 2024

From *Table 4*, one can discern variations in the arithmetic averages of student scores on the usage of the YouTube scale, differentiated by their academic majors, namely, the scientific and literary disciplines. To ascertain whether these differences hold statistical significance, the independent samples t-test was employed. The resulting findings are displayed in *Table 5*.

Table 5

Independent sample T-test to identify the source of differences in students' scores on the students' use of YouTube scale according to their specialization (scientific and literary disciplines)

Specialization	f	Mean	Std. deviation	t	df	sig
Literary majors	382	85.00	9.05	0.588	224.99	0.557
Scientific disciplines	104	84.54	6.46			

Source: Authors, 2024

As evidenced in *Table 5*, no statistically significant disparities at the $p \leq 0.05$ level exist between the arithmetic mean of student scores regarding the use of YouTube, segmented by their academic specializations (literary and scientific disciplines). Specifically, the arithmetic mean for the literary majors was found to be 85.00, while for the scientific disciplines, it was slightly lower at 84.54. The statistical t-value was computed as .588, a value deemed non-statistically significant at the 0.05 level. This suggests that students hailing from both literary and scientific fields harness the pedagogical potential of YouTube with equivalent efficacy.

To answer the question "Are there any statistically significant differences in the use of YouTube by pre-service teachers in the PPTD program due to the

academic specialization variable, the level in English (Beginner, intermediate, and advanced)?" the arithmetic means and standard deviations of the students' scores were calculated on the students' use of the YouTube scale according to their level of English language proficiency (Beginner, intermediate, and advanced), and they are shown in *Table 6* below.

Table 6

Means and standard deviations of students' scores on the students' use of YouTube scale according to their level of English language proficiency (Beginner, intermediate, and advanced)

Std. deviation	Mean	F	English level
6.84	80.61	88	Beginner
8.92	86.12	340	Intermediate
6.35	84.28	58	Advanced

* Statistically significant at level (0.05)
Source: Authors, 2024

From *Table 6*, it can be observed that there are variations in the arithmetic averages of student scores on the usage of the YouTube scale, divided by their English language proficiency level (beginner, intermediate, and advanced). To verify if these variations hold statistical significance, the one-way ANOVA test was employed. The outcomes of this test are presented in the subsequent *Table 7*.

Table 7

One-way ANOVA test results for the arithmetic averages of students' scores on the students' use of YouTube scale according to their level of English language proficiency (beginner, intermediate, and advanced)

	Source	Sum of squares	df	Mean square	F	Sig.
English level	Between groups	2143.52	2	1071.76	15.53	.000*
	Within groups	33343.74	483	69.04		
	Total	35487.26	485			

* Statistically significant at level (0.05)
Source: Authors, 2024

As demonstrated in *Table 7*, there are statistically significant disparities at the $p \leq 0.05$ level regarding the students' scores on the use of the YouTube scale when differentiated by their English language proficiency levels (beginner, intermediate, and advanced). The statistical value (F) computed was 15.53, which is statistically significant at a level less than the significance level ($p \leq 0.05$). To determine which category of English language proficiency these differences favored, the Scheffe test was employed for post-hoc comparisons. The outcomes of this test are displayed in the subsequent *Table 8*.

Table 8

Results of the Scheffe Test for post-comparisons for the English language proficiency level categories

(I) English	(J) English	Mean difference (I-J)	Sig.
Low	Mid	-5.50401*	.000
	High	-3.66223*	.026
Mid	Low	5.50401*	.000
	High	1.84178	.264
High	Low	3.66223*	.026
	Mid	-1.84178	.264

* Statistically significant at level (0.05)
Source: Authors, 2024

Table 8 presents the outcomes of the Scheffe post hoc comparison test. It reveals statistically significant differences in the use of YouTube between students with advanced English proficiency and those with a beginner level, with the difference favoring the former group. Moreover, there are statistically significant disparities in the use of YouTube between students with intermediate English proficiency and those with a beginner level, again favoring the students with intermediate proficiency. However, no statistically significant differences are observed between students with advanced and intermediate English proficiency levels in their use of YouTube.

