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Multimedia Features towards Skills Development in Open Learning: A Case of the Girls Inspire Project in Tanzania

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Abstract: This study investigates the use of multimedia content for skills development in open learning, using the Girls Inspire Project in Tanzania as a case study. Conducted in the Chala and Msanzi Wards of the Rukwa Region, the study examined the multimedia features utilized in the project and their suitability within the context of open learning initiatives targeting marginalized communities in Tanzania. A qualitative approach was employed, incorporating documentary reviews and interviews with participants, including facilitators, multimedia production experts and project beneficiaries. The findings reveal that the multimedia contents used in the project were highly interactive and engaging, promoting active learner participation and effective skills development. Key multimedia features identified include high visibility, structured arrangement, varied content lengths tailored to lesson requirements and a balanced combination of media formats. These features were found to be highly suitable for the open learning context, as they enhanced accessibility and supported interactive learning for skills development, making them particularly effective for marginalized learners in remote areas. Despite the evidenced suitability of the multimedia learning contents, the study highlights the need for inclusion of more interactive elements and feedback mechanisms. The study further suggests that multimedia contents for future interventions should be tailored to meet specific needs of the target audience, considering local contexts, literacy levels and technological limitations. The study recommends future research to explore the long-term impact of multimedia learning on skills development and identify best practices for integrating multimedia features in similar development initiatives.

Keywords: Multimedia learning; skills development; open learning; multimedia features; girls.

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Introduction

Integration of multimedia technology in education has brought about significant advancements in how open learning is delivered and experienced (Haleem et al., 2022). Multimedia learning content, which combines audio and visual elements, is particularly impactful in the realm of open learning by offering flexible, accessible and engaging learning opportunities (Tang et al., 2023). This is especially crucial in rural areas, where ICT infrastructure and internet connectivity are often inadequate, as offline multimedia content can effectively mitigate these challenges (Bhalalusesa et al., 2013; Radha et al., 2020).

Extensive research on multimedia in learning underscores its benefits in enhancing learner engagement, motivation and comprehension. Clark and Mayer (2016) noted that multimedia learning, which involves a blend of text, images, audio and video, aligns with cognitive theories by engaging multiple sensory channels and promoting active cognitive processing. This makes multimedia an effective tool for inclusive education, capable of addressing diverse learner needs. According to Kessy (2016), multimedia-enhanced instruction

leads to better retention and performance in skills-based assessments. In addition, multimedia resources have proven effective in pre-vocational training and adult education for skills development. Mariki (2020) reported that interactive multimedia simulations significantly improve practical skill acquisition by providing realistic virtual experiences. Hence, multimedia resources enhance students' engagement and learning outcomes in diverse settings.

Multimedia content is known to promote learner interaction and active participation, a critical aspect of effective learning (Chaturvedi, 2010; Mariki, 2014). This is in line with the educational philosophy of Confucius, who posited that engaging multiple senses in terms of hearing, seeing and doing leads to better understanding (Khalid & Nuhfer-halten, 2011). Combining multimedia learning with practical skills training enhances comprehension and practical application.

Chaturvedi (2010) pointed out that multimedia, which first emerged in the 1950s, initially combined text with video or audio. Today, it encompasses various media formats, such as animations, audio, video, text and graphics (Gasuku, 2021; Mariki, 2020b; Mtebe et al., 2016). Effective multimedia content must balance these elements to avoid cognitive overload and facilitate learner-content interaction. Multimedia learning content, when used effectively, aids in student retention of knowledge, motivates interest in the subject matter and facilitates active learning (Mateer et al., 2020). Recent studies further support these findings, highlighting the role of multimedia in enhancing learning experiences. For example, Cixiao et al. (2020) emphasized the importance of multimedia in creating engaging and interactive learning environments. Similarly, Dervić et al. (2019) reported that multimedia plays a crucial role in promoting active learning and enhancing knowledge retention. Hence, the power of multimedia contents in open learning cannot be overemphasized.

