Journal on Interdisciplinary Studies in Humanities
Volume 9 Issue 2, 2026
DOI: https://doi.org/10.34050/elsjish.v9i2.51021
Homepage: journal.unhas.ac.id/index.php/jish

Effectiveness of Audio-Visual Instructional Methods in Improving English Comprehension Skills among Public Senior Secondary School Students in Kakamega County

Tonny Odhiambo[1]

[1]Department of Education, Presbyterian University of East Africa
*Correspondence: tonny.odhiambo@puea.ac.ke

ABSTRACT

Audio-visual instructional methods have become increasingly important in enhancing language learning and comprehension skills in schools. However, limited studies have examined their effectiveness in improving English comprehension skills among public senior secondary school students in Kakamega County, Kenya. This study investigated the influence of educational videos and audio recordings on learners' listening and reading comprehension skills, while also examining the role of teacher ICT competence and availability of audio-visual resources. The study adopted a descriptive survey research design targeting English teachers and students in public senior secondary schools in Kakamega County. Data were collected using questionnaires, interviews, and observation checklists and analyzed using descriptive and inferential statistics. The findings revealed that educational videos and audio recordings positively improved learners' English comprehension skills. Teacher ICT competence and the availability of audio-visual resources further enhanced the effectiveness of these instructional methods. The study concludes that audio-visual instructional methods significantly improve English comprehension skills among secondary school learners. The study contributes to existing knowledge by providing empirical evidence on the effectiveness of audio-visual instructional methods within the Kenyan secondary school context. It recommends increased investment in ICT infrastructure, teacher digital training, and provision of adequate audio-visual instructional resources to enhance English language instruction and learner performance.

ARTICLE HISTORY
Published June 2nd 2026
Check for updates

KEYWORDS
Audio-Visual Instruction, English Comprehension Skills, Educational Videos, ICT Competence, Senior Secondary Schools.

1. Introduction

English language plays a significant role in education, communication, and national development in Kenya because it serves as the official language and the primary medium of instruction in secondary schools. Competence in English comprehension skills is essential for academic achievement since learners rely on listening and reading comprehension across different subjects (Prihandoko et al., 2019; Said et al., 2021; Amalia et al., 2022). However, many learners in public senior secondary schools continue to experience challenges in understanding spoken and written English, negatively affecting their academic performance and communication abilities (Makokha, 2022; Prihandoko et 2022; Yaumi et al., 2024; Youngsun et al., 2025).

The advancement of educational technology has introduced audio-visual instructional methods as effective approaches for improving teaching and learning processes in schools. Audio-visual instructional methods involve the use of educational videos, audio recordings, multimedia presentations, projectors, animations, and digital learning resources to support classroom instruction. These instructional approaches improve learner engagement, retention, participation, and comprehension by combining visual and auditory learning experiences simultaneously (Tan et al., 2022; Yaumi et al., 2023; Andini et al., 2026). Educational technology scholars argue that multimedia learning improves learners' understanding by stimulating multiple senses during instruction (Mayer, 2021; Al-Obaydi et al., 2022; Rahman et al., 2019).

Educational videos play an important role in enhancing learners' listening comprehension, vocabulary acquisition, pronunciation, and interpretation of contextual information. Similarly, audio recordings improve pronunciation accuracy, reading fluency, and listening comprehension by exposing learners to correct language usage and spoken communication

patterns (Sailuddin et al., 2025; Puspita et al., 2026). Research findings indicate that learners exposed to multimedia instructional approaches demonstrate improved comprehension performance compared to learners taught through conventional teaching methods (Bond et al., 2021). However, most previous studies have concentrated on general ICT integration, tertiary institutions, or developed-country contexts, with limited focus on the effectiveness of specific audio-visual instructional methods in improving English comprehension skills among public senior secondary school students in Kenya. In addition, few studies have examined the mediating role of teacher ICT competence and availability of audio-visual resources in influencing learners' comprehension outcomes. Consequently, there is limited empirical evidence on how audio-visual instructional methods affect English comprehension skills in public senior secondary schools in Kakamega County, creating a contextual and knowledge gap that this study sought to address.

