

Assessing the Impact and Challenges of YouTube Technology Integration in Education: A Study on Adoption and Implementation Strategies

Haruna Abubakar, Hasnah Binti Muhammed, Megat Aman
Zahir B. Megat Zakaria

University of Technology Malaysia, University of Technology Malaysia, Johor Bahru,
MALAYSIA, Faculty of Social Science and Humanities Department of Science, Mathematics &
Creative Multimedia
Email: harunshika@gmail.com

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v15-i7/25881> DOI:10.6007/IJARBSS/v15-i7/25881

Published Date: 01 July 2025

Abstract

YouTube is not only a platform for uploading, sharing, posting, and commenting on videos but also serves as a valuable tool for lecturers to enhance teaching, learning, and collaboration with their students. This study investigates the use of YouTube educational content as instructional material in classroom settings. The primary aim of the study is to provide clear and practical insights on how to effectively integrate YouTube as a teaching resource in classroom instruction. A descriptive research design was employed, involving the distribution of 60 questionnaires, of which 41 were completed and returned. The data was analyzed using SPSS software. Findings exposed that teachers agreed that utilizing YouTube as an alternative teaching aid to enhances learners' performance. Based on the results, five recommendations were proposed, including the need for orientation programs to familiarize lecturers with YouTube as an educational tool, the importance of government support in equipping colleges with necessary educational resources, and a call for college management to mandate the integration of electronic instructional materials in all lessons.

Keywords: YouTube, Adoption, Technology, ICT, Instructional Materials

Introduction

The introduction of technology of YouTube video into educational system has transformed methodologies of instruction, giving educators innovative resources to promote classroom engagement and improving student outcomes (Jiang & Zhao 2025). YouTube technology, is one of the world's strongest libraries of audio-visual information, provides a variety of instructional tools, including tutorials, lectures, documentaries, and interactive content (D'Ambrosi et al, 2024) Using YouTube as a social media tool to integrate into the educational system will boost student engagement and collaboration, allowing for real-time

communication and diverse perspectives (Chintalapati & Daruri 2017). YouTube's integration into university revolutionised teaching by providing learners with access to multimedia materials that has never before possible (Salsabila et al, 2025). However, adopting it comes with possibilities and problems that need to be carefully considered in order to maximise implementation.

Le et al. (2025) note that integrating YouTube technology into the education system presents several challenges. These include unreliable content due to its user-generated nature, distracting advertisements, and the potential misuse of the platform by students for entertainment. Additionally, issues such as inadequate infrastructure, limited digital competence among educators, and the overwhelming volume of content make it difficult to identify appropriate and high-quality educational videos. However, according to Muneer and Khan (2025), the technology of YouTube video significantly contributes to raising awareness about sustainable transportation by increasing public interest and support for eco-friendly travel, especially during the COVID-19 period.

In current contemporary years, the technology of YouTube has significantly transformed educational delivery by democratizing access to learning materials. As Burt et al. (2023) observe, YouTube technology offers free, high-quality educational content that reaches learners across the globe, especially in under-resourced or marginalized communities. This accessibility contributes to closing the educational gap between developed and developing regions.

Moreover, technology of YouTube's integration of multimedia formats such as videos, animations, and podcasts aligns effectively with the Visual, Auditory, and Kinesthetic (VAK) learning theory. This theory emphasizes that individuals learn differently based on their sensory preferences. By catering to all three learning styles, YouTube enhances the inclusiveness and effectiveness of instruction. Almurashi (2023) further supports this by noting that YouTube's dynamic content delivery fosters greater student engagement and motivation. The platform's interactive and visual elements often result in better retention, especially when compared to traditional, text-heavy methods. Thus, YouTube not only bridges educational access but also elevates the quality of learning experiences through adaptive and learner-centred content. In sum, YouTube serves as both a technological and pedagogical tool that enhances equity, supports diverse learning needs, and promotes active learner participation in today's digitally-driven education landscape.

Implementing YouTube as an educational tool presents several notable challenges. One of the foremost issues is the unregulated nature of its content, which raises concerns about the credibility, accuracy, and educational value of the materials available (Le et al., 2025). The platform's open-access model allows for a wide range of user-generated videos, many of which may lack pedagogical rigor or alignment with curriculum standards. In addition, the presence of commercial advertisements and unrelated content can distract learners and reduce instructional focus (Burt et al., 2023).

Beyond content-related concerns, infrastructural limitations such as inconsistent internet access and inadequate availability of digital devices particularly in under resourced settings, hinder the equitable adoption of YouTube in education (Muneer & Khan, 2025).

Moreover, many educators face difficulties in effectively utilizing the platform due to a lack of digital literacy and targeted professional development, which limits their ability to integrate YouTube meaningfully into classroom instruction (Almurashi, 2023).

University instructors play a critical role in effectively integrating YouTube into higher education by addressing key implementation challenges. Their primary responsibilities include carefully curating and evaluating video content to ensure academic accuracy and relevance, given YouTube's open platform nature (Le, Kumar, & Zhang, 2025). Educators must strategically incorporate videos into structured learning pathways that align with course objectives, helping to minimize potential distractions and maintain student focus (Muneer & Khan, 2025). Through targeted professional development, faculty can enhance their digital pedagogical skills to leverage YouTube for enriching lectures, facilitating discussions, and supporting independent learning (Burt, Kamal, & Nwankwo, 2023).

Instructors should also select and utilize videos that cater to diverse learning preferences, including visual, auditory and kinesthetic modalities, to improve engagement and knowledge retention (Almurashi, 2023). Additionally, a crucial aspect of this integration involves teaching students critical media literacy skills to help them assess the reliability and educational value of online content. When implemented thoughtfully, YouTube becomes a powerful tool that complements traditional teaching methods while maintaining academic rigor in university settings.

The innovation of today's technologies, such as Internet, smartphones, computers, YouTube, and video games are inseparable, crucial and indispensable portions of students' life, since the beginning of pandemic era (COVID-19), and it will still be lingering up to the end of the World (Radha, et al, 2020) The platform of YouTube video technology is not only a place where an individual uploads, shares and comments on the channels, but rather scholars, educators and teachers may have the chance to utilise the resources, and it is a platform that students can utilize as a medium for updating their knowledge and improve them in their discipline. (Pratama et al., 2020) This statement is in line with the opinion of Judd in his paper on Usage of Technology, where he stated that, "the students use today's technologies as medium for academic purposes, socialising and gaining awareness from other friends. Governments gave order to stay at home as a result of COVID-19 pandemic, and this made students adopt the technology of YouTube as medium for knowledge and other errands (Judd, 2018). Judd is explaining that, learners in all strata have changed drastically. The students' minds process remarkably new information, contrarily from what have been designed in all educational objectives.

Technology has become an indispensable tool to our daily lives; it is very paramount that children should learn the usage of technology at early stage. The ability of manipulation of technology by children at their elementary schools will change them to be competent and confident on their skills, especially in computer (Nawzad et al., 2018). This idea emphasizes the importance of integrating technology into curriculum design, encouraging stakeholders in education to incorporate it into lesson planning from the elementary level. Among the rapidly advancing technologies, YouTube video technology stands out. When utilized as an instructional material, it has the potential to enhance and simplify the teaching process.

The YouTube video technology transforms into social media once videos are public to everyone to access, and the comments in the site are welcoming and various interaction have occurred on the channel. YouTube contains huge knowledge, mostly; it gives multimedia form of knowledge in all fields, and provides opportunities to students for remembrance, understanding and improving better as soon as they have experience. It is habitual to human endeavour that, when things are heard, seen and done, they are retained in the brain and the skills will be cultivated (Jacobson, 2020). Jacob's statement clearly explains that the understanding level is higher when students hear, see and instructional material are being produced during teaching. YouTube can be an alternative instrument to be applied in all subjects, due to the provision of all forms of media.

