Visual Materials in Classroom Teaching Learning: A Case Study on Nonformal Primary School

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ABSTRACT

The evolution of technology and the paradigm shift triggered by the COVID-19 pandemic have reshaped educational practices, transitioning from conventional to digital mechanisms. The integration of digital learning resources has introduced a new dimension to the classroom environment. This paper aims to investigate the practicality of utilizing existing visual learning materials in non-formal educational settings. The case study focuses on non-formal primary schools operated by the JAAGO Foundation in Dhaka, serving as a representative sample. Data for this study were gathered through semi-structured interviews, focus group discussions, and observation notes from teachers, learners, and experts in the sampled non-formal primary schools. Thematic analysis was employed to analyze and present the collected data. The findings of the study underscore significant positive effects of employing visual learning materials in non-formal primary classrooms. These effects manifest in the areas of motivation enhancement, assessment of prior knowledge, and promotion of active participation, particularly among disadvantaged learners. The study also highlights the effectiveness of visual materials in facilitating clear comprehension, fostering creativity and imagination, enhancing critical thinking skills, and promoting digital literacy as essential 21st-century skills. Moreover, the research reveals that visual learning materials play a crucial role in achieving desired learning outcomes, aligning with both learners' psychology and pedagogical perspectives. However, the study identifies key challenges hindering the effective use of visual materials in non-formal classrooms, including infrastructural inconveniences such as poor projection systems, noisy sound systems, and inadequate seating arrangements for students. In light of these findings, the study recommends the implementation of professional training sessions for educators and emphasizes the need for school authorities to take responsibility in addressing identified challenges. By doing so, the study advocates for the creation of an environment conducive to effective classroom practices utilizing visual materials in non-formal educational settings.

Keywords: Visual learning materials; nonformal primary classroom, NFE in Bangladesh

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Introduction

The prevalence of technology has significantly expanded the incorporation of digital learning resources across various educational domains. In the contemporary landscape, researchers and educators accord paramount importance to the pivotal role played by these instructional materials and devices in facilitating more effective educational endeavors with the aim of achieving superior outcomes. Notably, beyond formal educational environments, institutions offering non-formal education also depend on visual learning materials to connect their learners to the digital realm. In Bangladesh, a multitude of non-formal primary schools utilize diverse digital materials, particularly audio-visual content, developed through collaborative efforts between governmental and non-governmental organizations. Existing literature contends that visual learning materials demonstrate effectiveness in teaching diverse subjects, including vocabulary, technical English language, lower secondary science, and higher secondary English. Additionally, they have proven instrumental in enhancing the creativity of primary school-aged children (Idris, 2015; Dahiya, 2018).

It has been observed that the use of visual materials, both in formal and non-formal educational settings, provides a valuable opportunity for disadvantaged learners and those seeking a second chance at education to engage with the schooling system. This approach not only alleviates the monotony associated with traditional lecture-based classes but also fosters a more joyful learning experience. Furthermore, studies, such as the one conducted by Eze (2013), suggest that the human brain comprehends information more readily and swiftly through audio-visual processes compared to verbal explanations. Against this backdrop, this study specifically focused on exploring the impact of incorporating visual learning materials in non-formal primary classrooms, with the overarching goal of validating the practicality and efficacy of digital learning resources in this context.

Statement of Problem

Despite the widespread integration of digital learning materials, including audio-visual aids, in primary schools across Bangladesh, there exists a notable gap in understanding their applicability and effectiveness within the non-formal education (NFE) primary classroom context. The implementation of the National ICT Policy (2015) and support from both governmental and non-governmental organizations have fostered the use of multimedia in teaching-learning practices. While studies like Shabiralyani et al.'s (2015) indicate positive impacts in formal classrooms, the question arises: Are these outcomes applicable and effective in the distinct setting of non-formal classrooms?

The lack of substantial research addressing the role and impact of visual learning materials specifically in NFE primary classrooms raises concerns about their potential and challenges. This study aims to bridge this gap by thoroughly examining the unique aspects of NFE and

investigating how the use of AV/digital materials influences learning outcomes in the resource-constrained educational landscape of Bangladesh. Therefore, the central problem addressed in this research is the exploration of the potential and challenges associated with using AV/digital materials for achieving optimal learning outcomes in non-formal primary education settings.