Despite the increasing availability of digital learning technologies, many public senior secondary schools in Kakamega County continue to experience challenges in implementing audio-visual instructional methods effectively. Limited ICT infrastructure, inadequate teacher competence in technology integration, insufficient instructional resources, and poor internet connectivity remain major barriers to successful implementation of digital learning approaches in schools (Schleicher, 2020). These challenges reduce the effectiveness of English language instruction and hinder learners' comprehension development.

The general objective of this study was to examine the effect of audio-visual instructional methods on learners' English comprehension skills in public senior secondary schools in Kakamega County. Specifically, the study sought to determine the effect of educational videos on listening comprehension skills, assess the influence of audio recordings on reading comprehension performance, evaluate the mediating role of teacher ICT competence, and examine the influence of availability of audio-visual resources on learners' comprehension skills.

2. Methodology

The study was guided by the Cognitive Theory of Multimedia Learning, which explains that learners understand and retain information more effectively when instructional content is presented through both visual and auditory channels simultaneously (Mayer, 2021). The theory supports the integration of educational videos and audio recordings into classroom instruction because learners process information better through multiple sensory experiences.

Educational videos enhance learners' understanding by providing visual illustrations, demonstrations, and contextual explanations that improve comprehension and retention. Learners exposed to video-assisted instruction demonstrate improved listening comprehension, vocabulary development, classroom participation, and learner motivation (Tan et al., 2022). Educational videos also simplify abstract concepts and improve interpretation of spoken language by combining images, sounds, and demonstrations during instruction.

Audio recordings contribute significantly to learners' pronunciation, listening accuracy, and reading fluency. Learners who engage with audio instructional materials are able to identify key ideas, improve language interpretation, and strengthen comprehension performance. Studies indicate that audio recordings improve oral communication skills and support effective language acquisition among senior secondary school learners (Sailuddin et al., 2025).

Teacher ICT competence remains an important determinant of successful implementation of audio-visual instructional methods in schools. Teachers with adequate digital skills and technological knowledge are more capable of integrating multimedia resources effectively into classroom instruction (Redecker, 2020). ICT-competent teachers are able to develop engaging digital learning activities, manage instructional technologies, and support learners during multimedia learning processes. Availability of audio-visual resources such as projectors, computers, internet connectivity, and multimedia devices also influences the effectiveness of technology-supported learning approaches and learners' comprehension outcomes.

Recent empirical studies indicate that successful implementation of audio-visual instructional methods requires effective teacher training, institutional support, adequate technological resources, and supportive learning environments (Bond et al., 2021). However, most previous studies have focused on general ICT integration or higher education contexts, with limited attention given to public senior secondary schools in Kenya, particularly in Kakamega County. In addition, few studies have examined the mediating role of teacher ICT competence and availability of audio-visual resources in influencing English comprehension skills. This study therefore sought to fill this contextual and empirical gap.

2.1 Conceptual Framework

The conceptual framework illustrates the relationship between audio-visual instructional methods and learners' English comprehension skills among public senior secondary school students in Kakamega County. The framework is based on the assumption that multimedia instructional approaches enhance learners' comprehension outcomes by improving their ability to process information through both visual and auditory channels simultaneously.

In this study, educational videos and audio recordings were treated as the independent variables because they directly influence learners' listening and reading comprehension skills. Educational videos provide visual demonstrations, contextual illustrations, pronunciation support, and interactive learning experiences that improve learners' understanding of spoken and written English. Audio recordings, on the other hand, enhance listening accuracy, pronunciation, reading fluency, and interpretation of language structures through repeated auditory exposure.

English comprehension skills formed the dependent variable of the study because they represent the expected learning outcomes resulting from the use of audio-visual instructional methods. These comprehension skills include learners' ability to understand spoken English, interpret written texts, identify main ideas, infer meaning, and respond appropriately to comprehension tasks.

The study further identified teacher ICT competence and availability of audio-visual resources as mediating variables. Teacher ICT competence refers to teachers' ability to effectively operate digital technologies, integrate multimedia tools into instruction, and facilitate learner engagement during technology-supported lessons. Availability of audio-visual resources includes access to projectors, computers, internet connectivity, speakers, educational software, and multimedia devices necessary for implementing audio-visual instruction. These mediating variables influence the extent to which educational videos and audio recordings successfully improve learners' comprehension outcomes.

