P-ISSN: 2709-6254	Journal of Development and Social Sciences	Sep-October 2026, Vol. 7, No. 5
O-ISSN:2709-6262	https://doi.org/10.47205/jdss.2026(7-V)01	[01-13]

Journal of Development and Social Sciences
www.jdss.org.pk

RESEARCH PAPER

Effect of YouTube Learning Videos on Student Performance: A Descriptive Study of Secondary School Teachers in District Banue KPK, Pakistan

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ABSTRACT

In the study, the implications of YouTube learning videos for the academic performance students of secondary school were studied. A quantitative descriptive survey project was used which selected 130 secondary school instructors via simple random sampling using the L.R. Gay formula. The data were collected through a questionnaire developed by the researcher based on a five-point Likert scale and analysed using SPSS, means and standard deviations. The results showed that YouTube learning videos improves conceptual knowledge, retention, exam preparation, problem solving capabilities, independent learning, motivation and participation in the classroom. Teachers have however identified challenges, including non-educational distractions, excessive screen time, problems with Internet connectivity and advertisements. The study concluded that YouTube learning videos can improve students' academic performance when appropriately integrated into classroom instruction. It recommends the selection of relevant educational content, the improvement of ICT and Internet facilities, the provision of teacher education and the development of school policies to encourage effective and responsible use of YouTube in education and learning.

KEYWORDS YouTube Learning Videos, Academic Performance, Secondary School Students, Educational Technology, Digital Learning

Introduction

This is a shift from traditional, teacher-led learning to more flexible technology-based tools, with the digital delivery of tools, the manner in which students learn, and the mechanisms in which formal learning is provided. Asghar, Muzaffar, Farooq, & Rasheed, (2026). Among many online based learning tools and platforms, YouTube is one of the most important educational platforms for pupils at secondary school and beyond. Learning videos on this platform are free of charge, multifaceted and easily accessible. They include instruction videos from lectures and lectures, problem-solving videos, explaining videos and demonstrations on how to do or carry out a specific activity. All these types of Adaptive learning videos on YouTube serve as learning aids in formal education and improve the pupils' educational performance.

Under the Google umbrella, YouTube hosts billions of videos containing educational content from teachers and/or institutions, and/or independent educational institutions. The students prefer YouTube to learn because (1) it uses a visual and interactive format facilitating learning conceptually complex concepts; (2) it makes learning more interesting. According to UNESCO (2020) during the first wave of the COVID-19 pandemic such digital learning platforms (i.e. YouTube) were of crucial importance in obtaining student education,

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as personal teaching was not possible. Video-based learning can already be viewed as an essential and integral component of modern educational systems.

From the perspective of education and learning, Mayer (2009) built the Cognitive Theory of Multimedia Learning to explain the effectiveness of educational YouTube videos. This theory indicates that information should be simultaneously presented by visual and auditory pathways, in order to effectively teach and learn (Muzaffar, et al. 2019). YouTube videos presents spoken information while employing animations, diagrams and demonstrations, thereby adding to spoken presentation and clarification and creating understanding while simultaneously reducing cognitive overload and ease keeping information in the long term. YouTube is an excellent tool for teaching abstract and complex concepts, which are particularly extensive in Science, Mathematics and Languages teaching.

Results of different empirical studies demonstrate that some YouTube learning videos can help students achieve better academic results. This study, for instance, said that pupils using learning videos for complementary learning have shown better results in evaluation, in particular due to an increased understanding and exposure to the content (Snelson, 2011). Similarly, many studies published in Computers & Education confirm a positive effect through the use of videos in the learning process, including improvements to focus, self-activation and motivation (Kay, 2012; Salam, et. al., 2024; Asghar, et. al., 2025). Especially for learners who are slower or need more assistance, the feature of stopping and rewinding a video several times and playing them again as needed is a great advantage.