In Tanzania, the Girls Inspire Project showcases the potential of multimedia in open learning to enhance skills development among marginalized communities. Implemented by the Institute of Adult Education (IAE) from 2017 to 2019, this initiative aimed to empower girls and young women aged 10 to 25 years who had left formal school due to pregnancy or early marriage challenges. Funded by the Commonwealth of Learning (CoL), the project focused on providing training in practical skills, entrepreneurship, basic literacy and life skills through multimedia learning. It was carried out in the Rukwa and Dodoma regions of Tanzania, specifically in Kalambo (Chala Ward), Nkasi (Msanzi Ward), Kongwa (Sejeli Ward) and Bahi (Bahi Ward) districts, with two learning centers established in each ward (Ferreira, 2019). The multimedia learning contents, developed by IAE were tailored in the contextual learning needs of these areas. Given the remote locations with limited ICT infrastructure and internet connectivity, offline multimedia learning contents were used to ensure accessibility.

While the existing research (Cixiao et al., 2020; Kessy, 2016; Mateer et al., 2020) highlights the general benefits of multimedia in education, including its role in enhancing engagement, motivation and comprehension, there is a notable gap in empirical studies, specifically documenting the features and suitability of multimedia content within the context of open learning projects, targeting marginalized communities. Although the Girls Inspire Project in Tanzania has implemented multimedia learning for skills development (Mariki, 2020b), there is limited research focusing on specific characteristics of multimedia content used in such initiatives and its effectiveness in open learning environments. Thus, the study sought to fill this gap by examining features of multimedia learning contents used in the Girls Inspire Project and evaluating its suitability for open learning contexts. The study sought to provide valuable insights and practical recommendations for designing and implementing multimedia learning materials in similar contexts, contributing to the broader understanding of multimedia's impact in diverse skills development settings.

Methodology

Design

This study utilized the exploratory research design, which is appropriate in establishing new or under-researched areas, providing a foundational understanding and generating insights that can inform future researchers (Stebbins, 2001). The study adopted the qualitative research approach to gain in-depth insights into characteristics and effectiveness of THE multimedia learning contents used in the project. The approach is particularly suitable for understanding perceptions and experiences, making it well-suited for the current study (Hennink et al., 2020).

Population and Sampling

The population for this study comprised multimedia production experts from the Institute of Adult Education (IAE), facilitators of the Girls Inspire project and girls enrolled in the project. To effectively reach respondents, snowball sampling was employed. This method was useful given that some beneficiaries had relocated from their villages for various socio-economic reasons while others were present but difficult to trace. Data collection continued until saturation was reached, ultimately resulting in interviews with six project girls from two wards. Two multimedia production experts were selected based on their willingness to participate. Additionally, each of the four facilitators of the project, two from each ward, were included to provide their insights and experiences regarding the multimedia learning contents used in the project. This approach ensured a comprehensive understanding of the perspectives from both the beneficiaries and facilitators involved in the Girls Inspire project.

Instruments

The study employed documentary review and semi-structured interviews as the methods of data collection. A documentary review guide as the primary data collection instrument was used to review the eight multimedia learning contents used in the Girls Inspire Project, focusing on the aspects of visibility, arrangement, length, interactivity and media combination. In addition, an interview guide, was used during the semi-structured interviews conducted with the study participants. The instrument was designed to gather in-depth perspectives from the facilitators, multimedia production experts and the targeted girls involved in the project.

Data Analysis

Data was analyzed using thematic approach. This involved identifying recurring themes and patterns from the raw data obtained from the field. Thematic analysis was chosen because it allows systematic organization and interpretation of qualitative data, facilitating the identification of key insights and recommendations. Data obtained from the documentary review was presented in tables, indicating rankings as per review checklist set to assess the features of the multimedia learning contents used in the project.

Validity and Reliability

To ensure validity and reliability, triangulation was applied by using multiple methods of documentary review and interview to cross-verify the findings and enhance the credibility of the results. Subsequently, study participants were given opportunity to review and provide feedback on the interview transcripts to ensure accuracy and authenticity of the data. Additionally, data analysis process and findings were reviewed by an independent researcher to ensure rigor and to minimize the author's bias.

Ethical Considerations

Prior to data collection, the researcher sought approval from the IAE and the local government authorities in the study area, following guidelines established in the literature by Graham et al. (2014), Vreeman et al., (2012) and Wilson & Wilks, (2013). In accordance with ethical research practices, the researcher communicated the purpose of the study to the study participants (the girls), seeking their consent, along with that of their families before conducting interviews (Vreeman et al., 2012). Moreover, to protect the identities of participants, pseudonyms were employed for all of their excerpts in the results section.

Results

This section presents the results of the study, focusing on the multimedia learning features identified in the Girls Inspire project and the suitability of the multimedia learning content used for open learning environments.