The framework therefore demonstrates that effective improvement in English comprehension skills depends not only on the use of audio-visual instructional methods, but also on the presence of competent teachers and adequate instructional resources that support multimedia learning.

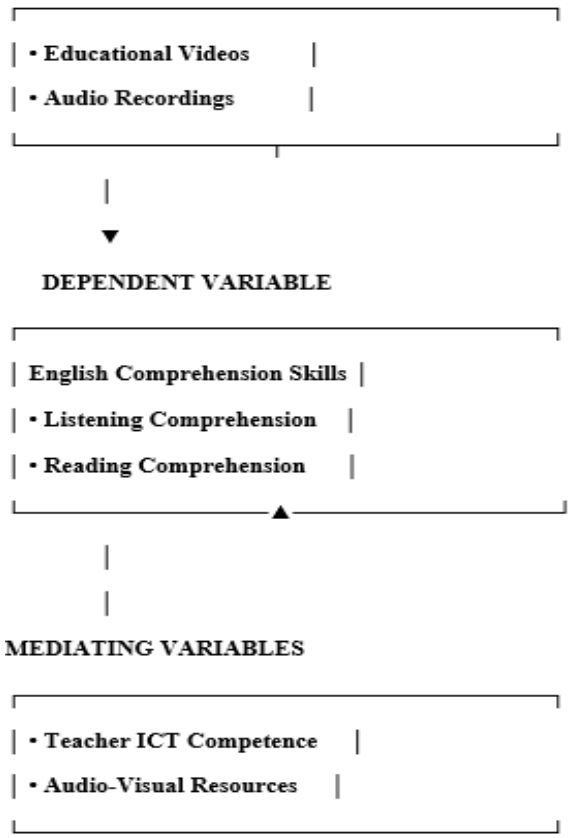

Figure 1: Conceptual Framework

Source: Researcher (2026)

The conceptual framework is anchored on the Cognitive Theory of Multimedia Learning, which explains that learners understand and retain information more effectively when content is presented through both visual and auditory channels. The framework also incorporates the Technological Pedagogical Content Knowledge, which emphasizes the importance of teacher technological competence in effective multimedia instruction.

This study adopted a descriptive survey research design to examine the effect of audio-visual instructional methods on learners' English comprehension skills in public senior secondary schools in Kakamega County, Kenya. The design was considered appropriate because it enables the collection of quantitative data from a defined population and allows analysis of relationships among variables as they naturally occur in educational settings.

The target population comprised English teachers and learners in public senior secondary schools in Kakamega County. The sample size was determined using Yamane's (1967) formula at a 5% margin of error, yielding 333 respondents from an estimated population of 2,000 participants. This ensured adequate representation while maintaining statistical reliability.

A multi-stage sampling procedure was employed. Stratified sampling was first used to categorize schools into different strata to ensure proportional representation based on school type. Purposive sampling was then used to select English teachers due to their direct involvement in instructional delivery and use of audio-visual methods. Simple random sampling was applied to select learners within each stratum to minimize bias and ensure equal participation opportunities.

Data were collected using structured questionnaires, interview schedules, and observation checklists. The questionnaire contained close-ended items measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Instrument validity was established through expert review and pilot testing, while reliability was confirmed using Cronbach's Alpha coefficient ($\alpha \geq 0.70$), indicating acceptable internal consistency.

Teacher ICT competence and availability of audio-visual resources were treated as mediating variables because they determine the extent to which audio-visual instructional methods are effectively implemented and translated into improved learner comprehension outcomes.

Ethical approval was obtained from relevant educational authorities and school administrations. Participation was voluntary, informed consent was obtained, and confidentiality and anonymity of respondents were strictly maintained throughout the study.

Data analysis was conducted using IBM SPSS Statistics Version 27. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize data. Inferential analysis included Pearson correlation to examine relationships among variables, multiple regression analysis to determine the effect of audio-visual instructional methods on English comprehension skills, ANOVA to test model significance, and mediation analysis to assess the indirect effects of teacher ICT competence and resource availability.