The YouTube video technology gives students unforgettable learning exercises and experience. The mind of the students will keep recalling what they saw or watched on the YouTube video, as remembrance of the lesson. Yes, the skill of stimulus variation in using YouTube as instructional material will manifest and would arouse and capture the interest of learners to the lesson. Judd (2018), stated that, usage of YouTube videos serves in the position of stimulus variation skill for teaching-learning cycle. YouTube video technology clips attract students' devotion, through injecting sound clips of entertainment, or motivating and inspiring videos to the class, although covering every specific topic.

YouTube enhances student engagement by catering to diverse learning styles through visual and auditory content, increasing retention and interest (Ongor & Uslusoy, 2023). It provides free access to global, high-quality educational materials that teachers can align with curriculum goals, enriching the learning process (Ng et al 2023). Additionally, its flexibility allows students to learn at their own pace, supporting personalized instruction (Halim et al. 2022). As a cost-effective resource, YouTube eliminates the financial barriers associated with traditional educational materials.

Reason for the Study

The incorporation of the technology of YouTube technology into higher education has become a progressively important strategy for addressing educational challenges, particularly in regions with limited access to quality learning resources. In Sub-Saharan

Africa and Nigeria in particular institutions of higher learning are confronted with systemic issues such as underfunded libraries, outdated curricula, insufficient teaching staff, and limited laboratory infrastructure (Adu, 2022; Olaniran, 2023).

YouTube's global accessibility, open content model, and user-friendly interface make it a compelling digital resource for Nigerian universities seeking to modernize pedagogical practices and expand access to supplementary instructional materials. Its capacity to host recorded lectures, tutorials, animations, and documentary resources empowers both students and faculty to explore content beyond the limitations of traditional classrooms (Burt et al., 2023). However, despite its advantages, the adoption and implementation of YouTube as a formal educational tool in Nigeria and across Sub-Saharan Africa remain fraught with challenges.

The key barriers include inadequate power, Internet connectivity, inconsistent access to digital devices, and a general lack of professional development opportunities to train

educators in digital pedagogy (Le et al., 2025). Moreover, concerns regarding the reliability, credibility, and pedagogical alignment of user-generated content—combined with distracting advertisements and entertainment-oriented features—hinder its effective use in academic settings (Muneer & Khan, 2025).

Given these complex dynamics, there is a pressing need to systematically assess the impact and challenges of YouTube integration in Nigerian universities. Such research is essential not only for identifying best practices and adoption strategies but also for informing policy decisions, investment in digital infrastructure, and the development of institutional frameworks that support technology-enhanced learning. Ultimately, this study contributes to broader regional and global goals, such as the African Union's Agenda 2063 and the United Nations Sustainable Development Goal 4, which emphasize the importance of inclusive, equitable, and quality education for all.

The researcher identified a significant issue at the Federal College of Education, Zaria (FCEZ), where approximately 95% of teachers conducted their classes without using instructional support materials (ISM). This lack of resources may contribute to poor academic performance among students across all disciplines taught at the college. This is what was observed by Onileowo (2016). He said, mediocre performance of students in all subjects becomes case of study, especially, by the English language students, and it has connection with the lack of non-utilization of appropriate ISM by the teachers. Majority of the teachers go to their classes to teach some topics without a little material to aid the students. No video, projector, tape recorder, language laboratory or pictures, among others, to simplify lesson and ease learning (Olayinka, 2016).

However, the technology of YouTube video has not been used at all in FCEZ and this is what Alwehaibi (2015) stated that YouTube technology in Saudi Arabia hasn't been used extensively for instructional purpose. Several studies and analyses have shown that YouTube's resources as a teaching tool are important to consider. It is being demonstrated that it is important for the transfer of knowledge and skills. In terms of learning, it will be interesting to learn how popular YouTube is with today's learning system.

This is what motivated the researcher to conduct a study on assessing lectures' adoption of YouTube as ISM.

The first invention in the history of teacher education with usage of video in teaching and learning, has come into being as a result of introduction of Microteaching subject. that was one of the first to use video in teacher education. Microteaching's purpose as the name implies, was to experiment teaching at a micro level instruction, where class, time, size, and teaching skills were all shrunk down. The students were introduced to a particular teaching skill, such as set-induction or Motivation, leading to a discussion, at the start of a normal microteaching session (Sherin, 2003). That was then when Micro-teaching was introduced in 1956-1960 in Sandford University by Allen. The researcher is of the view that, now it is an advantage to teaching-learning process to utilize the innovation of YouTube video, as an instrument for instruction in the classroom situation.

The study is important for all strata of lectures and teachers and it important for multiple stakeholders in the education sector. It provides educators with practical insights into

integrating YouTube into teaching to enhance engagement and adapt to diverse learning styles. For colleges of education and university administrators and policymakers, the findings support evidence-based decisions on infrastructure, staff training, and curriculum reforms related to digital learning. Students, especially in under-resourced areas like Nigeria and Sub-Saharan Africa, benefit through increased access to interactive and supplementary learning materials. Academically, the study contributes to filling gaps in the literature on educational technology adoption in the Global South, supporting broader goals of inclusive and equitable education. The study has the following objectives and questions.

Objectives of the Study

1. To investigate the impact of adopting and utilizing YouTube on the teaching and learning process.
2. To explore the influence of YouTube usage on teachers' job performance.

Research Questions

The following questions were raised to guide the studies

- i. Does the adoption of YouTube have a significant impact on the teaching and learning process?
 - ii. Does YouTube serve as an effective instructional material in the learning process?
 - iii. Does YouTube significantly influence students' academic performance?

Literature Review

The use of YouTube videos has become increasingly prevalent in the education sector, particularly among pre-service teachers and for the professional development of in-service instructors and educators across various specializations. According to a scholar, review in all ranking levels, and from all corners of the globe, the YouTube video usage in training students now tries to become tradition to the educational institutions and teachers' education. (Gaudin, 2015)

There is a bitter argument among scholars in the field of education on which one should be said, instructional material or teaching aid, they are all reappearances to the same meaning. Instructional material is more proper and advanced, considering the era of technology, because the material is helping the students to understand better. Instructional materials are those gadgets, equipment, pictures, motions, objects, realia, instruments, items, tools and accessories, applied by teachers in the classroom situation to help learners understand the concept effectively. (Alshatri et al., 2019)

There are three reasons and stages for applying instructional materials in the classroom, (a) at the beginning of the lesson (b) at middle of the lesson (c) at end of the lesson.

Using instructional materials at the start of a lesson serves as an introduction, helping the teacher capture students' interest in the topic to be discussed. When these materials are utilized during the middle of the lesson, they function as tools for expanding, clarifying, and reinforcing what has already been taught. Presenting instructional materials at this stage also helps to engage students and encourages them to participate actively, creating a more dynamic and lively classroom environment.

Lastly, when instructional materials are applied by the end of the lesson they serve as summary of the lesson (Shika, 2018). The students' participation actively in the class usually comes because of applying instructional materials (ISM) and when they involved in teaching, they will keep students alert, and learning would undergo effectively and efficiently.

The usage of instructional materials in the classroom situation is necessary for the betterment of communication and understanding of the lesson. ISM are devices that are helping teachers to deliver lessons to students in a systematic, hierarchical, and logical manner. In general, ISM are audio-visual and visual materials, non-concrete or concrete or abstract, applied by the teachers to progress, simplify and advance the quality of understanding of the lesson and teaching activities. (Karvonen et al., 2018)

YouTube Video may be, especially, useful for students' preparation in science classrooms. In fact, it is more interesting for students (Stockwell et al., 2015) and because it is well suited to highlighting the abstract or difficult-to-visualize events which are the focus of so many science lessons. (Stockwell et al., 2015) Abdallah et al (2023) stated that the most popular video-sharing website on the planet is now YouTube. For researchers, advertisers, media firms, and anyone looking for a quick way to popularity, discovering and comprehending the factors that drive views to a video have become fascinating issues.