Features in the Girls' Inspire Project

In Table 1, the study revealed eight features of multimedia learning contents. The features include HIV and AIDS, Batik making, Liquid soap making, Environment, Gender, Simple Arithmetic, Communication in business and Bar soap making. Indicators of the features include visibility, arrangement, length, interactivity and media combination.

Visibility

Results in Table 1 indicate that all eight reviewed items had excellent visibility. Documentary review on a computer revealed that videos, graphics, texts and animations were very clear. Even small details, such as needles, writings and signs on labels were magnified for easy visibility. One of the girls praised the clarity of the contents, stating, "The visibility of the contents is impressive." Videos were extremely

clear. In classrooms, facilitators used projectors connected to computers.

One of the girls reported, "All learners could see comfortably." She added, "Photos were so sharp that they could easily distinguish the colours and details on small displayed objects. Another girl reported, "None of us had any complaints about visibility; the projectors' display was excellent." These findings, show that multimedia learning contents used had excellent visibility features, which allowed learners to get correct vision of the graphics being presented.

Arrangement of Multimedia Learning Content

As indicated in Table 1, arrangement of the learning contents for HIV Aids, environment, gender, arithmetic and communication in business were ranked "high." The contents include essential elements for learning materials, such as introduction, main body, summary and outro.

The introduction consisted of a video segments, where presenters began the lesson by welcoming learners, outlining the objectives. For example, the introduction in the HIV and AIDS multimedia learning content stated,

> Dear learner, welcome to this HIV and AIDS lesson. In this lesson we will learn about the meaning of HIV and AIDS; later we will learn about causes of HIV and AIDS and finally we will learn about economic and social effects of HIV and AIDS; Welcome.

The main body consisted of primary instructional contents. For instance, in the HIV and AIDS lesson, the main body included narrations and graphics explaining the meaning, causes and effects of HIV and AIDS. The summary included key points covered in the lesson. For instance, in the multimedia learning content titled, Environment, the summary stated, "Dear learner, in this lesson you have learnt [about] the meaning of environment and its importance in sustainable development. In addition, you have learnt on how to identify environmental issues and how to overcome the environmental destruction..."

Table 1: Features of Multimedia Learning Contents in the Girls Inspire Project

Features in the contents	Multimedia Learning Contents							
	HIV and AIDS	**Batik**	**Liquid Soap Making**	**Environment**	**Gender**	**Arithmetic**	**Comm. in Business**	**Bar Soap Making**
Visibility	High	High	High	High	High	High	High	High
Arrangement	High	Medium	Medium	High	High	High	High	Medium
Length	10min	23min	17min	13min	14min	25min	14min	19min
Interactivity	Medium	Medium	Medium	Medium	Medium	High	High	Medium
Media Combination	Medium	High	High	Medium	Medium	High	High	Medium

***Note*:** Medium = content misses some required features; high = content has all of the required features.

The outro is the closing segment where the presenter bids farewell to the learners, marking the end of the lesson. In the reviewed Communication in Business content, the outro says, "On behalf of all those who prepared this lesson, I would like to say thanks and goodbye." Similarly, the outro in the Gender Issues content says, "On behalf of the whole team who prepared the lesson, I say thanks for watching. Until next time, goodbye".

The review process revealed that the contents for Batik, Bar-soap making and Liquid-soap making were ranked medium, as shown in Table 1. These lacked the summary segment. These contents included only the introduction, main body, and outro. However, in general, the findings show that the contents had good features needed in terms of arrangement, implying that they were self-instructional as needed in open learning contexts.

Length

The reviewed multimedia learning content varied in length from 10 to 25 minutes, as shown in Table 1. The Arithmetic content was the longest, lasting 25 minutes, featuring both theoretical and practical presentations on measuring distance, weight, volume and time. This was followed by the Batik-making content, which lasted 23 minutes and included both theoretical and practical aspects of the batik-making process. The shortest was the HIV and AIDS content, which lasted for 10 minutes, followed by the Environment content with 13 minutes.

As reported, the duration of various lesson varied. One of the multimedia content production experts reported, “The multimedia learning contents were intentionally designed at different lengths to meet specific needs of each lesson. Practical sessions required more time.”