The regression model used in the study was specified as:

$$Y=\beta0+\beta1X1+\beta2X2+\beta3M+\epsilonY = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3M + \epsilonY=\beta0+\beta1X1+\beta2X2+\beta3M+\epsilon$$

Where:
Y = English Comprehension Skills;
X_1 = Educational Videos;
X_2 = Audio Recordings;
M = Mediating Variables (Teacher ICT Competence and Availability of Audio-Visual Resources);
β_0 = Constant;
β_1–β_3 = Regression coefficients;
ε = Error term.

3. Results and Discussion

3.1 Descriptive Statistics

Descriptive findings revealed that educational videos recorded a high mean score (M = 4.21, SD = 0.72), indicating that respondents strongly agreed that videos enhance English comprehension during classroom instruction. Audio recordings also recorded a high mean score (M = 4.11, SD = 0.68), suggesting that auditory instructional materials positively support learners' listening and reading comprehension skills.

Overall, all variables recorded mean values above 3.80, indicating generally positive perceptions of audio-visual instructional methods in improving English comprehension skills among learners in public senior secondary schools.

Table 1. Mean Scores of Study Variables

Variable	Mean	SD
Educational Videos	4.21	0.72
Audio Recordings	4.11	0.68
Listening Comprehension Skills	4.34	0.65
Reading Comprehension Performance	4.07	0.73
Teacher ICT Competence	3.96	0.74
Audio-Visual Resources	3.88	0.79

Source: Field Data (2026)

These results indicate that respondents generally perceive audio-visual instructional methods as effective tools for enhancing English language comprehension.

3.2 Correlation Analysis

Pearson correlation analysis established strong positive relationships among audio-visual instructional methods and English comprehension outcomes. Educational videos showed a strong positive relationship with listening comprehension skills ($r = .691$, $p < .01$), while audio recordings also showed a strong positive relationship with reading comprehension performance ($r = .643$, $p < .01$).

Table 2. Pearson Correlation Matrix

Variables	EV	AR	LC	RC
EV	1			
AR	.584	1		
LC	.691	.604	1	
RC	.577	.643	.715	1

Source: Field Data (2026)

These findings indicate that stronger exposure to audio-visual instructional methods is associated with improved listening and reading comprehension outcomes. The strong correlation between educational videos and listening comprehension ($r = .691$) suggests that visual-auditory integration plays a particularly important role in processing spoken language.

This supports the Cognitive Theory of Multimedia Learning (Mayer, 2021), which argues that dual-channel processing enhances comprehension by reducing cognitive overload and improving mental representation formation.

3.3 Regression Analysis

Regression analysis revealed that audio-visual instructional methods significantly predict learners' English comprehension skills. The model explained 47.7% of the variation in comprehension outcomes ($R^2 = 0.477$), indicating a moderate-to-strong explanatory power.

The R value (0.691) confirms a strong overall relationship between predictors and comprehension outcomes, while the adjusted R^2 (0.469) indicates that the model remains stable after adjustment for predictors.

Table 3. Model Summary

R	R^2	Adjusted R^2
0.691	0.477	0.469

The ANOVA results confirmed that the model was statistically significant ($F = 48.337$, $p < .001$), indicating that audio-visual instructional variables jointly predict English comprehension outcomes.

Table 4. ANOVA Results

F	Sig.
48.337	.000

3.3.1 Interpretation of Predictors

Further regression findings showed that educational videos had the strongest predictive effect on comprehension outcomes ($\beta = 0.612$, $p < .001$), followed by audio recordings ($\beta = 0.547$, $p < .001$), teacher ICT competence ($\beta = 0.517$, $p < .001$), and audio-visual resources ($\beta = 0.489$, $p < .001$).

Table 5. Regression Coefficients

Variable	Beta	Sig.
Educational Videos	0.612	.000
Audio Recordings	0.547	.000
Teacher ICT Competence	0.517	.000
Audio-Visual Resources	0.489	.000

These results indicate that educational videos are the most influential predictor of English comprehension. The relatively higher beta value ($\beta = 0.612$) suggests that visual-auditory learning input contributes more strongly to comprehension than audio-only instruction.