YouTube educational videos help understanding and can also be used for personalized, independent learning. Students have the right to freely select the most relevant subjects of instruction and this type of study can be provided at all times and in every location, thereby facilitating students ' autonomy. YouTube videos can also provide learners with materials outside a single traditional teaching style. With the large resources of teaching across the world, students may learn from their academic skills in different ways.

While there are educational benefits of using YouTube for learning, there are also disadvantages that can affect the learner's learning. Distraction is a major concern, as the platform contains many areas that are not educational and for entertainment. It has been found that untapped use of digital resources for entertainment distracts students from their academic responsibilities, and has been found to influence the students concentration, time management and common study habits. It has been found to be even more over as educational content shared on YouTube is of different quality and there may be problems in accuracy of such content. Curriculum-aligned content is less prevalent. Moreover, there is no structured guidance and there are many self-regulation issues in relation to pupils, especially in secondary schools.

Literature Review

Concept of YouTube-Based Learning

YouTube has become one of the most popular digital learning tools, formal as well as informal. The term "YouTube Learning" refers to the instruction videos provided by the platform providing student assistance in understanding various concepts. Whether it is recording a classroom presentation, step-by-step tutorial or a narrative explanation of a topic along with supporting visuals and animations, learning is not restricted to the four walls of a classroom. According to Google (2021), with more flexible and independent studies, educational content is quickly expanding on YouTube. It is popular among students studying at the secondary level, since they can review their lessons and clarify the concepts that used to be difficult to understand.

Theoretical Foundation of Video-Based Learning

The Cognitive Theory of Multimedia Learning (2009) by Richard E. Mayer can be used to analyze the effectiveness of YouTube learning videos. He says learners process information in two channels where one is auditory and the other is visual. Learning is more effective when both channels are processed simultaneously. Most YouTube videos combine narrative with visual and animations and introduce demonstrations that assist the student in understanding video by reducing cognitive load (Muzaffar, et. al., 2020). For him, the most important factor in the learning process is the role which the learner itself plays, choosing, organizing and integrating the information that is being supported by the multimedia itself.

How Using YouTube Learning Videos Impacts Your Grades

Many more studies are starting to show a positive correlation between the use of YouTube learning videos and a grade improvement with academic performance. Kay (2012) pointed out that using learning videos helps the students to understand and understand even the most complex issues, through the flexibility of self-paced learning and the ability to watch the videos as often as they need to be. Snelson (2011) also noted that educational videos published on YouTube and other similar websites contributed to a better academic performance by making visuals possible to complement the instructor's teachings and lessons. Finally, the studies published in Computers & Education also showed that, due to the clarity of the video-based learning and the resulting focus on the presented content, students, who used and used video-based learning resources prior to an evaluation, were better prepared and carried out.

Improved Participation, Engagement, and Interest

The use of learning videos helps to increase active participation and engagement, both indicators of success in any academic setting. UNESCO (2020) studies revealed that, with the addition of digital education, participation and inclusion have expanded through more interactive learning. Learning videos which contains animations, application examples for real life, and step by step guidance are helping students to increase their engagement with traditional text-based learning. This allows students to become curious, learning more effectively and helping to keep the content received.

Self-Directed Learning and Accessibility

Learning one of the best parts of YouTube is the freedom to learn how you want whenever you want to. As long as you can interrupt a video, secondary school students can use that freedom to enhance what they learn in their classroom. Learning at your own pace helps students build confidence and stimulates all students to use problem solving skills (Burden & Kearney, 2016). Moreover, students all over the world have free access to YouTube, making it even more beneficial for students in under-resource areas.

Challenges to YouTube Learning

The best part about learning on YouTube is probably also the worst part, distraction. Because YouTube doesn't have only educational content, students can easily get out of the task and switch to entertainment content. Lepp, Barkley and Karpinski (2015) even claim that digital media distraction and focus loss causes poor time management and lower grades. With this lack of quality control, students have difficulty to find content that is both accurate and relevant to their curriculum.