Objectives

The primary objective of this study was to investigate the impact of utilizing visual learning materials in non-formal primary classrooms in Bangladesh. The specific objectives included:

- comprehensively examining the impact of incorporating visual learning materials in non-formal primary classrooms.
- identifying and elucidating the challenges associated with the use of visual materials, particularly concerning disadvantaged learners in the non-formal education context.

What Literatures Say

The integration of information and communication technology (ICT) into contemporary society, as highlighted in Daniels (2002), has become a foundational element with noting the widespread interest in learning and utilizing digital technology (Jhurree, 2005). The augmentation of teaching and learning quality through digital materials is well-documented, as evidenced by research indicating that Digital Communication Technology enhances learners' educational experiences and the effectiveness of teaching techniques. Yusuf's (2005) study recognizes the profound impact of digital materials on education, affecting teaching, learning, and research by fostering innovation and skill development.

In the context of Bangladesh's education policy, the noteworthy stride toward ICT consolidation, particularly in the successful implementation of the National ICT policy revised in 2015, underscores the government's commitment to reforming curriculum and integrating digital communication media in education (Daniels, 2002). This commitment aligns with broader educational goals, including the acquisition of 21st-century skills emphasized in the Sustainable Development Goal (SDG) and the National Education Policy of 2010, promoting the use of ICT, especially digital materials, at all levels of education. Consequently, visual learning materials, encompassing various digital content forms, have gained prominence in primary education in Bangladesh, with practitioners in both formal and nonformal education sectors utilizing them to enhance the effectiveness and enjoyment of teaching and learning.

Nonformal primary education in Bangladesh, predominantly provided by NGOs, faces the challenge of keeping learners from disadvantaged backgrounds engaged in the schooling system. The flexible nature of nonformal education calls for unique teaching-learning processes and materials, with visual learning materials, particularly audio-visual materials, emerging as

valuable tools in creating active and enduring learning experiences, as noted by Martin (2009). However, the global educational focus on enhancing student-teacher interaction through technology prompts a reconsideration of educational practices.

The evolution of technology-based instructional aids has presented alternative approaches in classroom teaching-learning practices on which Koç (2005) recognized the effectiveness of integrating digital technology like visual materials into the curriculum to promote higher-order thinking skills among learners. Katherine (2009) argues for the dual impact of such materials, contributing not only to learners' development but also enhancing teachers' professional and pedagogical growth. Natoli's (2011) study further underscores the rich opportunities provided by audio-visual materials in developing communication skills during problem-solving activities, contributing to diverse and profound learning experiences.

Despite the acknowledged usefulness of digital technology-based materials in facilitating effective learning, research experiments like Carter, Greenberg, and Walker (2017) and Purcell, Buchanan, and Friedrich (2013) reveal significant concerns. The studies of Carter et al. (2017) suggests higher scores among non-technology users, challenging assumptions about the benefits of technology in education. Purcell et al.'s findings disclose alarming facts about learners' writing skills, indicating potential drawbacks such as shortcuts, difficulties in reading complex texts, and fast and careless writing due to digital tools.

While audio-visual materials prove effective in the teaching-learning process, numerous difficulties, especially concerning technological devices, may impede their fruitful use. Gordon (2007) identifies reliability and availability as serious obstacles, emphasizing the need for alternative teaching aids and addressing administrative challenges. Aggarwal and Kuldeep (2009) expand on these constraints, proposing a list of obstacles to the implementation of audio-visuals in classrooms, including teacher apathy, aid selection, ineffectiveness, and the need for training.

Notably, evidence suggests that the potential of digital technologies in the classroom is not fully realized, as highlighted in a report by the charity Nesta in the UK (2012). The report emphasizes that technology's impact on learning depends on how it is used, emphasizing the importance of thoughtful and effective integration.