This finding aligns with Mayer's Multimedia Learning Theory (2021), which posits that combining visual and auditory input enhances cognitive integration and meaning-making. It also supports Sweller's Cognitive Load Theory (2010), which explains that structured multimedia reduces working memory overload, allowing deeper processing.

3.4 Mediation Analysis

The mediation analysis established that teacher ICT competence significantly mediates the relationship between audio-visual instructional methods and learners' comprehension skills.

Table 6. Mediation Analysis

Path	Beta	Sig.
Audio-Visual Methods → ICT Competence	0.633	.000
ICT Competence → Comprehension Skills	0.517	.000
Indirect Effect	0.327	.001

The mediation analysis established that teacher ICT competence significantly influences the relationship between audio-visual instructional methods and learners' English comprehension skills. The findings revealed that educational videos and audio recordings become more effective in improving comprehension when teachers possess adequate technological and pedagogical skills. Teachers with strong ICT competence are better able to operate multimedia technologies, organize digital instructional activities, and support learners during technology-assisted lessons. This enhances learner engagement, participation, and understanding during English language instruction.

The significant indirect effect further demonstrated that teacher ICT competence partially mediates the relationship between audio-visual instructional methods and comprehension outcomes. This implies that the effectiveness of multimedia instruction does not depend solely on the availability of educational videos and audio recordings, but also on the teacher's ability to integrate these instructional resources effectively into classroom teaching. ICT-competent teachers

are more capable of selecting appropriate multimedia materials, managing classroom technologies, and simplifying complex language concepts through visual and auditory learning experiences.

These findings support the TPACK Framework developed by Punya Mishra and Matthew J. Koehler, which emphasizes that effective technology integration requires the interaction of technological, pedagogical, and content knowledge. The results also align with the Cognitive Theory of Multimedia Learning, which explains that learners understand information more effectively when visual and auditory inputs are combined through well-structured multimedia instruction. Consequently, improving teacher ICT competence is essential for maximizing the benefits of audio-visual instructional methods in English language learning.

3.6 Figures And Interpretation

Mean Scores

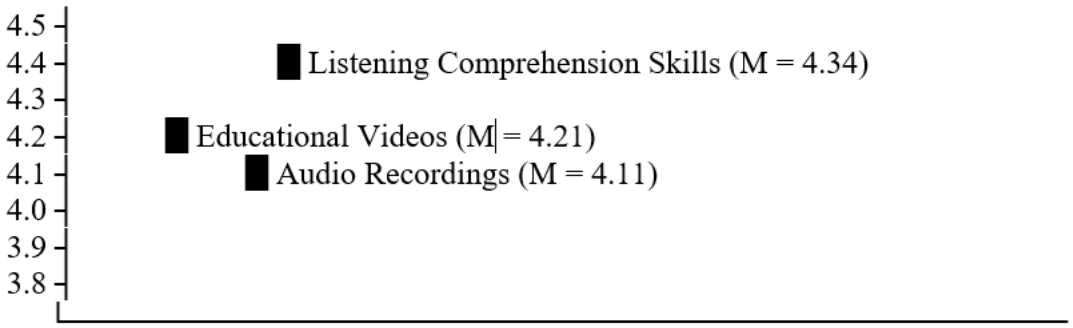

Figure 2. Mean Scores of Audio-Visual Instructional Variables and Comprehension Skills

Source: Field Data (2026)

Interpretation:

Figure 2 shows that all variables recorded high mean scores above 4.0, indicating positive learner perceptions of audio-visual instructional methods. Listening comprehension skills recorded the highest mean (M = 4.34), suggesting that learners strongly believe audio-visual instruction improves their ability to understand spoken English. Educational videos (M = 4.21) and audio recordings (M = 4.11) also show strong perceived effectiveness in supporting English learning.