To answer the question "Are there any statistically significant differences in the use of YouTube by pre-service teachers in the PPTD program due to their computer literacy level (Basic knowledge, Intermediate, Advanced)?" the arithmetic means and standard deviations of the students' scores were calculated on the student's use of the YouTube scale according to their level of computer literacy skills (Basic knowledge, Intermediate, Advanced), and they are shown in *Table 9*.

Table 9

Arithmetic means and standard deviations of students' scores on the students' use of YouTube scale according to their level of computer literacy level (basic knowledge, Intermediate, Advanced)

Std. deviation	Mean	f	Computer literacy level
5.671	81.00	50	Basic knowledge
9.35	84.59	264	Intermediate
7.53	86.51	172	Advanced

Source: Authors, 2024

Table 9 reveals variations in the arithmetic averages of student scores on the usage of YouTube scale, categorized by their computer literacy levels (basic knowledge, intermediate, advanced). To validate if these differences carry statistical significance, the one-way ANOVA test was executed. The results derived from this test are presented in the succeeding *Table 10*.

Table 10

The results of the one-way ANOVA test for the arithmetic averages of the students' scores on the students' use of YouTube scale according to their level of computer literacy level

	Source	Sum of squares	df	Mean square	F	sig
Computer literacy level	Between groups	1232.46	2	616.23	8.69	.000*
	Within groups	34254.79	483	70.92		
	Total	35487.26	485			

* Statistically significant at level (0.05)

Source: Authors, 2024

As depicted in *Table 10*, there exist statistically significant disparities at the $p \leq 0.05$ level pertaining to the students' scores on the use of the YouTube scale when segregated by their computer literacy levels (basic knowledge, intermediate, advanced). The computed statistical value (F) was 8.69, which is statistically significant at a level less than the significance level ($p \leq 0.05$). To discern which category of computer literacy level these differences favored, the Scheffe test was employed for post-hoc comparisons. The outcomes of this test are displayed in the subsequent *Table 11*.

Table 11

Shows the results of the Scheffe test for the post-comparisons for the categories of computer skills proficiency level

(I) English	(J) English	Mean difference (I-J)	Sig.
Low	Mid	-3.59091*	.016
	High	-5.51163*	.000
Mid	Low	3.59091*	.016
	High	-1.92072	.053
High	Low	5.51163*	.000
	Mid	1.92072	.053

*Statistically significant at level (0.05)
Source: Authors, 2024

Table 11 displays the results of the Scheffe test for comparing the post-experiment data. The findings indicate that there are statistically significant differences in students' use of YouTube based on their computer skills. Specifically, students with an advanced level of computer skills show a significantly higher level of YouTube usage compared to students with a low level. Similarly, students with an average level of computer skills exhibit a significantly higher level of YouTube usage compared to students with a low level. However, no statistically significant differences were found between students with an advanced and intermediate level of computer skills in terms of YouTube usage.

To answer the question '*Are there any statistically significant differences in the use of YouTube by pre-service teachers in the PPTD program due to the variable of the strength of the available Internet connection?*' the arithmetic means and standard deviations of the students' scores were calculated on the students' use of the YouTube scale according to the level of efficiency of the available Internet (poor, average, strong), and they are shown in *Table 12* below.

Table 12

Variations in the mean scores of students' YouTube usage based on the level of Internet connection efficiency

Std. deviation	Mean	F	Internet connection level
7.16262	85.3750	48	Poor
8.83920	85.0219	274	Average
8.47674	84.5610	164	Strong

Source: Authors, 2024

To determine whether these differences are statistically significant, the one-way ANOVA test was employed. The obtained results of this test are presented in *Table 13*.