During interview, another expert reported, “They typically produce multimedia learning contents lasting 10 to 15 minutes to prevent overloading the learners; they produced longer contents because the scripts required it. They follow the scripts, as prepared by subject experts, and some of the scripts were designed to be longer.” These findings show that the duration of multimedia learning content is deliberately variable to meet specific needs of each lesson and content length being determined by requirements set forth in scripts by subject experts.

Interactivity

In Table 1, only Communication and Arithmetic lessons were ranked high in terms of interactivity because their content actively engaged learners in the learning process. For instance, in the case of Communication content, a presenter instructed learners to design leaflets for marketing their products and share them with their facilitators. This approach promotes interactivity by involving both learners and facilitators and allowing for feedback, as facilitators can assess performance of their learners. In the Arithmetic content, a presenter used animations and graphics to pose questions for arithmetic computations. The presenter also performed computations on a whiteboard, similar to traditional classroom setting, asking questions that required answers at each step before moving on to the next. These findings show that interactivity was featured well in the said learning contents.

In contrast, other learning contents were ranked medium (Table 1) due to less learner engagement in the learning process.

Findings indicate that the Batik content was less engaging for learners because it primarily consisted of a one-way presentation. It featured an interview-based format with an on-screen dialogue between the presenter and the trainer throughout the entire content. As such, in response to guiding questions from the presenter, the trainer demonstrated all the procedures involved in batik making. The Liquid and Bar soap making content adopted a similar approach to the Batik content, using the same presenter and trainer. These contents focused on demonstrating the soap-making process to learners but lacked interactive elements. At the beginning of each new lesson section, the trainer would, like in other presentations, address the learners with the phrase, “dear learner,” followed by explanations of the upcoming steps, such as, “the process of mixing water with caustic soda is complete; next, we will take 20 spoons of sodium silicate and mix it into the solution.” Such a presentation style was consistent throughout the entire content thus, suggesting a one-way kind of interaction.

Media Combination

Findings from Table 1 show that the Gender, Environment, HIV and AIDS and Bar-soap making contents had medium rating for media combination. These presentations effectively used various media, such as sound, audio and video but included less text. For example, in the Gender and Bar-soap making contents, the text was used only for the lesson title. Likewise, in the Environment and HIV/AIDS contents, text was limited to the lesson title and sub-topic titles.

In contrast, batik making, liquid soap making, arithmetic and communication in business contents demonstrated a high level of media combination. These contents effectively combined, sound, text graphics video, audio and animations in appropriate sections. For instance, the Communication content featured background sound during the introduction, when the presenter welcomed the learners. This was followed by lesson objectives presented through the presenter's voiceover, with the corresponding text appearing on screen sequentially. The content continued with a variety of media, including video drama, presenter on-camera and voiceover on-text descriptions. Moreover, it included images of leaflets, books and related video clips, with a voiceover description of the graphics.

The Batik and Liquid Soap-making contents followed a similar trend, featuring a dialogue between the presenter and the trainer throughout the multimedia learning content. In addition, the contents had text straplines on graphics and videos displayed. Subsequently, text animations were shown alongside the presenter's voiceover to outline lesson objectives and required materials for making batik and liquid soap.

Suitability of Multimedia Learning Contents

Results in Table 2 depict the suitability of the multimedia learning contents for the open learning

environment. The results appear in terms of feedback, comprehensiveness, attractiveness and control options.

Feedback

The study found that only communication in Business included the feedback mechanism, as indicated in Table 2. The Communication in Business content requires learners to practice leaflet making skills and share the outcome with class facilitators. The other contents did not have the system for receiving feedback from the learners.

Table 2: Suitability of the Multimedia Learning Content

Suitability Checklist	The project multimedia learning contents							
	HIV and AIDS	Batik	Liquid Soap Making	Environment	Gender	Arithmetic	Comm. in Business	Bar Soap Making
Feedback	No	No	No	No	No	No	Yes	No
Comprehensiveness	High	Medium	Medium	High	High	High	High	High
Attractiveness	High	High	High	High	Medium	High	High	High
Control Options	High	High	High	High	High	High	High	High

***Note*:** No = Content has no feedback mechanism; Yes = Content has feedback mechanism; Medium = content misses some required features; High = content has all of the required features.