In summation, this comprehensive review navigates the multifaceted landscape of ICT integration in education, focusing specifically on visual learning materials in non-formal primary classrooms in Bangladesh. It illuminates both the promises and challenges associated with digital technology, inviting a nuanced understanding of its role in shaping contemporary educational practices and signaling the need for ongoing exploration in this dynamic field.

Methodology

The study followed qualitative design in nature with some quantitative data support. Nonformal primary school operated by JAAGO Foundation was purposively selected as the sample of this study. The classroom teaching and learning of 'Bangladesh and Global Studies (BGS)' subject was observed in this study. Teachers of this subject who use visual learning materials as well as digital material experts were also the sample of the study. Data were collected through semi-structured interview of 4 (four) teachers and 2 (two) experts; Focus Group Discussion (FGD) of 60 (sixty) learners and observation note of BGS class. Purposive and convenient sampling technique was followed for the sample of the study. Data was collected at the end of the year of 2019 by researcher's self-participation method for this study. Whatsoever, this study confirmed all possible ethical considerations and proper consent from the participants.

Major Findings

The data collected from primary source based on the objectives of this study is presented as thematic analysis below:

Content Analysis and Delivery

As content is one of the core components of teaching learning, visual learning found effective for content analysis for teacher as well as content delivery. One of the selected teachers of BGS argued that visual learning material helps teacher to analyze the content for the preparation of next class, because it helps teacher to understand the concept clearly and capture the way to present easily in pragmatic way before student. They reported that, they had to depend earlier on textbook only but now-a-days they can utilize audio-visual contents from online which is related to their contents. The teacher also expressed that *"This material helps me to see the content according to the learner's perspective which can establish an effective bridge line between teacher and learners"*. It also helps to manage the time properly in order to complete the unit lesson plan, she added. On the other hand, majority of learners also had the positive perception towards the classroom activities using visual learning materials in terms of easy and clear understanding of the topic. In this regard, interview of experts also stated that the preparation for making digital materials for the BGS is mainly done through chapter wise content analysis considering whole unit plan prepared before starting any new unit. The data further recognized the experts believed in story telling techniques to develop any materials and mostly uses visual, audio, motion graphics, pictures for making the materials attractive to the students.

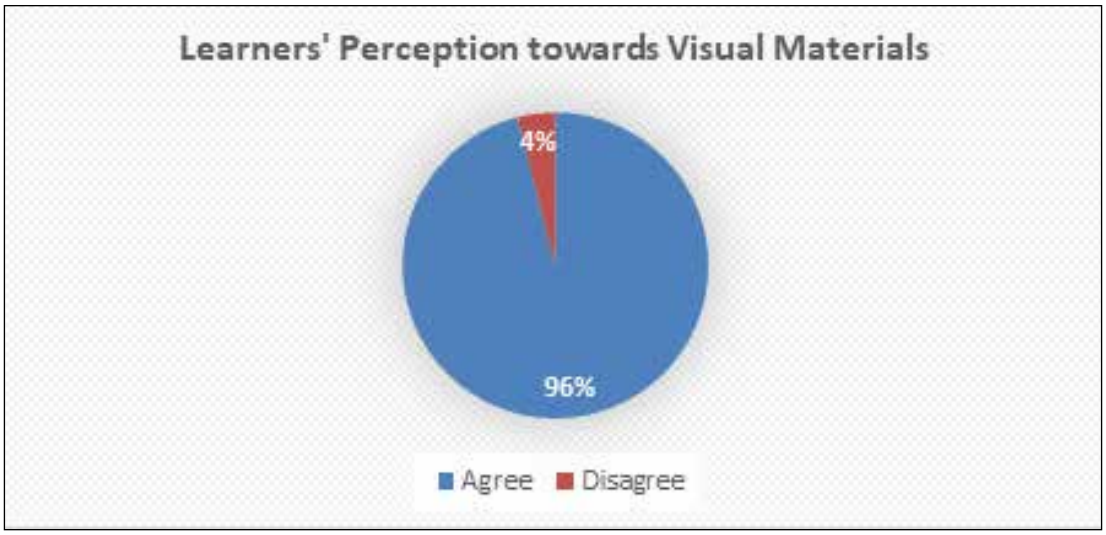

Figure 1: Learners' perception on content analysis and delivery

Above mentioned figure-1 represented the perception of learners argued the positive statement towards visual aid. Most of all learners (96%) found visual materials fruitful for the purpose of content analysis and delivery in the classroom activities whereas only 4% disagreed with this.