ICT in Teaching- Learning Cycle

In education, the use of ICT has grown increasingly significant. ICT generates innovative ideas and makes a substantial number of educational resources and information available to all teachers and students. When addressing teaching materials, it also includes ideas for use, skills, methods, tactics, approaches, exercises, assessments, and so on, all with the goal of assisting teachers. Since ICT has had such a significant impact in education, its impact is becoming increasingly diverse: whether discussing meaningful global interaction, easy access to find self-interdependence, or blending with others, by using the same topic and language, ICT helps students' progress in a linear manner through various stages (Bekteshi, 2019).

YouTube architectural videos can be easily utilized, displayed, and shared with the class, and Mayer believes that multimedia aids human brain functions, stating that students learn more effectively and thoroughly when given pictures and words (Mayer, 2019).

The Mayer's statement has explained how skills and knowledge are easily acquired when using pictures and words in teaching. The YouTube technology contains all these items, whenever a teacher uses YouTube as his instructional materials, the understanding of the students could be different.

The world is fast heading towards a 'new age, indoctrination and culture,' that global competition cannot be achieved without the application of ICT into the pedagogical curricula at all stages. To obtain optimal outcomes, these Information and Communication Technology facilities, apparatuses, and tools must first be available for usage and not underutilized (Kennah, 2016).

This statement correlates with NPE (2016), which stated that "our commitment to every Nigerian child, accordingly, is better health and education, suited to the needs of the Nigerian

situation and economy". We will cultivate the mind to build a good society that can compete on a global scale (NPE, 2016). This statement is indicated that it is impossible to overstate the value of technology in the Nigerian educational system. Since Nigeria's independence, the country's educational system has been consistently undervalued and overlooked. Despite professing a commitment to national development, successive governments have failed to prioritize its importance. Education serves as the foundation for development, yet it cannot thrive in isolation.

Importance of Instructional Material (ISM)

Human beings are the animals that are gathering their information through five sense organs that are in their bodies. The most frequent used senses for gathering information are, hearing and seeing. More so, the information that is gathered by seeing and hearing is better and most lingering in the mind of individuals for long times, something that will even stay to the end of their lives. The technology of YouTube has possessed these two senses that man acquires his information and applies YouTube into the classroom situation as an ISM that will make the knowledge vivid and concrete to the highest order.

Certainly, it is under the ethics of teaching profession that a teacher should use instructional materials in every topic that he wants to teach students. It also helps the teacher in simplifying the lesson for the students and the lesson will be lively, using ISM will make students to understand the lesson effectively.

Alshatri et-al (2019), summarized the merit of ISM in teaching learning process, especially in classroom communication. In general, instructional materials may help the teacher to simplify and facilitate a well and best understanding of the topics and subjects that students are discouraged, the act of misperception, confusion, and difficulty. The lesson will be clearly understood when ISM is applied and makes the lesson successful in every subject. The ISM has linkage with the teacher's intelligence and immense influence on his students. Yes, it is one of the pleasing and amusing teaching instruments that makes class to be convenient in the teaching process. One of the importance of ISM is that the involvement of students in the classroom activities. It is one of the best teaching method, learners' interaction, which is participation of the students in teaching process, giving learners opportunity to talk, ask them to do what they have seen in the ISM. Usage of IST creates friendly and lively learning atmosphere and close the gap between learners and teachers (pg. 449).

The usage of present YouTube video technology in the classroom as an instructional material has a significant role to play in learning process, it changes the way and manner of how teachers teach in the class and how students learn. The merit of ISM in learning cycle cannot be overemphasised. Many empirical reports have been written to explain the mandatory role that ISM plays in curriculum implementation. This statement is true, as Alshatri (2019), stated that, ISM makes learning more practical, interesting, appealing, and realistic. Instructional materials enable students and teachers to partake effectively and efficiently in classroom communication. It gives room for knowledge acquisition, skills, self-actualisation and self-development, and confidence.

Certainly, higher education has embraced YouTube video as a vital component of teaching and learning. It is used in traditional courses, as a cornerstone of so many blended learning

courses, and is frequently the primary method of material delivery in online courses. Many meta-analyses have been conducted (Barbour, 2018), and numerous studies have demonstrated that, video in particular, can be an extremely effective educational tool. (Hurst, 2016), proves that technology can help students learn more effectively. (Aldon & Tragalová, 2019), mentions the following as advantages of Instructional materials;

- a) Developing the critical thought of the students and improving teachers' competency
- b) All domains of learning have been applied
- c) Developing learners' remembrances
- d) Makes learners use apparatuses applied in the class more
- e) Retain all information in the heart of the students for decades
- f) Makes the learners execute the events independently by recalling what he has seen
- g) Developing the students' mind.
- h) Thoughtful and accuracy of the lesson
- i) Simplifying the lesson and making it easier

The skills and attitudes of educational objectives are always to ease and bridge the gap of hardship of learning to simple, and to make students always remember knowledge. Yes, technology can serve this purpose. It is undisputable that technology can fetch abstract and mental thinking to the actual World. The abstract of the learning entity that makes it hard for learners to learn can be abridged and eliminated by the aid of technology. Educational YouTube videos can be applied in the class as instructional material and can be uploaded on the YouTube channel so that students can watch at any time they wish, which will be for them as means or source of learning every subject (Mulyanti & Rahmat, 2019).

The ISM has varieties but the most powerful one is audio-visual, because it consists of appeal to vision and hearing, and YouTube video possessed all these qualities, so applying it in the teaching cycle will give students an in-depth understanding. Visual: It is a tool that learners can raise the exact image whenever learners hear and see properly.

How to Use YouTube in the Classroom

Instructional films in the YouTube have become substantial aspects of higher education, with many flipped, hybrid, and online learning in a classroom, using them as content delivery instruments. Instructors should ponder and contemplate about three things when applying video as educational tools: how to control the video's cognitive load, how to maximise students' engagement with the video, and how to encourage lively learning from the YouTube video. This post examines the literature on each of these principles and proposes practical ways for educators to apply them when utilising video as a teaching tool (Brame, 2016).

The first thing teachers should consider and make sure the YouTube video that would be shown has content message relevant to the topic and has linked with the age of the learners and there is no ambiguity in the message. Knowledge of video technology, the subject matter to be taught, current concepts of multimedia learning, and factual proper procedure in employing video should all influence successful video integration into the curriculum (Dong & Goh, 2015).

When YouTube is used in the classroom as ISM, the students should be arranged and commanded to pick pen for jotting, as one scholar proposes that YouTube videos be shown in short bursts, allowing students to ask questions or reflect critically on what they have just seen. While watching a video, students should be encouraged to take notes. Videos are excellent for honing note-taking skills. Writing notes during the first viewing, then replaying and doublechecking the notes (Faizi, 2018).

By placing students in actual setting, manner and facilitating authentic learning, videos and YouTube in particular can inspire curiosity and attract students' attention. When viewing the YouTube, the teacher should pause the video and ask the students to imitate what they have seen especially in languages, religious studies and in physical classes and the showing co-opted with the projector (Shika, 2020).

It is critical to have learners' readiness for what they' will be seeing in the YouTube film. Before watching the video, teacher should give the students a brief of what they will be seeing. After the teacher tells them the content of the video, students should be encouraged to discuss a bit, after the teacher pauses the channel (Srinivasa et al., 2020).