Comprehensiveness

Findings on comprehensiveness of the learning contents were derived from unstructured interviews with facilitators and a documentary review process. The results in Table 2 indicate that while Batik and Liquid soap making contents were moderately comprehensive, other multimedia contents were highly comprehensive. One of facilitators remarked,

> Multimedia learning contents for hands-on skills were very thorough in both contents and skills taught. Despite receiving prior training from the Small Industries Development Organization (SIDO) on batik and soap making, the multimedia learning contents used in the project were more comprehensive and easier to follow, simplifying the work.

Another facilitator, stated, "I facilitated all multimedia learning contents; they were actually exhaustive, especially the contents on Gender, Environment, HIV/AIDS, Arithmetic, Bar soap making, and Communication. I had to add very little to these contents." This indicates that the materials were well-designed to meet specific learning needs necessary for effective empowerment. Similarly, one more facilitator praised the design of the learning contents, noting that they were well-suited to the local context. The person pointed out that "topics, such as sexual health, which parents in the area rarely discuss with their children, were effectively covered in the learning content, ensuring the right message reaching the community."

Furthermore, the multimedia learning contents were praised for their inclusiveness. The use of various media formats helped girls who lacked literacy skills to follow the training. One of the facilitator noted, "Three learners who could not read or write were still able to follow the training through narrations and video actions, with dramas and photo graphics enhancing their understanding, particularly in the Gender and Communication lessons." One more facilitator reported, "Students without literacy skills were often the most active learners in multimedia sessions, even leading others in practical tasks, like when measuring solutions for batik and soap making.

Attractiveness

Attractiveness is a crucial characteristic for any multimedia learning content. In this study, attractiveness was evaluated based on factors, such as presentation style, colors, screen noise, media organization and animations. The results indicated that seven of the eight multimedia contents were highly attractive while one was rated medium (see Table 2). The presentation style was particularly appealing, as presenters began each lesson with a related drama segment recorded on location. The realistic actions and ambient sounds captured in these dramas added to the content's attractiveness. After the drama, presenters appeared on camera to introduce the lesson, which continued with a mix of presenter footage, drama segments, text graphics and photographs. At times, straplines appeared at the bottom of the screen to describe graphics as narrated in the presenter's voice over. This overall

style contributed significantly to the content's appeal.

One of the multimedia production experts, mentioned that the learning contents were designed to be attractive by incorporating various entertaining techniques. One such technique was the use of a "bang" at the beginning of each multimedia learning content. Bang is a short drama that aims to capture learners' attention and reflect the lesson's topic. Presenters would reference the bang during their presentations, with relevant drama segment displayed synchronously on screen. Additionally, background music was used to draw learners' attention, enhancing the content's attractiveness.

Likewise, one of the interviewed girls revealed,

> The multimedia learning contents were attractive as per their perspective. Another participant mentioned that the content drew the interest of other villagers not enrolled in the project. The content's attractiveness was evident from the silence and attention of the class during multimedia sessions.

A facilitator added,

> …the content was so attractive that the information quickly spread throughout the village. Some villagers even requested for public screenings of the multimedia learning contents for a larger audience, but I couldn't do so because the project was intended exclusively for the targeted project beneficiaries.

Control Options

In this study, learners' control refers to the ability to pause, stop, rewind, skip or fast-forward the content. Table 2 indicates that learners had control over the multimedia learning contents. The review process revealed that the multimedia learning contents were in a format that supported the control options. The contents were in MP4 file format, a digital multimedia container that allows users to navigate the content without needing additional applications. One girl shared her experience saying, "We had a laptop and projector provided by the project. Our facilitators connected the projector to the laptop to play the content. We could pause and un-pause whenever necessary." Another girl added, "Sometimes we had to replay specific segments to take notes. In short, we could move back and forth as we needed".

However, one girls said, "It is only those with computer skills that found it easy to navigate through the learning content while others only watched." One girl further commented, "For many of us, it was the first time seeing a video projected on the wall. We couldn't navigate the content ourselves, but our fellow leaners did it for us, allowing us to follow along."

These findings suggest that some learners had limited skills to interact with the learning content. However, based on the interactive features of the multimedia learning, the majority of learners were able to exercise control over the materials, enabling active engagement as expected in an open learning environment.

Discussion

The study investigated the multimedia features that contributed to skills development in the Girls Inspire Project in Tanzania, focusing on the effectiveness and suitability of multimedia learning content for an open learning environment. The findings highlighted several critical features of the multimedia learning contents used in the project, such as visibility, arrangement, length, interactivity, media combination, feedback mechanisms, comprehensiveness and attractiveness and learner control. These features collectively enhanced the learning experience, particularly in the rural settings characterized with limited ICT infrastructure. The findings underscore the effectiveness and suitability of the multimedia contents for an open learning environment as portrayed under this discussion session.