As other studies have pointed out, secondary-school students in the developing regions can benefit from the educational videos which is available on YouTube. Most studies on accessibility of educational videos focus on higher education in the developed countries.

There are in fact significant research gaps for District Bannu and other regions with a similar lack of access to technology and the different learning environments and models used in the use of technology. These gaps justify empirical research focusing on the effect of educational videos on learning objectives.

YouTube Learning Videos and Students' Critical Thinking Skills

There is a potential to place educational videos on YouTube, to increase student participation in analysis, evaluation and application of information submitted through visual charts and case examples. Educational videos involves case examples in which participants carry out a series of activities, simulations and challenges to encourage learners to think before opting for the optimal response. Some learning channels motivate students to think for themselves to find different ways to fulfill a task and consider different options.

It is documented that students in video-based learning have the ability to remember and learn content at their own pace. This in turn encourages deep learning. According to Fiorella and Mayer (2018), visual instructional videos facilitate active cognitive interaction and encourage deep learning. Alim et al. (2023) documented that using YouTube in a learning context enhances student ability to think and resolve problems.

Teachers' Use of Learning Videos on YouTube

The effectiveness of YouTube as an online education resource partly depends on teachers. Their perception of learning videos on YouTube is influencing the way teaching videos is embedded in a class. The teachers believe, learning videos on YouTube currently complements the class learning course. For example, teachers believe that learning videos's on YouTube helps the students to teach the concept while urging students to stay active in class.

Some teaching videos are on YouTube. Teachers can use the teaching videos to explain the content and differentiate the teaching for their students. Digital video sources on YouTube, if properly utilised, can improve the quality of instruction.

Knowledge Retention and Learning Videos

One of the main functions of educational videos is to remember assist learners what they have learned in the long-term. Various elements on educational videos (i.e., animation, storytelling etc.) can help students process and memorise a large amount of taught information. One of the main functions learning videos is assist learners used in long-term processing and reminding of a large amount of taught information.

Mayer (2021) and Guo, Kim and Rubin (2014) suggest that compared to long, traditional teacher presentations, short, well constructed teaching videos can improve student learning. Teaching videos assists students with longer attention span and better knowledge retention.

Integration of YouTube Learning Videos in Classroom Teaching

An obvious advantage of a learning method containing relevant YouTube videos is that students have the opportunity to use technology within their own learning. Things such as new issues, concepts, procedures and demonstrations of scientific principles and mathematics can all be taught in video format. Several sources have identified an improvement in student engagement, participation and academic performance that has been learned in their classroom by the use of educational videos.

The more sophisticated the integration of education technologies and better integration of learning into education technologies, the higher the engagement of students is expected. Traditional learning environments will work together and become student oriented. Participation and participation will be illustrated through cooperation and learning.

Future Trends of YouTube Learning in Secondary Education

The integration of artificial intelligence, personalized learning and other adaptive technologies entails integrating new technologies into education. These technologies will support flexible learning which offers lifelong, inclusive and continuous learning opportunities, which will support the educational objectives of the 21st century learners.

Among what has been documented in recent years on educational technology, video based instruction will be one of the most prominent and fastest growing methods in high school education during the next decade. UNESCO has also documented their view that the future of education will offer flexible learning systems, hybrid learning and video based learning through a variety of digital technologies as a means to raise education systems. In addition, personalized learning and learning systems will be supported by video material, which will be provided by educational technology.

Material and Methods

Research Design

Research design is a blueprint or outline for study, which should guide data gathering, measurement and analysis. It helps scientists to systematically and accurately answer research questions. A research design ensures validity, reliability and proper organisation of the research process This study uses a quantitative research approach and describe research design to research the effect of youtube learning videos on student performance.

Population of the Study

The target population was comprised all male secondary school teachers working in public schools within District Bannu.