The situation can be explained or clarified through discussion. Unplanned interruptions should be avoided when watching the YouTube video. Intermittent pauses to invite participation, such as answering questions, can, on the other hand, help to foster deeper engagement. It is best to strike a balance between passive and active viewing, including integrated questions or quizzes. Passive video viewing is like information transfer to pupils, which is frequently unsuccessful.

Challenges on Using YouTube

Using YouTube in education offers numerous benefits but comes with significant challenges. Issues like variable content quality and credibility require educators to carefully verify videos before use (Seo et al 2021). The overabundance of information can overwhelm users, leading to decision fatigue and inefficiency (Guo et al., 2020). Distractions from advertisements and non-educational content hinder focus and productivity (Kaliebe & Sha, 2024), while the digital divide limits access for disadvantaged students (Kaseem & Ahmed 2024 & Du, 2024). Privacy concerns and exposure to inappropriate content raise ethical issues (Ünverdi & Karabudak 2025), and many videos lack alignment with curriculum goals (Mayer, 2024). Over-reliance on YouTube can also foster passive learning, reducing critical thinking and engagement (Clark & Mayer, 2023). To address these challenges, educators should prioritize digital literacy, curate high-quality content, and integrate YouTube into interactive and pedagogically sound learning frameworks.

ElChouisein et al. (2024) identify key challenges in using YouTube technology for medical education, issues such as variability in content quality, unreliable sources, lack of standardisation, and the risk of misinformation. Many videos fail to align with medical curricula, and viewers often lack the skills to critically assess content accuracy. The arguments ended with making emphasis on the importance of guiding learners toward credible resources and advocates for the creation of standardised, peer-reviewed educational materials on YouTube to enhance its reliability as a medical education tool.

Copyright on YouTube

Why is all YouTube video technology copyright protected Sharfina et al (2021) say that copyright covers literature, science, and art (both literary and artistic), as well as computer programs, it is one area of intellectual property with the greatest range of protected items. Nurhayat et al (2019) stated that with specific limitations, copyright is a special right granted to authors or owners of other intellectual property to publish, reproduce, or allow access to their works in the disciplines of literature, knowledge, and art. So YouTube videos will never be downloaded without the permission of the owners.

Implications of YouTube Usage as Instructional Material in the Classroom

Teachers are becoming more aware of the benefits of using Web 2.0 technologies in the classroom, such as YouTube. Many schools in USA divisions put up firewalls that intentionally block YouTube and other social networking sites. (Mullen & Wedwick, 2008).

Because the YouTube video cannot be downloaded due to privacy laws, the teacher finds it difficult to use YouTube as a teaching aid in the classroom. Jones and Cuthrell (2011) mention the remedy of using YouTube videos in the classroom; they say the answer to such dilemmas is to convert YouTube videos into other formats and save them. By visiting the website Zamzar.com, users can legally store and transcode YouTube videos. The steps are as follows:

1. Visit zamzar.com first.
2. Paste your YouTube video into the blank after selecting "Download Videos."
3. Only select avi if the file is audio.
4. Select only wmv clips for movies.
5. Enter the email address you wish to receive the converted file.
6. You have 24 hours to save the file to your computer or flash drive, as it will only be accessible for that short period.

Implementation Strategies of Using YouTube

Using the technology of YouTube as an educational resource demands multiple strategic methods that improve learning experiences in a variety of scenarios (Setiawan & Novita 2024) on the process of applying YouTube as a instructional resources the educators can use YouTube's extensive library of compelling material to improve communication skills in the English as a Foreign Language (EFL) classroom, thereby increasing student motivation and autonomy (Sarker et al 2019).

Dei (2024) suggest that educators can enhance learning by using curated content libraries, such as playlists or annotated bibliographies, to organise relevant YouTube videos and facilitate access for students. The flipped classroom approach allows students to watch videos at home, freeing up class time for discussions and activities. Interactive learning experiences can include embedding videos in Learning Management Systems (LMS), creating quizzes, or inspiring student projects (Moghavvemi et al 2018). Teacher training and support are essential, including professional development workshops, curated resources, and technical assistance. Lastly, addressing ethical considerations, such as copyright and fair use, ensures compliance and responsible usage of YouTube in the classroom.

Barry et al (2015) mention that the curriculum alignment strategy for using YouTube technology should be considered before applying any video as supplementary teaching materials. Indeed, curriculum alignment is critical for effective educational practices, especially when incorporating supplemental resources such as YouTube videos into traditional teaching techniques (Polikoff et al. 2015) The curriculum alignment strategy should focus on integrating YouTube videos to enhance traditional teaching objectives. Educators begin by identifying clear learning objectives and selecting high-quality, relevant videos from reputable sources like TED-Ed or Khan Academy. Videos are then incorporated into lesson plans to provide context and facilitate deeper understanding through discussions or activities. Rather than replacing traditional methods, YouTube videos serve as supplementary resources, such as animations or visual aids, to reinforce textbook content. (Ali et al 2023) This purposeful approach ensures YouTube is used effectively to enrich the learning experience.

Lastly, to facilitated effective learning experiences, teachers must ensure that all supplementary materials, particularly YouTube videos, are specifically compatible with the educational objectives and evaluation criteria (Bajarias et al., 2024). Yes, aligning YouTube content with specific educational objectives, when approached carefully, can greatly improve the overall learning experience.

Methodology

The descriptive approach was applied using e-questionnaire in cadastral form as the methodology been used in the study. 60 teachers in the Federal College of Education, Zaria, were asked to participate in answering questionnaires of the study. Only 41 teachers responded to the survey, and the results were examined. The locations of the teachers were covered in the first portion of the questionnaire, and gender was covered in the second, and other information as shown below: Results and Discussions

This presents the statistical analyses, and interpretations of results of the expressed opinions on the items and variables used in assessing the adoption of YouTube usage as instructional material for teaching and learning processes. To ensure that the targeted sample size is obtained, a total of 50 questionnaires were administered out of which 41 were returned. The study consisted of an analysis of the demographic characteristics of the respondents and their opinion on assessing the application of information, YouTube rate and respondents' profiles practices and managing satisfaction, analysed along the study's objectives and research, is focused on examining the impact of YouTube adoption usage on teaching learning process. In the analysis of the objectives in the research questions, mean scores for the items and variables were used in determining the direction of opinions and conclusion of solutions to the objectives of the research were based on the midpoint, in line with the objectives. The objectives of the research are tested along with a discussion of the findings at the end.

Demographic Characteristics of the Respondents

The demographic variables of the respondents selected along their expressed opinions on assessing the adoption of YouTube usage as instructional material for teaching and learning processes on teachers' job performance, and the persons responsible for the day-to-day usage relating to YouTube. These variables were considered to be directly associated with the

information in YouTube. Each of the variables is classified in frequencies and percentages in Tables below:

Table 1.1

<i>Classifications of the Respondents by Gender</i>	<i>Frequency</i>	<i>Percent</i>
Male	38	92.7
Female	3	7.3
Total	41	100.0

The data presented in the table revealed that 38 respondents (92.7%) were classified as males during the assessment of YouTube usage as an instructional material for teaching and learning. In contrast, only 3 respondents (7.3%) were females. These findings indicate that males constituted the majority of YouTube users in academic contexts and were well-represented in the study.