Learners' Active Participation

Experts believe that learning cannot be fruitful without ensuring active participation of learners in classroom activities. Data of this study recognized that visual learning materials found as the effective tool for active participation of learners. Regarding this, data from FGD and classroom observation further indicated that more than three-fourth of all students perceived visual learning materials positively as effective tool for active learning in the classroom especially for BGS class. Data reported that almost all the students of BGS agreed that visual learning material is an important tool for active participation as in peer and group work.Teachers also expressed that using visual learning materials in the classroom is more or less influential to motivate learners to make them connected with active participation because they can see the event or concept visually before their eyesight where there is a few scope in teaching by lecture method using only textbook. According to the data from experts' interview also conceded the visual learning materials as important tool. One of the experts narrated as, *'teaching social science related subject in nonformal primary school makes a little bit differences than teaching in formal school; because the socio-economic situation, learning environment, learning capability of students of nonformal school is quite different than formal school learners'*. In that sense visual teaching aids have an important role to make students engaged in classroom activities as there is an opportunity to create joyful and interactive learning environment.

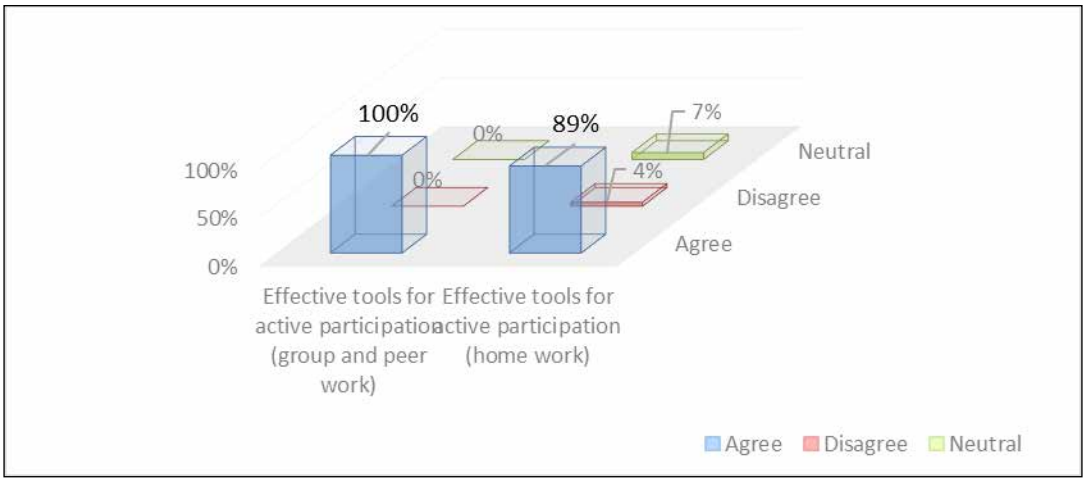

Figure 2: Visual Materials as effective tools for active participation

Data from figure 2 reported that all of the (100%) learners' perception towards visual materials as effective tools for active participation (group and peer work) was positive. Regarding active participation (home work) majority of the learners (89%) found visual materials effective whereas a very few number of learners did not recognize and small portion became neutral (4% & 7% respectively) to find visual aids as effective.