Features of the Multimedia Learning Contents

The visibility of the multimedia content was consistently high across all subjects, which is crucial for learners to accurately perceive and comprehend instructional material. This finding aligns with Chaturvedi (2010) and Mateer et al. (2020), who emphasized the importance of clear visual elements in multimedia learning. The arrangement of the content also played a significant role, with most lessons including an introduction, main body, summary, and outro. This structured format ensures that learners can follow the instructional flow and retain key information, supporting the theories proposed by Clark and Mayer (2016) and Tablatin et

al. (2016) regarding the organization of multimedia materials for optimal learning outcomes.

The varying lengths of the multimedia content were tailored to a specific needs of each lesson, avoiding cognitive overload while ensuring comprehensive coverage of the subject matter. This approach supports the findings of Mariki (2020a), who reported that interactive multimedia simulations improves practical skills acquisition. However, the current study revealed a disparity in interactivity, with only the Arithmetic and Communication content achieving high levels of learner engagement. This suggests a need for more interactive elements in practical skills training, aligning with Kessy (2016) assertion that interactivity enhances learner retention and performance.

Effective multimedia learning content requires a balanced combination of different media formats to engage multiple sensory channels just as suggested by Gasuku (2021) and Mtebe et al. (2016). The study found that while some content successfully integrated various media, others lacked sufficient text or animations. This imbalance could potentially hinder the learning process, as highlighted by Tang et al. (2023), who stressed the importance of diverse media formats in creating engaging and interactive learning environments.

The Content Suitability for Open Learning

The suitability of multimedia content for open learning environments was assessed through feedback mechanisms, comprehensiveness, attractiveness and control options. While only the Communication in Business content included a feedback mechanism, the overall comprehensiveness and attractiveness of the multimedia content were high. The use of various media formats made the content accessible and engaging for learners, particularly those with limited literacy skills. These finding align with the educational philosophy of Confucius, as cited by Khalid and Nuhfer-halten (2011), which emphasizes the importance of engaging multiple senses in the learning process.

Furthermore, the findings in this study underscore the suitability of multimedia learning contents, particularly in terms of control options, despite some learners facing challenges due to limited technological skills. These findings necessitate interactivity for flexible learning as suggested by Hauk & Gröschner, (2022). Interactivity is essential for facilitating flexible learning environments in open learning. When learners have control over their learning process, they are more likely to remain engaged and motivated, which aligns with the principles of self-regulated learning (Zimmerman, 2002).

Learner control is a critical element in open learning contexts, enabling individuals to navigate content at their own pace (Hauk & Gröschner, 2022). This study corroborates this notion, revealing that the multimedia content format supports essential control features, such as pausing, rewinding and fast-forwarding. These functionalities cater to varying learning preferences and speeds, which are particularly beneficial in rural settings, where learners may possess diverse levels of digital literacy (Kirkwood & Price, 2014).

Notwithstanding the facts from the findings, the suitability aspects of feedback, comprehensiveness, attractiveness and leaner control are not merely advantages; they are necessities for effective self-directed learning, especially in contexts where technology access and familiarity can vary widely. By providing adaptable multimedia learning contents, open learning interventions meant for skills development can enhance inclusivity, ensuring that all learners have the opportunity to engage meaningfully with the content.

Conclusion and Recommendations

The study underscores the significant role of multimedia features in enhancing skills development in open learning environments. The Girls Inspire Project in Tanzania demonstrated that well-designed multimedia content, characterized by high visibility, structured arrangement, appropriate length, interactivity and diverse media combinations can effectively support skills development. However, the study identified areas for improvement, such as the inclusion of more interactive elements and feedback mechanisms to further engage learners.

The findings suggest that multimedia learning content should be tailored to meet specific needs of the target audience, considering factors such as local context, literacy levels and technological limitations. By addressing these aspects, future initiatives can create more inclusive and effective learning environments, ultimately contributing to the empowerment of marginalized communities.

Future research should explore long-term impact of multimedia learning on skills development and identify best practices for integrating multimedia features into various skills development contexts. Additionally, studies should examine the role of facilitator training in maximizing the effectiveness of multimedia content and ensuring that all learners can fully engage with the content.

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