Table 2.1

<i>Classifications of the Respondents by Age</i>	<i>Frequency</i>	<i>Percent</i>
20-30	1	2.4
31-40	18	43.9
41-50	18	43.9
51 and above	4	9.8
Total	41	100.0

The table revealed that, 1 (24.0%) of the respondents were 20-30. Respondents who were between 31 and 40years were 18 (43.9%), while 18 (43.9%) were between 41 and 50years. Of the total respondents, and for those that are in range of above 51years were 4 (9.8%) of respondents. The distribution shows that most of the respondents could be classified as those focused on YouTube in assessing the adoption of usage as instructional material for teaching and learning processes in academic performance. Therefore, in assessing of YouTube, most of the respondents were average range, 40 to 50years, with highest percentage response in adopting YouTube usage, and satisfaction in the study area. Table 3.1: Classifications of the Respondents by Years in Services

Year in Services	Frequency	Percent
1-5	3	7.3
6-10	15	3.6,68
11-15	11	26.8
16-20	6	14.6
21-25	4	9.8
26 and above	2	4.9
Total	41	100

In the table above, respondents who were assessing the adoption of YouTube usage on teachers' academic performance were 3 (7.3%) of the total. Those from between 6-10years in usage are 15 (3.6%) and those of 11 (26.8%) were between the range of 11-15 of the totals

and 16-20 were between 6 (14.6%) of the total responses and 21-25 were 4 (9.8%) using YouTube video as instructional material for teaching and learning processes, and the other number of the respondents were 2 (4.9%) with the average range of 26 years and above. These imply that those respondents who have the highest numbers percentage in using YouTube were in between 11-15 years of the total involves adoption of usage as instructional material for teaching and learning processes in the academic performance and enhance functions and finding ways to provide additional usage as instructional material for teaching and learning processes. From the distribution, the study could therefore be said to have covered the difference in assessing the YouTube usage in the types of the study area.

Table 4.1

*Classifications of the Respondents by the type of Hours per Week Hours Frequency
Percent*

1-2	12	31.0
2-3	7	18.0
3-6	8	19.4
7-10	5	12.2
11 above	8	19.4
Total	41	100.0

In terms of who is responsible for the hours per week spent for interaction in the social media in using YouTube in assessing the adoption in the table shows that 16 (39.0%) of the respondents were of the view that using YouTube is very essential for such decision with the number of hours 13. But 8 (19.5%) were of the opinion that it was 3-6 number of total respondents in assessing and adopting the usage. Whereby 7-10 of the total respondents are 5 (12.2%) responses in the teaching academic performance. This implies some respondents were with middle numbers 8 (19.5%) in frequency and percentage with total numbers in hours 11 and above for assessing and adopting the usage in using the YouTube for instructing material and learning processes. However, in the area of study the highest number of hours is 13 with total 16 respondents. This would imply that the respondents were in good positions assessing and adopting YouTube to provide enough materials relating to the adoption in the study.

Table 4.2
Classifications of the Respondents by Platforms

Platforms	Frequency	Percent
Facebook	4	9.8
Facebook, WhatsApp	4	9.8
Facebook, WhatsApp, Twitter	1	2.4
Facebook, YouTube, WhatsApp	4	9.8
Facebook, YouTube, WhatsApp, Instagram	2	4.9
Facebook, YouTube, WhatsApp, Instagram, Picture chart, Twitter	1	2.4
Facebook, YouTube, WhatsApp, Instagram, Twitter	1	2.4
WhatsApp	21	51.2
WhatsApp, Twitter	1	2.4
YouTube	1	2.4
YouTube, WhatsApp, Instagram, Twitter	1	2.4
Total	41	100.0

The classifications shown in the table indicated that WhatsApp has the highest total numbers of the respondents in platforms usage, in assessing and adopting as instructing material for teaching and learning processes in the objectives and research in YouTube, as teaching academic performance in the study with the frequency and percentage 21 (51.2%) of the respondents. Therefore, the decision making in using YouTube practices, WhatsApp is the major factor in assessing the adoption of YouTube represented in the study. Table 4.8 shows the distribution of the respondents by to examine the effects of YouTube adoption, usage on teaching and learning processes and academic performance in the study.

Descriptive Statistics on YouTube Usage as an Educational Instrument

Descriptive statistics provide a fundamental method for summarizing survey responses regarding the effectiveness of YouTube as an educational tool. This analysis includes measures of central tendency (mean) and dispersion (standard deviation, STD) to evaluate participant perceptions. The responses were collected using a Likert scale, where participants expressed their level of agreement with statements regarding YouTube's role in education. The mean score indicates the average level of agreement, while the standard deviation reflects the variability in responses.

Table 4.3

Opinions of the Respondents on Assessing and Adoption of YouTube

Statement	Mean	Standard Deviation (STD)	Interpretation
YouTube enables me to be more productive in microteaching in the shortest amount of time	3.96	1.77	Moderate agreement, high variability
YouTube video is a suitable instructional resource	4.05	1.55	High agreement, moderate variability
Online video platforms like YouTube can be applied as a tool for academic learning	4.15	1.60	High agreement, moderate variability
YouTube videos help understand complex subjects	4.14	1.58	High agreement, moderate variability
Websites like YouTube can be used as academic learning tools	4.11	1.56	High agreement, moderate variability
Using YouTube for academic discussions is useful	4.12	1.59	High agreement, moderate variability
The use of YouTube videos benefits my career	4.10	1.54	High agreement, low variability
Repeating lessons is easy with YouTube at any time	4.26	1.56	Strong agreement, moderate variability
Showing YouTube videos reinforces learning	4.01	1.57	Moderate agreement, moderate variability
YouTube supports permanence in learning	4.07	1.52	High agreement, low variability
Using YouTube is not appropriate for education	3.84	1.63	Neutral to slight disagreement, moderate variability
YouTube is not preferred for supporting teaching	3.88	1.60	Neutral to slight disagreement, moderate variability
YouTube videos aid in lesson repetition	4.24	1.60	Strong agreement, moderate variability

The above table shown that the majority of respondents agreed or strongly agreed that YouTube is an effective educational resource and it can be used as an educational resources, The highest mean **score** is (4.26) was for "*Repeating lessons is easy with YouTube at any time,*" suggesting that participants find YouTube particularly useful for reviewing and reinforcing learning materials. Then the statements about YouTube's role in helping with complex subject comprehension (4.14) and academic discussions (4.12) also received high agreement, reflecting its perceived utility in knowledge acquisition.

Although respondents viewed YouTube favourably for academic use, statements such as "*YouTube videos reinforce learning*" (4.01) and "*YouTube supports permanence in learning*" (4.07) had slightly lower means, indicating that while beneficial, these aspects may be seen