Table 1:
Population

District	School Type	Schools	Teachers
Bannu	Boys' Schools	32	650
Total		32	650

Sourced from the official website: https://sis.pesrp.edu.pk

Sample and Sampling Technique of the Study

A sample of 130 teachers were drawn using a simple random sampling technique. According to Lr.Gay Formula.

Table2
The sample drawing criterion of LR. Gay

Sr No	Population size	Size of the sample
1	Less than 100	Total Population
2	500 approximately	50% (250)
3	Approximately 1500	20% (300)
4	Greater than 2000	10% (200)

The details are shown in the table below:

Table3
Sample Table

District	School Type	Schools	Teachers
Bannu	Boys' Schools	32	130
Total		32	130

Research Instrument of the Study

The researcher was used a 5-Likert scale questionnaire as a research Instrument for data collection.

Validity of Research Instrument

To ensure that the research instruments accurately measure what they intend to measure, multiple forms of validity were established by Educational Experts. Content validity ensured by developing the questionnaire items based on an extensive review of existing literature.

Pilot Testing and Reliability of Research Instrument

To ensure the internal consistency and dependability of the research instruments, a pilot study was conducted prior to the main data collection. The pilot study was involving 130 teachers (from a male' secondary school) in District Bannu.

Data Collection Procedure

Permission was obtained separately from the male District Education Officer (DEO) in Bannu. Teachers were approached at their respective schools during staff meetings. After obtaining informed consent, the questionnaire was administered in paper-based form in Urdu (translated and back-translated) to ensure comprehension.

Data Analysis Techniques

Simple percentage, frequency, mean, and Standard deviationwere used to analyzed the data.

Results and Discussion

This chapter presents the analysis and interpretation of the data that are collected from 130 secondary school teachers regarding the Effect of YouTube Learning Videos on Student Performance. The respondents were selected according to L.R. Gay Formula by a simple random sample. The data was collected using a self-developed questionnaire containing five-point Likert scale of Strongly Disagree (SDA) to Strongly Agree (SA). The collected data have been analysed with the Statistical Package for Social Sciences (SPSS). Frequency, percentage, average, and standard deviations have been used to interpret the results in accordance with the research objectives.

Demographic Profile of Respondents

Table 4
Gender of Respondents (N = 130)

Gender	Frequency	Percentage
Male	75	57.7
Female	55	42.3
Total	**130**	**100**

The Table 4 shows that 75 (57.7%) were male teachers, among 130 respondents, while 55 (42.3) were female teachers. The participation of both sexes gave balanced views on the effectiveness of YouTube learning videos in secondary education.

Table 5
Teaching Experience of Respondents

Experience	Frequency	Percentage
1–5 Years	31	23.8
6–10 Years	43	33.1
11–15 Years	34	26.2
Above 15 Years	22	16.9
Total	**130**	**100**

The majority of respondents (33.1%) had 6–10 years of teaching experience, indicating that the teachers possessed sufficient classroom experience to evaluate students' use of YouTube learning videos.

Table 6
Extent of YouTube Learning Video Usage (N = 130)

Statement	Mean	SD	Decision
Students use YouTube as a supplementary learning resource.	4.47	0.62	Agree
YouTube videos make learning more interesting.	4.59	0.55	Strongly Agree
Teachers integrate YouTube videos into classroom teaching.	4.18	0.81	Agree
YouTube provides quality educational content.	4.39	0.66	Agree
YouTube should be formally used as a teaching aid in schools.	4.70	0.48	Strongly Agree
Overall Mean	**4.47**	**0.62**	**Agree**