English Comprehension Skills

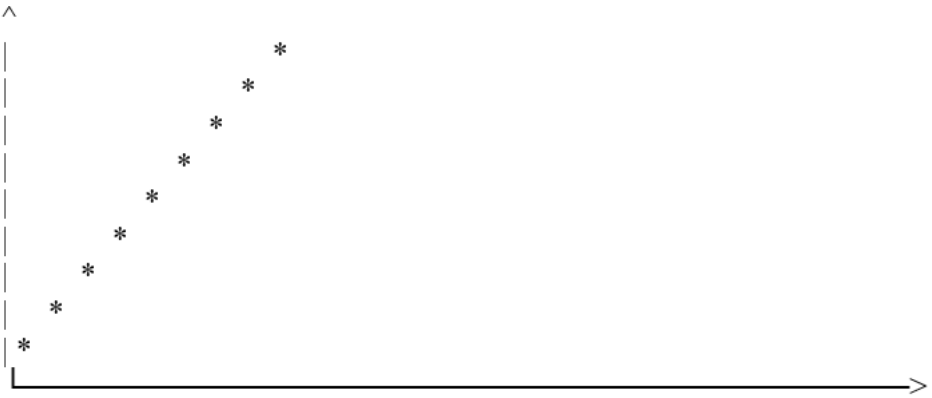

Figure 3. Relationship Between Audio-Visual Instruction and English Comprehension Skills

Source: Field Data (2026)

Interpretation:

Figure 3 illustrates a clear positive linear relationship between audio-visual instructional methods and English comprehension skills. The upward trend indicates that increased use of educational videos and audio recordings is associated with improved learner comprehension outcomes. This suggests that multimedia instruction enhances learners' ability to process and understand English language content more effectively.

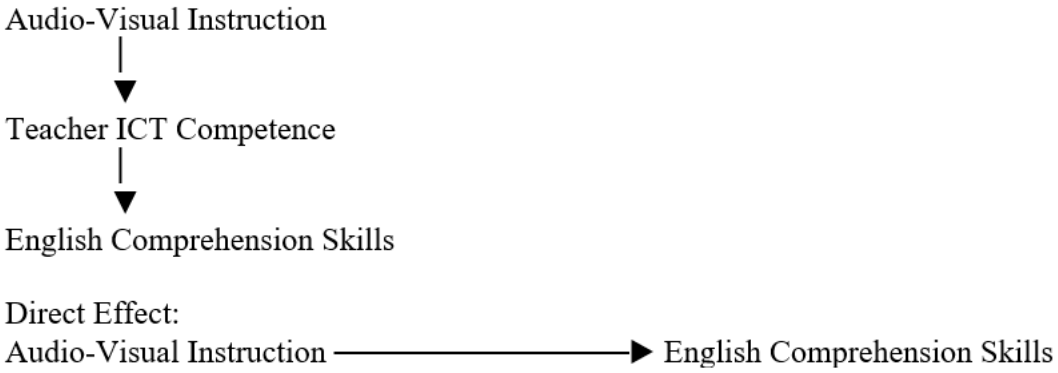

Figure 4. Mediation Model of Teacher ICT Competence

Source: Field Data (2026)

Interpretation:

Figure 4 presents a mediation model showing that teacher ICT competence plays a partial mediating role in the relationship between audio-visual instructional methods and English comprehension skills. This indicates that audio-visual instruction improves comprehension both directly and indirectly through teachers' ability to effectively integrate digital tools into classroom instruction. The model highlights the importance of teacher digital competence in enhancing the effectiveness of multimedia learning.

Figure 5. Relative Influence of Study Variables on English Comprehension Skills

Source: Field Data (2026)

Interpretation:

Figure 5 summarizes the relative influence of each predictor variable on English comprehension skills. Educational videos exert the strongest influence, followed closely by audio recordings, indicating that direct multimedia inputs have the greatest impact on learner comprehension. Teacher ICT competence and availability of audio-visual resources also show substantial influence, acting as enabling factors that enhance the effectiveness of instructional delivery.

3.5 Interpretation of Findings

Overall, the findings demonstrate a clear hierarchy of influence in audio-visual instruction. Educational videos exert the strongest direct effect on learner comprehension, followed by audio recordings, while teacher ICT competence enhances the effectiveness of both instructional approaches. This indicates that learner comprehension is not shaped by a single instructional factor, but rather emerges from the interaction between instructional design, teacher capability, and the availability of learning resources.