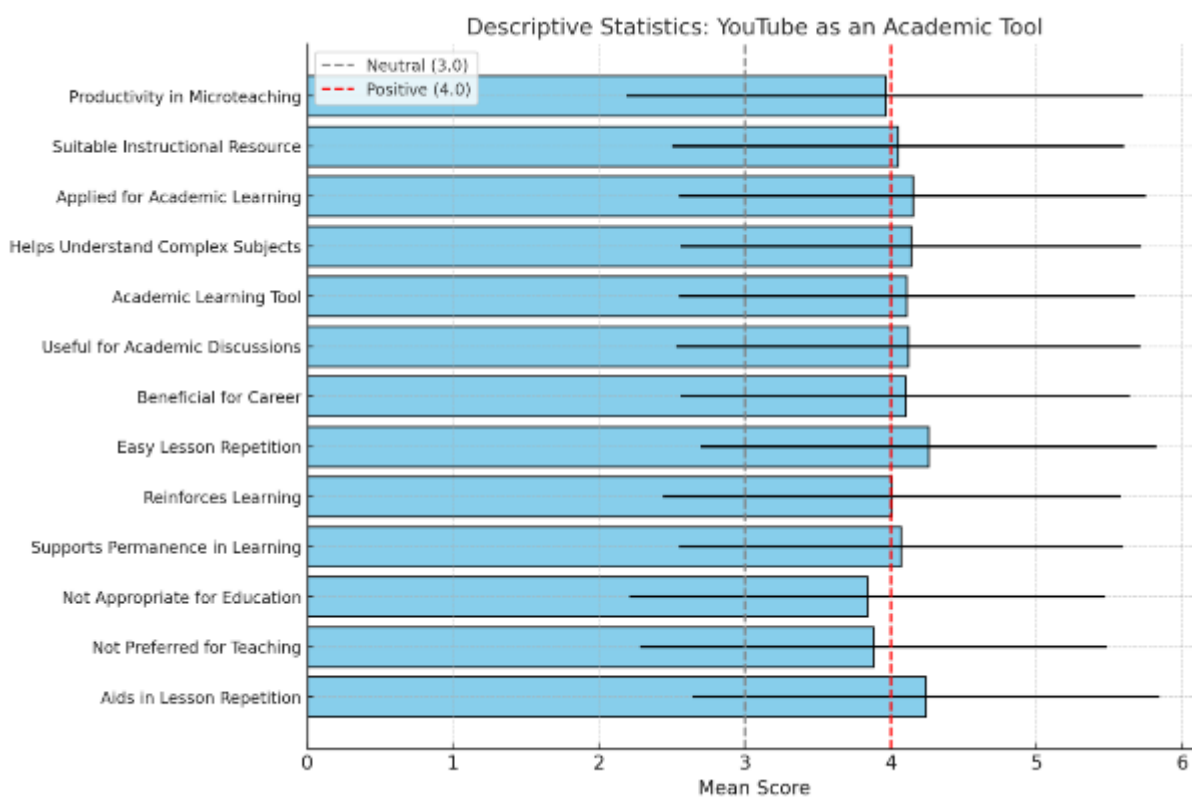
as context-dependent. The lowest mean score (3.84) was for "Using YouTube is not appropriate for education," indicating a general disagreement with this negative perception. Similarly, "YouTube is not preferred for supporting teaching" had a mean of 3.88, reflecting a neutral to slight disagreement stance. These responses suggest that while some scepticism exists, most participants do not strongly oppose YouTube as an educational tool.

The standard deviation values ranged from 1.52 to 1.77, indicating moderate variability across responses. The highest variability (STD = 1.77) was observed in "YouTube enables me to be more productive in microteaching," suggesting that opinions on this aspect were more diverse. Equally, lower standard deviation scores (STD = 1.52 to 1.56) in statements such as "YouTube supports permanence in learning" and "The use of YouTube videos benefits my career" indicate more consistency in participant views.

Conclusively, the statistical analysis suggests that YouTube is **widely recognized as an effective educational tool**, particularly for lesson repetition and comprehension of complex topics. The data indicate strong agreement on its role in academic learning, with **only minor scepticism** about its appropriateness for education.

Chart YouTube as an Academic Tool

This below bar chart visually represents **the mean scores** of survey responses regarding the effectiveness of YouTube as an academic tool. It provides insights into the perceived benefits and limitations of YouTube in education.



The above is the horizontal bar chart visualizing the descriptive statistics. The mean scores are represented by the bars, while the standard deviations (error bars) show the variability in responses. The red dashed line (4.0) represents a generally positive agreement. The gray

dashed line (3.0) represents a neutral stance. Lesson repetition and ease of access to YouTube received the highest mean scores (~4.26) Statements about YouTube being inappropriate for education had the lowest scores (~3.84).

The key observation and interpretation of the above is:

Statements exceeding the 4.0 threshold (red line) indicate strong agreement:

- a) *"Easy Lesson Repetition"* (~4.26)
- b) *"Aids in Lesson Repetition"* (~4.24)
- c) *"Applied for Academic Learning"* (~4.15)
- d) *"Helps Understand Complex Subjects"* (~4.14)
- e) *"Useful for Academic Discussions"* (~4.12)
- f) *"Beneficial for Career"* (~4.10)
- g) *"Supports Permanence in Learning"* (~4.07)

These results indicate that participants **highly value YouTube for its ability to support repeated learning, academic discussions, and career benefits**. This aligns with the idea that YouTube provides flexible, on-demand learning resources.

Statements **slightly above or around** the 4.0 mark: (Moderate agreement)

- i. *"Reinforces Learning"* (~4.01)
- ii. *"Productivity in Microteaching"* (~3.96)
- iii. *"Suitable Instructional Resource"* (~4.05)

While at this stage the participants generally agree on these aspects, they might find YouTube's impact on **productivity in teaching or lesson reinforcement** somewhat less pronounced compared to repetition and conceptual learning.

Statements below the 4.0 mark, closer to the 3.0 neutral lines (Neutral to slight disagreement)

- 1. *"Not Appropriate for Education"* (~3.84)
- 2. *"Not Preferred for Teaching"* (~3.88)

These responses suggest that while some respondents **acknowledge concerns** about using YouTube in formal education, **most do not strongly oppose its use**. The mean scores are close to **neutral (3.0)**, indicating mixed opinions on whether YouTube is fully suitable for structured educational settings.

Discussion of Findings

This study investigated the assessing and adoption of YouTube usage as instructional material for teaching and learning processes, examines the effects of YouTube satisfaction in the objectives were tested in line with the specific objectives and research questions of the study. From the analysis of the opinions of the respondents on assessing the adoption of YouTube on teachers' academic performance is significant in the teaching learning process and teachers' academic performance on the satisfaction of their YouTube in relation to the research question; it was observed that most respondents were of the view that they approach YouTube practices with multidimensional strategies. Those included assessing and adopting YouTube as instructional material for teaching and learning processes is for unforeseen exigencies like security purposes, arrangement of needs according to priorities and through method. Among other YouTube practices were the use of record keeping, which they were of the view helps in minimizing spending in the academic's performance.

On the satisfaction of the YouTube in assessing and adoption measures, the respondents were of the view that their YouTube were generally contented or satisfied. They however were of the view that such contentment or satisfaction did not mean that the YouTube were able to meet up or satisfied with their targeted goals since does not affect teacher's academic performance remain a major determinant of such satisfaction. Among the measures of satisfaction were the opinions that You Tube were able to achieve their long-term goals. They were of the opinion that the acquired utilities in their teaching learning process were generally adequate for their usage as instructional material for teaching and learning processes and that they adequately within their assessing and adoption learning process and academically.

Conclusion

While YouTube offers immense potential as a tool for enhancing education, its effective use requires addressing several significant challenges. Ensuring the credibility of content, managing distractions, bridging the digital divide, and aligning resources with pedagogical goals are critical steps for maximizing its educational value. Educators and institutions must adopt strategic approaches to mitigate these challenges, including promoting digital literacy, curating high-quality content, and integrating YouTube resources into broader, interactive learning frameworks. By doing so, the educational benefits of YouTube can be harnessed while minimizing its drawbacks. From the analysed data for this study and the tests, the research wishes to draw the following conclusions:

1. The YouTube serving practices significantly influence job performance of teaching and further enhancing them to assess the adoption of YouTube for use.
2. YouTube requires some forms of financial literacy because its acquisition or knowledge has positive and significant influence on their material satisfaction.
3. The extent of YouTube satisfaction depends to a significant extent on the life cycle of the teachers' academic performance.
4. YouTube type has significant influence on their usage practices.
5. YouTube's financial literacy significantly influences their practices in Geo-Political Zone.

Recommendation

The following recommendations are put forward as a result of the findings:

1. Teachers should adopt the use of YouTube to support the efforts to improve instructional materials in order to improve learning and academic achievement in the college.
2. Teachers should make every effort to incorporate available audio-visual instructional resources into their classes whenever possible to make them more engaging.
3. The college management should make it mandatory that every teacher should use ISM when moving to classroom for teaching.
4. To make their lessons more entertaining, teachers should always try to make use of existing instructional materials wherever possible.
5. To make teaching and learning easy, practical, engaging, and pleasurable, the government should provide teaching aids and fund schools to innovate unavailable and inadequate instructional materials. The college management should provide powerful internet, availability of interactive white board in every class and projected for projecting ISM in the YouTube.