Table 13

The results of the one-way ANOVA test for the arithmetic averages of students' scores on the students' use of YouTube scale according to the level of efficiency of the strength of the available Internet connection

	Source	Sum of squares	df	Mean square	F	sig
Internet connection level	Between groups	33.750	2	16.875	.230	.795
	Within groups	35453.509	483	73.403		
	Total	35487.259	485			

* Not statistically significant at the level (0.05)

Source: Authors, 2024

Based on the results presented in *Table 13*, there are no statistically significant differences (at a significance level of $p \leq 0.05$) in students' scores on the YouTube usage scale based on the strength of the available Internet connection (poor, average, strong). The computed value of F (0.230) is not statistically significant at the specified significance level. This suggests that the strength and efficiency of the Internet connection do not have a significant impact on students' use of YouTube.

Discussion

The current study aimed to investigate the importance of using YouTube videos in the learning process among pre-service teachers in the PPTD program. The findings derived from the first question underscore the paramount importance of employing YouTube as an educational tool. The aggregate mean value for the scale items amounted to 3.86, corresponding to a percentage of 77.2. This outcome is deemed satisfactory, as it resonates with the myriad advantages YouTube proffers within the realm of pedagogy and learning experiences, such as piquing students' curiosity, seizing their attention, fostering creativity, facilitating collaboration, replicating elusive experiences, and rendering the learning process engaging while simultaneously bolstering comprehension (Alkhudaydi, 2018). Furthermore, YouTube grants users the opportunity to explore an eclectic array of video formats, encompassing animated content, filmmaking excerpts, collaborative videos, and student-led presentations (Jenkins, & Dillon, 2013).

The outcomes align with the findings of various studies, including Cihangir (2021); and Fynn, Kwegyiriba and Mensah (2021) the computed mean values for the scale items spanned from 4.33 to 3.73, denoting elevated levels that signify the pervasive utilization of YouTube. Concerning the items that garnered average ratings, items 14, 15, and 16 emerged, all of which underscore the conceivable obstacles that could impede YouTube adoption. This concurs with the research conducted by Al-Shehri and Al-Razgan (2017); Kumar and Nanda (2019), as certain educators and learners might harbor apprehensions regarding the accuracy and dependability of the information accessible on YouTube. Furthermore, the employment of YouTube may occasionally contribute to the squandering of valuable study time, culminating in an inordinate investment of time on the platform, potentially fostering addictive behavior.

Conversely, the findings indicated that item (5) on the questionnaire, asserting "I use YouTube to acquire new practical knowledge" garnered the highest average score. This implies that the primary driving force behind YouTube's educational usage is the attainment of novel practical knowledge. This aligns with studies such as Tariq et al (2020), who posited that YouTube serves as an exemplary resource for students aiming to broaden their knowledge base, and with Hasan et al (2018) who noted that YouTube offers visual representations of concepts, thereby bolstering comprehension. To facilitate this, educational institutions must guarantee the availability of their networks for utilization, as evidenced by the second most influential factor in YouTube usage item (13) of the questionnaire, which asserts "The school/university grants me the opportunity to use its network

to access YouTube". This aspect is crucial, as, without it, neither students nor teachers can harness YouTube. This notion is further corroborated by Hasan et al (2018) who underscored the significance of accessibility. In certain locales, Internet and YouTube access might be restricted or constrained, rendering it challenging for students to engage with the platform.