With an overall Mean of M = 4.47 and Standard Deviation of SD = 0.62 (Agree), the participants indicated extremely high and positive YouTube learning video usage. Five of the explanations fall into the Agree and Strongly Agree Zones. This is also apparent from YouTube's acceptance as a learning tool. The overall low SD of 0.62 demonstrates strong consensus among the 130 participants. The highest rated statement was Item 5 (M = 4.70, SD = 0.48) “YouTube should be formally used as a teaching aid in schools.” This is the strongest finding of the table. The lowest SD (0.48) across this table shows almost unanimous agreement. That means that both students and teachers do not just use YouTube informally but strongly favour formal consideration in the school system and curriculum planning. The second-largest performance is on Item 2 (M = 4.59, SD = 0.55), and “YouTube videos make learning more interesting.”, which shows the motivational value of YouTube. This also supports the principle of multimedia learning theory. Visual and audiovisual content is much more motivating and interesting for students compared with traditional leaning of textbooks. Both Item 1 (M = 4.47, SD = 0.62) and Item 4 (M = 4.39, SD = 0.66) demonstrate that YouTube is trusted as a good source of content that complements content.

Initial insights are Item 3. Despite the Agree level, it has the lowest mean score (4.18) and the highest SD (0.81). This creates a gap between faith and action. Although everybody believes YouTube should be used (mean score = 4.70), YouTube is less integrated into the teaching (mean score = 4.18). High SD demonstrates that certain teachers regularly work to integrate YouTube. Others remain faced with the barriers of the Internet, smart boards and integration training. The results show that YouTube has moved away from a simple recreation and is increasingly becoming an interactive and powerful instrument to help students learn. There is obviously a positive attitude to this tool, but in order to come closer to the intended class integration (2.70) and actual integration (2.18), school administrators should support the use of YouTube as a learning aid by providing web, AV manuals and related policies.

Table 7
Effect of YouTube Learning Videos on Academic Performance (N = 130)

Statement	Mean	SD	Decision
YouTube learning videos improve academic performance.	4.52	0.58	Strongly Agree
Students understand difficult concepts better.	4.61	0.53	Strongly Agree
YouTube videos enhance conceptual understanding.	4.49	0.60	Agree
Learning videos improve students' motivation.	4.54	0.57	Strongly Agree
Teachers observe better classroom participation.	4.42	0.65	Agree
YouTube videos help in examination preparation.	4.46	0.62	Agree
Students learn independently through YouTube.	4.37	0.69	Agree
YouTube improves problem-solving skills.	4.33	0.71	Agree
YouTube improves retention of knowledge.	4.44	0.63	Agree
Overall Mean	**4.46**	**0.62**	**Agree**

The overall score (M = 4.46, SD = 0.62, Agree) illustrates the overall positive impact of learning through YouTube on students' academic achievements outcomes. Responses on all 9 items fall in the high range (4.33 at 4.61) and indicate that respondents agreed on YouTube's positive impact at student academic achievements. This also indicates that the respondents agreed with YouTube's positive impact on academic achievements of students (SD = 0.62, n = 130). The highest mean score and second lowest SD score for Item 2 (M = 4.61, SD = 0.53, Strongly Agree), “Students understand difficult concepts better”, shows that YouTube is able to facilitate abstract and complex concepts through different forms such as animations, visual tools and representations of realistic examples. The second highest score for Item 4 (M = 4.54, SD = 0.57, Strongly Agree) “Learning videos improve students' motivation” and Item 1 (M = 4.52, SD = 0.58, Strongly Agree) “YouTube learning videos improve academic performance” suggests that student motivation increases the performance that correlates with the Cognitive Theory of Multimedia Learning. The lower scores for Item 3 (M = 4.49), Item 6 (M = 4.46) and Item 9 (M = 4.44) illustrate that YouTube has the potential to aid in a student’s understanding of a concept, aide in preparing for examinations, and aiding in knowledge's retention. Visual representations often take place and are easier to remember than a text. However, lower scores adds value to this study. The lowest mean score in the study for Item 8 (M = 4.33, SD = 0.71) “YouTube enhances students' problem-solving skills” is attributed to the highest SD (0.71). Point 7 (M = 4.37, SD = 0.69) “Students learn independently through YouTube” was also low.