The findings further support key theoretical perspectives in educational research. First, the results align with the principles of multimedia learning theory advanced by Richard Mayer and cognitive load theory proposed by John Sweller, which emphasize that multimedia input improves cognitive processing by integrating visual and auditory channels in learning. Second, the study reflects the sociocultural perspective of Lev Vygotsky, which argues that learning is socially mediated through tools, interaction, and guided participation. Finally, the findings reinforce the assumptions of the TPACK framework, which posits that the effectiveness of educational technology depends largely on teachers' technological and pedagogical competence.

Consequently, English language comprehension development in secondary schools is best understood through a multi-layered learning model that integrates cognitive, sociocultural, and technological dimensions. Such a framework recognizes that meaningful comprehension outcomes are achieved when multimedia instructional resources are effectively combined with competent teacher facilitation and supportive learning environments.

4. Conclusion

The study concludes that audio-visual instructional methods significantly enhance learners' English comprehension skills in public senior secondary schools in Kakamega County. In particular, educational videos improve listening comprehension by strengthening learners' ability to interpret spoken language and contextual meaning, while audio recordings enhance reading comprehension and language fluency through repeated auditory exposure. The study also finds that teacher ICT competence plays a key role in strengthening the effectiveness of these instructional methods, as digitally skilled teachers are better able to integrate multimedia resources into teaching. In addition, the availability of audio-visual resources such as projectors, computers, and audio systems improves instructional delivery and contributes to better learner outcomes.

The study contributes to educational research by providing empirical evidence from a Kenyan secondary school context, demonstrating that audio-visual instructional methods are effective in improving English comprehension when supported by teacher competence and adequate infrastructure. It extends existing literature by highlighting that technology alone is not sufficient; its effectiveness depends on how well teachers are trained and how well schools are resourced.

Based on the findings, the study recommends that the Ministry of Education and school administrators prioritize investment in ICT infrastructure to ensure reliable access to audio-visual tools in classrooms. Schools should also implement continuous teacher training programs focused on ICT integration and the pedagogical use of multimedia resources. English teachers should be encouraged to consistently incorporate educational videos and audio recordings into lesson delivery to enhance learner engagement and comprehension. In addition, education policymakers should develop clear implementation frameworks to guide effective use of audio-visual instructional methods in secondary schools. Overall, sustainable improvement in English comprehension skills requires a coordinated effort involving infrastructure development, teacher capacity building, and effective instructional planning.

References

Al-Obaydi, L. H., Jawad, Z. A., & Rahman, F. (2022). Class-home connection using communication technology and its impact on anxiety reduction and academic performance. *Al-Adab Journal*, (141), 53-66.

Amalia, Y., Rahman, F., Rahayu, N. E., Simamora, D. M., & Zulpriyadi, F. (2022). Review the Nature of learning Methods Learning Process in School. *Edumaspul: Jurnal Pendidikan*, *6*(2), 2319-2325.

Andini, C., Youngsun, K., Sunnuraini, S., & Warouw, D. S. (2026). Developing a Chunk-Based Learning Model to Improve Korean Speaking Skills for Beginner Learners. *International Journal of L2CT*, *1*(2), 156-172.

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency remote teaching in higher education: Mapping the first global online semester. International Journal of Educational Technology in Higher Education, 18(1), Article 50. https://doi.org/10.1186/s41239-021-00282-x

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). Sage Publications.

Gilakjani, A. P. (2017). A review of the literature on the integration of ICT into English language teaching. International Journal of Education and Development Using Information and Communication Technology, 13(1), 95–106.

Hobbs, R., & Tuzel, S. (2017). Teacher motivations for digital and media literacy: An examination of Turkish educators. Learning, Media and Technology, 42(2), 145–160. https://doi.org/10.1080/17439884.2016.1200475

Kokila, M., & Devi, S. (2020). Impact of audio-visual aids in teaching English language. Journal of Language Teaching and Research, 11(3), 345–352. https://doi.org/10.17507/jltr.1103.04

Makokha, W. C. (2022). Teachers' knowledge and skills in developing and utilizing audio-visual instructional resources in teaching and learning oral literature in selected public secondary schools in Kenya. European Journal of Education

Studies, 9(4), 112–127. https://doi.org/10.46827/ejes.v9i4.4201

Mayer, R. E. (2021). Multimedia learning and educational technology. Cambridge University Press. https://doi.org/10.1017/9781316941355

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Prihandoko, L. A., Al Ahmad, A. S. M., & Rahman, F. (2022). Revitalizing Hospitality, Managerial, and English for Tourism Purposes Skills: Community Partnership Program for Hotel Employees in Merauke Regency. *ABDIMAS: Jurnal Pengabdian Masyarakat*, *5*(2), 2524-2531.