6. The college management should conduct an orientation to all teachers, HODs and Deans exposing them to the merit of YouTube in supporting teaching and it can be applied in the classroom.

Suggestion for Further Research

The study's sample size is relatively small, and further research is recommended to explore the use of YouTube as instructional material across various topics, disciplines, and educational levels. Future studies should include additional variables to enhance college students' performance and increase their awareness of this teaching resource. And the following topics can be looked for further study:

- a) Investigate the long-term effects of YouTube usage on academic performance across different disciplines and age groups.
- b) Explore the impact of YouTube-based learning on critical thinking and problem-solving skills.
- c) Assess the effectiveness of digital literacy training programs in improving the use of YouTube as an educational tool.
- d) Examine the role of YouTube in promoting equity in education, particularly in underserved regions.
- e) Study the psychological effects of using YouTube in classrooms, focusing on engagement, motivation, and retention.

The researchers' last word is that YouTube is highly effective for self-paced learning and lesson reinforcement. While concerns exist about its role in formal education, most respondents see it as a valuable academic tool.

Acknowledgement

The researchers would like to express their sincere gratitude to the management of **Federal College of Education (FCE) Zaria** for granting permission to conduct this study on the effectiveness of YouTube as an academic tool. Their support and cooperation were instrumental in facilitating this research. Also the researchers also extend their appreciation to all participants especially the HODs who contributed their insights, as well as to colleagues and mentors who provided valuable guidance throughout this research.

Funding Statement

No funding was provided for this article titled *"Assessing the Impact and Challenges of YouTube Technology Integration in Education: A Study on Adoption and Implementation Strategies."* The research was conducted independently without any financial support from funding agencies, institutions, or organizations.

Conflict of Interest Statement

The authors declare that there is no conflict of interest in this study titled *"Assessing the Impact and Challenges of YouTube Technology Integration in Education: A Study on Adoption and Implementation Strategies."*

References

- Abdullah, D., Sastraatmadja, A. H. M., Lestari, N. C., Saputra, N., & Al Haddar, G. (2023). Implementation of youtube as a learning media in the new normal era. *Cendikia: Media Journal Ilmiah Pendidikan*, 13(3), 476-481. 10.35335/cendikia.v13i3.3464
- Aldon, G., & Tragalová, J. (2019). *Technology in mathematics teaching*. Springer.
- Ali, S. F., Bang, D., Farooq, U., Nittala, S., & Anwar, S. (2023, October). EdGUIDE-Aligning Content, Assessment, and Pedagogy Using Interactive Technology Environment. In 2023 IEEE Frontiers in Education Conference (FIE) (pp. 1-9). IEEE.10.1109/FIE58773.2023.10343270
- Alshatri, S. H., Wakil, K., Jamal, K., & Bakhtyar, R. (2019). Teaching aids effectiveness in learning mathematics. *International Journal of Educational Research Review*, 4(3), 448-453. <https://doi.org/10.24331/ijere.573949>
- Alwehaibi, H. O. (2015). The impact of using Youtube in EFL classroom on enhancing EFL students' content learning. *Journal of College Teaching & Learning (TLC)*, 12(2), 121126.
- Bajarias, N., Ramos, R., Largo, P., De Guzman, R., Galicia, D. B., & Cayogyog, A. O. (2024). Dynamics of Curriculum Alignment: Experiences of Elementary School Teachers in Focus. *International Journal of Research and Innovation in Social Science*, 8(7), 1830-1850. <https://dx.doi.org/10.47772/IJRISS.2024.807145>
- Barbour, M. K. (2018). The landscape of K-12 online learning: Examining what is known. In *Handbook of distance education* (pp. 521-542). Routledge.
- Barry, S., Murphy, K., & Drew, S. (2015). From deconstructive misalignment to constructive alignment: Exploring student uses of mobile technologies in university classrooms. *Computers & Education*, 81, 202-210. <https://doi.org/10.1016/j.compedu.2014.10.014>
- Bekteshi, E. (2019). The effects of YouTube in ESP classes. *KNOWLEDGE-International Journal*, 34(2), 511-516. 10.35120/kij3402511b
- Brame, C. J. (2016). Effective educational videos: Principles and guidelines for maximizing student learning from video content. *CBE—Life Sciences Education*, 15(4), es6. <https://doi.org/10.1187/cbe.16-03-0125>
- Chintalapati, N., & Daruri, V. S. K. (2017). Examining the use of YouTube as a Learning Resource in higher education: Scale development and validation of TAM model. *Telematics and Informatics*, 34(6), 853-860. <https://doi.org/10.1016/j.tele.2016.08.008>
- Clark, R. C., & Mayer, R. E. (2023). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. John Wiley & sons.
- Dei, P. R. (2024). Role of Media and Technology in the Digital Era of 21st Century Education. DOI:10.55041/IJSREM29820
- D'Ambrosi, R., Milinkovic, D. D., Abermann, E., Herbort, M., & Fink, C. (2024). Quality of YouTube videos Regarding Anterior Cruciate ligament reconstruction using Quadriceps Tendon autograft is unsatisfactory. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*. <https://doi.org/10.1016/j.arthro.2024.01.002>
- Dong, C., & Goh, P. S. (2015). Twelve tips for the effective use of videos in medical education. *Medical teacher*, 37(2), 140-145. <https://doi.org/10.3109/0142159X.2014.943709>
- Du, Z. Y., & Wang, Q. (2024). Digital infrastructure and innovation: Digital divide or digital dividend?. *Journal of Innovation & Knowledge*, 9(3), 100542. <https://doi.org/10.1016/j.jik.2024.100542>