The higher SDs (0.71, 0.69) revealed differing opinions. There is therefore the need to achieve a balance with regard to the independence and the problem solving capacities of students, and interactive teaching is required. There is a risk that students may take over the role of passive viewers and move away from active problem solving. The effects of YouTube learning videos are considerably positive and have a good effect on students' academic performance with regard to clarity of understanding and retention of interest and focus in information. It also has a positive impact on information retention. It should be noted that YouTube is not a substitute for the teacher and should be complemented by a teacher to facilitate education for the development of independent learning and problem solving.

Table 8
Challenges in Using YouTube Learning Videos (N = 130)

Statement	Mean	SD	Decision
Excessive use of YouTube distracts students.	4.31	0.73	Agree
Students sometimes watch non-educational content.	4.26	0.76	Agree
Internet connectivity affects access to YouTube videos.	4.18	0.81	Agree
Advertisements interrupt educational learning.	4.11	0.84	Agree
Limited digital resources reduce effective use.	4.05	0.87	Agree
Overall Mean	4.18	0.80	Agree

Overall, respondents face huge challenges in using YouTube learning videos M = 4.18, SD = 0.80, Agreement. Despite the fact that Tables 4.3 and 4.4 has shown a very high positive impact (4.47 and 4.46), the table indicates considerable barriers to effective use. All items are within the Agree range. The maximum effective use limit is Item 1 (M = 4.31, SD = 0.73, Agree) "Excessive use of YouTube distracts students". This is what the respondents considered as the most important challenge with the lowest SD that shows the greatest consensus. This is a prime concern between teachers and parents that, after a certain point, even educational YouTube becomes a distraction, causing a waste of time and a YouTube dependence. Item 2 (M = 4.26, SD = 0.76, Agree) "Students sometimes watch non-educational content" supports Item 1. This demonstrates the YouTube referral system and algorithms that are encouraging students to use watch non-educational, entertaining and gaming related content. This reveals the need for parental supervision and control. Paragraph 3 (M = 4.18, SD = 0.81) and Item 5 (M = 4.05, SD = 0.87) are greater than infrastructural challenges. High SDs (0.81 and 0.87) – the highest figure in this table – shows a big digital divide. In city schools and private schools, this divide is significantly narrow, but in rural and public schools, Internet connectivity is limited, as are projectors, intelligent hard drives and intelligent devices.

This addresses Item 3 from Table 4.3 (Teachers integrate YouTube) and why it has the lowest mean. The lowest nominal but substantial problem is Item 4 (M = 4.11, SD = 0.84, Agree) "Advertisements interrupt educational learning." "Unzippable ads" interrupts learning and sometimes demonstrates sensitive content which unfortunately violates the learning environment. The data shows a paradox. Although YouTube is efficient, effectiveness is constrained by behavioral (discretion, non-educational content), technical (internet, resources, advertising) issues that are associated with inequities. Research reveals that schools should provide YouTube Premium/ YouTube Kids/directed playlists, improved Internet access, and better classroom management with digital resources to minimize distractions.

Table 9
Overall Mean Scores of the Variables

Variable	Mean	SD	Interpretation
Extent of YouTube Usage	4.47	0.62	Agree
Academic Performance	4.46	0.62	Agree
Challenges	4.18	0.80	Agree
Grand Mean	4.37	0.68	Agree

The grand mean score of 4.37 indicates that teachers generally have positive perceptions regarding the educational value of YouTube learning videos. They agreed that YouTube improves students' academic performance and classroom learning despite several implementation challenges.

Discussion

Results show that YouTube learning videos became an essential component of secondary education. Teachers noted that students used YouTube to teach help them, both in and out of the classroom. Complex concepts can be explained more clearly to students by means of visual demonstrations, animations and step by step video interpretations.

According to the study, YouTube learning videos encourage students to learn for themselves and to remember help them. Teachers noted that these videos help students learn the concept, understand its meaning, and improve their student participation in the classroom. These findings correspond to multimedia learning theory. This theory suggests that videos and audio aids promote students' ability to learn and remember their long-term.