The findings of the second research question in the current study revealed no statistically significant disparities in the arithmetic means of students' scores on the scale of YouTube usage, as related to their academic specialization or the efficacy of the available Internet network. Nevertheless, there were notable differences ascribed to their English proficiency or their level of mastery in computer skills. Consequently, students across various disciplines utilize YouTube for learning purposes, irrespective of their specialization being in the sciences or humanities. This outcome is reasonable, considering the necessity for students and teachers to capitalize on YouTube›s diverse features tailored to individual needs. Such features include the ease of uploading and disseminating content, fostering autonomous learning, facilitating collaboration among students and between students and teachers, customizing the learning experience, and offering avenues for student feedback (Cihangir, 2021; Norman, & Olipas 2022). Moreover, the study demonstrated that the strength of Internet networks does not impede YouTube usage, indicating that students and teachers are committed to using the Internet, regardless of the network s robustness. This finding conflicts with Fadhil Abbas and Ali Qassim (2020), which suggested that inadequate high-speed Internet hinders YouTube usage. Owing to the predominance of English-language content on YouTube and the lack of quality Arabic content with limited diversity, the research identified variations in YouTube utilization contingent upon the user›s English proficiency level.

One should not forget that learners in media literacy may face several challenges; first, online misinformation and disinformation which raises a significant issue. Therefore, teachers need to include critical thinking skills that help learners differentiate between reliable and unreliable information. Second, the application of media requires teachers who have received adequate teacher training in media literacy as well as ongoing professional development to stay updated about new teaching strategies. Third, cultural dynamics may have a significant effect on the use and effectiveness of media in education. That is to say, the way communities view, apply, and benefit from media in academic settings is considerably influenced by cultural effects. Last but not least, traditional assessment methods may not significantly measure learners' skills in critically analyzing and interpreting media messages.

This is a logical conclusion, as users who exhibit greater proficiency in YouTube tools, particularly the primary communication medium, the English language, tend to use YouTube more frequently. In addition, a higher level of computer skills mastery amplifies YouTube engagement, as it simplifies usage and grants users greater control. This finding is consistent with Almurashi, W. A. (2016) and Alsalhi, N. R., Eltahir, M. E., & Al-Qatawneh, S. S. (2019), which underscored the importance of digital literacy in facilitating the use of digital instruments such as YouTube.

Conclusion

The current study has highlighted the significance of using YouTube as an educational tool in the PPTD program, particularly in enhancing the learning process for pre-service teachers. YouTube was found to enhance several learning aspects such as students' curiosity, attention, creativity, and comprehension. Despite some noted potential obstacles to YouTube adoption, such as concerns regarding the accuracy of the information, it was found that the platform's benefits largely outweigh these challenges. Most prominently, it was observed that the pursuit of practical knowledge emerged as the primary motivator for the educational usage of YouTube.

However, the availability of the school or university network for accessing YouTube and, thus, the significant role of accessibility in its educational use was also established. The findings demonstrated the necessity of ensuring network availability in educational institutions to harness YouTube effectively. The study further revealed that YouTube usage for learning is not significantly affected by students' academic specialization or the quality of the available Internet network. This indicates a widespread acceptance and integration of YouTube across various disciplines and under diverse Internet conditions. Nonetheless, disparities in YouTube usage were observed concerning English language proficiency and mastery of computer skills, implying a need for enhancing these competencies to foster more effective YouTube usage for learning purposes.

Furthermore, the research established the importance of digital literacy, suggesting that an increase in computer skills correlates with enhanced engagement on the platform. Therefore, digital literacy should be fostered in educational settings to maximize the potential of tools such as YouTube. It was also found that the predominance of English-language content on YouTube could pose a barrier for non-native speakers, calling for efforts to diversify the linguistic representation of quality educational content on the platform.

In conclusion, this research underscores the significant educational benefits of utilizing YouTube as a powerful tool. It also offers practical recommendations to address any potential obstacles that may hinder its optimal utilization. The findings of this study provide valuable insights for educators, policymakers, and other stakeholders in the field of education, offering guidance on how to enhance digital learning experiences within the context of a globally interconnected era, with YouTube being a key platform. Future research endeavors should concentrate on investigating additional barriers and facilitators that may impact the educational utilization of YouTube. Moreover, exploring the application of YouTube in diverse educational settings and populations would be beneficial in expanding our understanding of its efficacy and potential. By delving deeper into these areas, we can continue to refine educational practices and leverage the full potential of YouTube as an educational resource.

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