- El Choueiri, J., Caimi, E., Pellicanò, F., Laurelli, F., Guerini, F., Citro, G., & De Sanctis, P. (2024). YouTube as a Tool for Medical Education: Analyzing Content Quality and Reliability on Chiari Malformation. *World Neurosurgery*, 192, e259-e266. <https://doi.org/10.1016/j.wneu.2024.09.080>
- Faizi, R. (2018). Teachers' perceptions towards using Web 2.0 in language learning and teaching. *Education and Information Technologies*, 23(3), 1219-1230. [10.1007/s10639-017-9661-7](https://doi.org/10.1007/s10639-017-9661-7)
- Guo, P. J., Kim, J., & Rubin, R. (2014, March). How video production affects student engagement: An empirical study of MOOC videos. In *Proceedings of the first ACM conference on Learning@ scale conference* (pp. 41-50).6
- Halim, Z., Hussain, S., & Ali, R. H. (2022). Identifying content unaware features influencing popularity of videos on YouTube: A study based on seven regions. *Expert Systems with Applications*, 206, 117836. <https://doi.org/10.1016/j.eswa.2022.117836>
- Hurst, K. M. (2016). Using video podcasting to enhance the learning of clinical skills: A qualitative study of physiotherapy students' experiences. *Nurse Education Today*, 45, 206-211. DOI: [10.1016/j.nedt.2016.08.011](https://doi.org/10.1016/j.nedt.2016.08.011)
- Jiang, S., & Zhao, H. (2025). Learning English Vocabulary via Instagram or YouTube: Surveying the impacts on motivation, growth mindfulness, willingness to communicate, and enjoyment from the lens of self-determination theory. *Learning and Motivation*, 89, 102089. <https://doi.org/10.1016/j.lmot.2024.102089>
- Jacobson, J. (2020). You are a brand: social media managers' personal branding and "the future audience". *Journal of Product & Brand Management*, 29(6), 715-727. Jones, T., & Cuthrell, K. (2011). YouTube: Educational potentials and pitfalls. *Computers in the Schools*, 28(1), 75-85. <https://doi.org/10.1108/JPBM-03-2019-2299>
- Judd, T. (2018). The rise and fall (?) of the digital natives. *Australasian Journal of Educational Technology*, 34(5). <https://doi.org/10.14742/ajet.3821>
- Kaliebe, K., & Shah, K. (2024). Digital Distractions and Misinformation. *Pediatric Clinics*. <https://doi.org/10.1016/j.compedu.2021.104132>
- Kassem, M., & Ahmed, A. L. (2022). Digital transformation through Building Information Modelling: Spanning the macro-micro divide. *Technological Forecasting and Social Change*, 184, 122006. <https://doi.org/10.1016/j.techfore.2022.122006>
- Karvonen, U., Tainio, L., & Routarinne, S. (2018). Uncovering the pedagogical potential of texts: Curriculum materials in classroom interaction in first language and literature education. *Learning, Culture and Social Interaction*, 17, 38-55. <https://doi.org/10.1016/j.lcsi.2017.12.003>
- Kennah, M. (2016). The use of ICT in the teaching and learning process in secondary schools: a case study of two Cameroonian schools.
- Le, T., Nguyen-Thi, M. V., Le, M. T., Nguyen-Thi, H. V., Le, T., & Nguyen, H. T. (2025). EnTube: Exploring key video features for advancing YouTube engagement. *Entertainment Computing*, 53, 100934. <https://doi.org/10.1016/j.entcom.2025.100934>
- Mayer, R. E. (2024). Increasing the Effectiveness of Digital Learning. In *Designing Effective Digital Learning Environments* (pp. 279-288). Routledge.
- Mayer, R. E. (2019). Thirty years of research on online learning. *Applied Cognitive Psychology*, 33(2), 152-159. <https://doi.org/10.1002/acp.3482>

- Mhlongo, S., Mbatha, K., Ramatsetse, B., & Dlamini, R. (2023). Challenges, opportunities, and prospects of adopting and using smart digital technologies in learning environments: An iterative review. *Heliyon*, 9(6) <https://doi.org/10.1016/j.heliyon.2023.e16348>
- Moghavvemi, S., Sulaiman, A., Jaafar, N. I., & Kasem, N. (2018). Social media as a complementary learning tool for teaching and learning: The case of YouTube. *The International journal of management education*, 16(1), 37-42. <https://doi.org/10.1016/j.ijme.2017.12.001>
- Mullen, R., & Wedwick, L. (2008). Avoiding the digital abyss: Getting started in the classroom with YouTube, digital stories, and blogs. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 82(2), 66-69. <https://doi.org/10.3200/TCHS.82.2.66-69>
- Muneer, Q., & Khan, M. A. (2025). Role of YouTube in creating awareness of sustainable transportation: A Latent Dirichlet Allocation approach. *Sustainable Futures*, 9, 100607. <https://doi.org/10.1016/j.sftr.2025.100607>
- Mulyanti, Y., & Rahmat, D. (2019). Profile of Students' Technological Content Knowledge in School Mathematics. *Journal of Physics: Conference Series*, 10.1088/1742-6596/1179/1/012059
- Nawzad, L., Rahim, D., & Said, K. (2018). The effectiveness of technology for improving the teaching of natural science subjects. *Indonesian Journal of Curriculum and Educational Technology Studies*, 6(1), 15-21. <https://doi.org/10.15294/ijcets.v6i1.22863>
- Ng, Y. M. M., Hoffmann Pham, K., & Luengo-Oroz, M. (2023). Exploring YouTube's Recommendation System in the Context of COVID-19 Vaccines: Computational and Comparative Analysis of Video Trajectories. *Journal of medical Internet research*, 25, e49061. <https://doi.org/10.2196/49061>
- Nurhayati, Y., Ifrani, I., Barkatullah, A. H., & Said, M. Y. (2019). The Issue of copyright Infringement in 4.0 Industrial Revolution: Indonesian Case. *Jurnal Media Hukum*, 26(2), 122-130. <https://doi.org/10.18196/jmh.20190128>
- Radha, R., Mahalakshmi, K., Kumar, V. S., & Saravanakumar, A. R. (2020). E-Learning during lockdown of Covid-19 pandemic: A global perspective. *International journal of control and automation*, 13(4), 1088-1099.
- Olayinka, A.-R. B. (2016). Effects of Instructional Materials on Secondary Schools students' Academic Achievement in Social Studies in Ekiti State, Nigeria. *World Journal of Education*, 6(1), 32-39. <https://doi.org/10.5430/wje.v6n1p32>
- Ongor, M., & Uslusoy, E. C. (2023). The effect of multimedia-based education in e-learning on nursing students' academic success and motivation: A randomised controlled study. *Nurse Education in Practice*, 71 <https://doi.org/10.1016/j.nepr.2023.103686>
- Pratama, S. H. H., Arifin, R. A., & Widianingsih, A. W. S. (2020). The use of youtube as a learning tool in teaching listening skill. *International Journal of Global Operations Research*, 1(3), 123-129.
- Salsabila, D. A., Salam, U., & Rezeki, Y. S. (2025). YouTube as a Tool for English Language Learning: A Meta-Analysis in EFL Contexts. *English Education: Journal of English Teaching and Research*, 10(1), 12-29. <https://doi.org/10.29407/jetar.v10i1.23641>
- Sarker, M. N. I., Wu, M., Cao, Q., Alam, G. M., & Li, D. (2019). Leveraging digital technology for better learning and education: A systematic literature review. *International Journal of Information and Education Technology*, 9(7), 453-461. doi: 10.18178/ijiet.2019.9.7.1246

- Setiawan, R., & Novita, D. (2024). Youtube implementation in teaching english as a foreign language: a review. *Pubmedia Jurnal Pendidikan Bahasa Inggris*, 1(4), 12-12. <https://doi.org/10.47134/jpbi.v1i4.687>
- Seo, K., Dodson, S., Harandi, N. M., Roberson, N., Fels, S., & Roll, I. (2021). Active Learning with online video: The impact of learning context on engagement. *Computers & Education*, 165, 104132. <https://doi.org/10.1016/j.compedu.2021.104132>
- Sharfina, N. H., Paserangi, H., Rasyid, F. P., & Fuady, M. I. N. (2021, October). Copyright issues on the prank video on the youtube. In *International Conference on Environmental and Energy Policy (ICEEP 2021)* (pp. 90-97). Atlantis Press. 10.2991/assehr.k.211014.021
- Sherin, M. G. (2003). 1. NEW PERSPECTIVES ON THE ROLE OF VIDEO IN TEACHER EDUCATION. In *Using video in teacher education*. Emerald Group Publishing Limited. [https://doi.org/10.1016/S1479-3687\(03\)10001-6](https://doi.org/10.1016/S1479-3687(03)10001-6)
- Srinivasa, K., Chen, Y., & Henning, M. A. (2020). The role of online videos in teaching procedural skills to post-graduate medical learners: A systematic narrative review. *Medical teacher*, 42(6), 689-697. <https://doi.org/10.1080/0142159X.2020.1733507>
- Stockwell, B. R., Stockwell, M. S., Cennamo, M., & Jiang, E. (2015). Blended learning improves science education. *Cell*, 162(5), 933-936.
- Ünverdi, S., & Karabudak, S. S. (2025). Relationship between parents' problematic internet use levels and child abuse potential. *Children and Youth Services Review*, 169, 108060. <https://doi.org/10.1016/j.chilyouth.2024.108060>