YouTube makes lessons fun and interesting, which will then lead to improved learning and a boost in the overall participation of students. Students become confident learners when answering questions on the classroom discussion using the videos.

Although teachers identified several benefits, there remain challenges. A challenge is the entertainment content YouTube learning videos can offer. May also become a distraction. This complements issues such as bad Internet access, many advertisements and limited digital resources. Teachers noted monitoring YouTube so that students can use it solely for education.

YouTube learning videos improves engagement and performance and highlights a few challenges that need to be addressed.

Conclusions

The following conclusions have been drawn from the results of the study:

- Supplementary educational resources used by students in secondary schools include instructional content published on YouTube.
- Teachers attribute students' improvement in academic performance to the positive impact that YouTube has on students' ability to understand and retain taught concepts.
- Learning videos published on YouTube are used to explain concepts via demonstrations and step-by-step explanations in a way that is understood by students.
- YouTube learning videos develop students' interest in and motivate students to learn, and enhance students' enthusiasm for learning.
- Students instructed to view educational videos on YouTube before class engage in classroom discussions, activities, and instructions with increased participation.
- Teachers noted students using YouTube learning videos develop the ability to learn independently and a strong willingness to study on their own.
- YouTube learning videos published by other users positively influence students' ability to study for exams by providing supplementary explanations and revision materials.
- Teachers strongly encourage the inclusion of YouTube learning videos in their lesson plans, as they provide a more learner-centered and interactive teaching approach.
- Although YouTube includes educational content, excessive use of YouTube has potential to distract students from academic learning due to YouTube's entertainment content.
- Many schools still experience poor internet connections, a lack of digital resources, advertisements, and insufficient ICT infrastructure. These conditions prevent educational use of YouTube from being fully implemented.
- Overall, YouTube learning videos are an improvement in the resources available to enhance students' academic performance, classroom participation, and independent learning when used under teacher guidance.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are made:

- Secondary school teachers should incorporate YouTube learning videos in their lesson plans to enhance academic performance and understanding of students.
- Khyber Pakhtunkhwa: The Elementary and Secondary Education Department should create reliable connections and websites for schools.
- School managements are advised to provide multimedia projectors, laptops, computers, and smart classrooms to improve the use of educational videos.

- There is a need to provide regular professional development and ICT opportunities for teachers for the effective selection, integration, and evaluation of educational videos for classroom use.
- Teachers should provide students with the judgment and purposeful use of YouTube to allow them to focus on educational videos.
- Parents are advised to monitor the use of YouTube for educational and instructional purposes at home.
- Teachers are equally advised to include respective educational YouTube videos to the use of classroom discussions, activities, and assessment (not summative).
- Developing policy and use of YouTube in schools for safer, ethics, and good practices are recommended.
- Educational authorities are urged to provide stronger and reliable ICT connectivity to rural areas for learning opportunities.
- The inclusion of YouTube educational videos should be done by teachers in conjunction with other learning activities (discussions, practical) and classroom assessments (formative).

Suggestions for Future Research

Future researchers are encouraged to explore the following areas:

- Future Researchers are advised to compare the use of educational videos in public and private secondary schools.
- The use of educational videos should be investigated from the perspective of students.
- The use of educational videos should be investigated in specific subjects (i.e. Mathematics, Science, English, Computer Science)
- Design and execute experimental studies comparing the use of traditional teaching methods to teaching methods supported by YouTube.
- Determine the impact of learning videos on YouTube on students' critical thinking, creativity, and problem solving.
- Analyze how intelligent personalized video learning systems and artificial intelligence technologies help students in class.
- Identify the digital competencies of teachers and the role they play in the optimal inclusion of YouTube learning videos.
- Assess the effects of teaching videos on educational YouTube in the long term on students' achievement in class.

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