Prihandoko, L. A., Tembang, Y., Marpaung, D. N., & Rahman, F. (2019, October). English language competence for tourism sector in supporting socio-economic development in Merauke: A Survey Study. In *IOP Conference Series: Earth and Environmental Science* (Vol. 343, No. 1, p. 012170). IOP Publishing.

Puspita, D., Mulyawati, H., Pauziah, S., & Andini, C. (2026). Speech Act Strategies of Twelfth-Grade Students at Bunda Kandung Senior High School in Communicating Choices Between College or Work. *International Journal of L2CT*, *1*(3), 347-355.

Rahman, F., Abbas, A., Hasyim, M., Rahman, F., Abbas, A., & Hasyim, M. (2019). Facebook group as media of learning writing in ESP context: A case study at Hasanuddin University. *Asian EFL Journal Research Articles*, *26*(6.1), 153-167.

Redecker, C. (2017). European framework for the digital competence of educators: DigCompEdu. Publications Office of the European Union. https://doi.org/10.2760/159770

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. Journal of Asynchronous Learning Networks, 7(1), 68–88. https://doi.org/10.24059/olj.v7i1.1864

Said, M. M., Rita, F., Weda, S., & Rahman, F. (2021). English language performance development through extracurricular activities at Faculty of Teacher Training and Education Tadulako University Palu. *PalArch's Journal of Archaelogy of Egypt/Egyptology*.

Sailuddin, S. P., Rafli, Z., & Hakim, M. K. (2025). Audio versus multimodal input: A case study of speech perception among learners in English as a foreign language context. ELS Journal on Interdisciplinary Studies in Humanities, 8(4), 233–247. https://doi.org/10.34050/elsjish.v8i4.39211

Schleicher, A. (2020). The impact of COVID-19 on education: Insights from education at a glance. OECD Publishing. https://doi.org/10.1787/69096873-en

Sweller, J. (2011). Cognitive load theory. Psychology of Learning and Motivation, 55, 37–76. https://doi.org/10.1016/B978-0-12-387691-1.00002-8

Tammasse, Jumraini, & Rahman, F. (2019). *Some difficulties in verbalizing English words and phrases: A case study of suspected dyslexic children*. *Asian EFL Journal, 26*(6.1), 73-85.

Tan, S., Samad, A. A., & Ismail, L. (2022). Systematic literature review on audio-visual multimodal input in listening comprehension. Frontiers in Psychology, 13, Article 980133. https://doi.org/10.3389/fpsyg.2022.980133

Tondeur, J., Howard, S. K., & Yang, J. (2021). One-size does not fit all: Towards an adaptive model to develop preservice teachers' digital competencies. Computers in Human Behavior, 116, Article 106659. https://doi.org/10.1016/j.chb.2020.106659

UNESCO. (2021). Reimagining our futures together: A new social contract for education. UNESCO Publishing.

UNICEF. (2022). Digital learning and education technology in sub-Saharan Africa. UNICEF.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.

Yaumi, M. T. A. H., Rahman, F., & Sahib, H. (2023). Exploring WhatsApp as Teaching and Learning Activities during Covid-19/New Normal era: A Semiotic Technology Analysis. *International Journal of Current Science Research and Review*, *6*(12), 7627-7634.

Ko, Y., Kyeongjae, P., Jung, S., Sosrohadi, S., & Andini, C. (2025). Revisiting EPS TOPIK: Addressing linguistic and cultural challenges for migrant workers in South Korea. *International Journal of Current Science Research and Review*, *8*(2), 904-910.

Zhang, D., Zhao, J. L., Zhou, L., & Nunamaker, J. F. (2004). Can e-learning replace classroom learning? Communications of the ACM, 47(5), 75–79. https://doi.org/10.1145/986213.986216