Flexible Pedagogy Perspective

Nonformal pedagogy is slightly different from formal pedagogy regarding the modality of education. Although the same curriculum is followed for teaching both formal and nonformal primary classroom activities, there found some flexibility in nonformal teaching learning practices in terms of learning hours, teaching-learning methods, assessment system etc. In such flexible pedagogical perspective, visual learning materials seem helpful for teachers. Data from teacher's interview reported that teachers get benefitted using these digital materials in case of preparing lesson plan, reconstructing content knowledge as well as the well delivery of lesson before learners. Teachers also expressed, '*these tools create the bridge line between teacher and learner to make fruitful interaction targeted to achieve learning outcome successfully'*. Teachers also identified visual materials as helpful for learners' prior knowledge test whereas data from students FGD disclosed the opinion that almost all of the students think that digital material is fruitful for content delivery in the classroom as well clear understanding of the topic. In this regards, an expert narrated as '*when teacher taught student any content in the classroom using book reading or lecture method, it took more time to make student understand, sometimes she/ he had to make the student memorize the topic, but when visual aids are used in classroom teaching, learners' attention is easily ensured and they can understand the topic clearly'*.

Figure 3: Learners' perception towards visual materials

Above mentioned figure 3 affirmed that major portion (93%) of the learners had positive perception towards visual materials regarding easy and clear understanding of the topic whereas a small number of learners became neutral to comment anything.

Motivation towards Learning

According to data, teachers and experts recognized visual learning materials as effective instrument for motivating disadvantaged learners towards learning. An expert expressed that- *mostly drop out children are the learners of nonformal classroom; so it is not so easy to make themselves motivated to learning by chalk-board method. In this circumstance, use of pictorial or motion graphical contents play a vital role to make learners connected to classroom activities.*

Most of the teachers and learners also agreed to the statement that visual contents are somewhat motivational as a tool for effective classroom practice for both learners and teachers.

According to the data of figure-4 below, all of the learners (100%) perceived visual materials positively and found it as motivational tools for spontaneous learning especially for disadvantaged children (see figure 4).

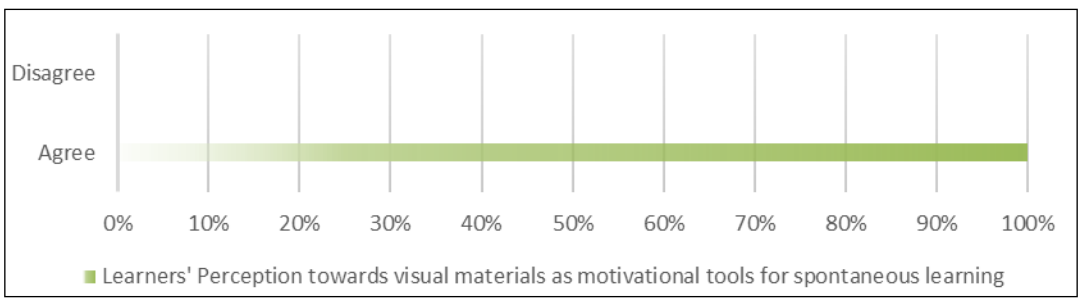

Figure 4: Visual materials as motivational tools for disadvantaged children

Alignment with Learning Objectives and Learning Outcomes

As the prime focus of classroom teaching learning activities is to achieve the learning outcome aligned with learning objectives. Audio visual learning contents are found supportive for both teachers and learners. In this regard, a teacher explored that- *after observing a video or picture for the first time, student can describe his/ her idea such a creative way which is really surprising and this learning is obviously more sustainable than before in order to achieve learning outcome properly.* Data from learners FGD also revealed that almost all the learners agreed with the statement that visual learning material is effective for achieving students learning outcome. One of the experts' opinion was...*the main goal of our primary school teaching-learning is to achieve the national competencies by students. In this context, visual learning materials could have a significant impact because whenever the learners take learning easily and spontaneously, their competencies increase through joyful and interactive participation in the classroom activities especially for second chance education leaners.*

However, data from structured interview of the learners also confirmed the positive perception of all learners (100%) that visual materials are effective in order to achieve the learning outcomes in the classroom activities (see figure 5).

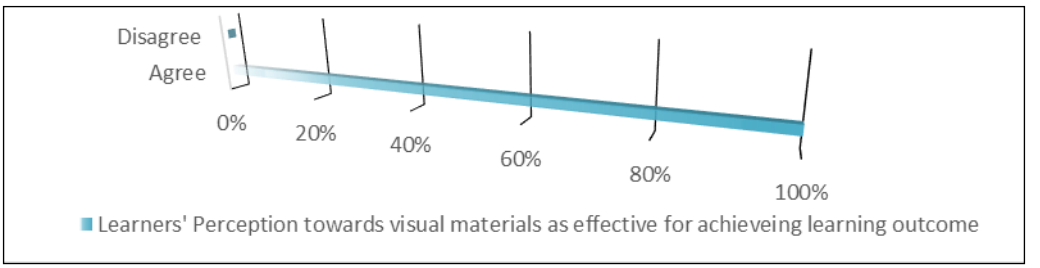

Figure 5: Visual materials as effective for achieving learning outcome

Effective tool for Assessment

Data from teachers' interview and learners FGD indicated that not only in content presentation but also in learners' assessment, visual learning materials is pragmatic since these materials create various innovative ways to assess learning. The teacher exposed as... *this kind of materials are more effective for short-type and creative question answer, fill in the blanks, matching type question-answer, because students can easily catch the main concept and important information of the topics. Along with this, visual materials can provide creative and joyful ways to assess single or pair activity of learners.* According to FGD, data disclosed that majority of the students recognized visual contents as useful for making various ways of formative assessment in classroom teaching-learning. Experts stated that this kind of materials can also be used as evaluation tools where teacher can assess the learners' learning outcome orally or written using this stimulus in classroom formative assessment.

Scope of Soft Skills Development

According to data, visual learning materials are efficient tools for assessing the learners' learning outcomes especially for disadvantaged children. This is because sometime it is used as assessment tools where students are asked to share their creative ideas after watching a video or picture. These materials also help students in order to increase different soft skills such as creative thinking & imagination ability, critical thinking ability, problem solving, digital skills etc. Regarding this, a teacher claimed that "*visual method is much more effective rather than lecture method in the classroom for primary school children, because it helps them not to memorize all the things and also help them in brainstorming which creates a joyful learning*. Experts also found these materials helpful than can make the student more attentive in the classroom and can be helpful to make the student think creatively out of the box. Data from FGD also revealed that more than three-fourth of the learners also agreed with the statement that 'visual material enhances learners' creative thinking' (see figure 6) and scope of deep learning rather than textbook reading in BGS subject, whereas a very poor number of learners disagreed with the statement.

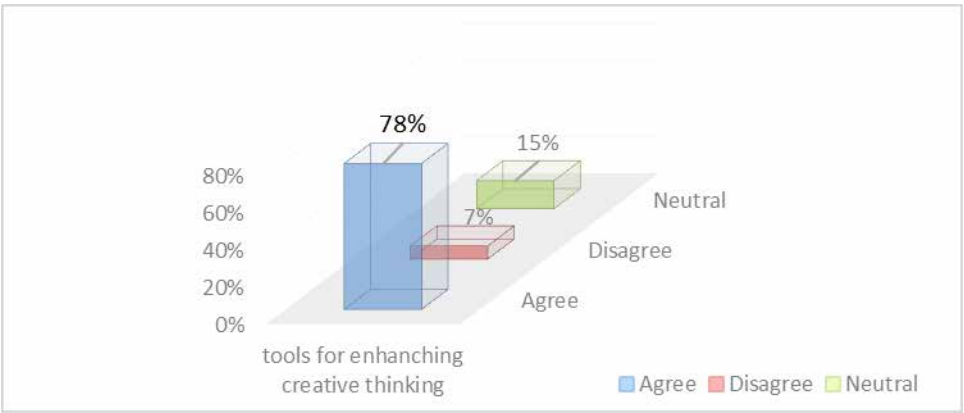

Figure 6: Visual materials as effective for creative thinking enhancement

Psychological aspect of Disadvantaged Learners

According to literature, it is stated that there is a far difference between traditional teacher-centered teaching-learning and digital technology based teaching and learning which is mainly student-centered. Learner centric teaching and learning is where learners are prime focus in every activities of classroom. Learners' psychological aspects and learning demand is more important than everything in this mechanism of teaching-learning. In the case for disadvantaged or second chance learners, learner-centered teaching learning is best fitted than teacher-centered method. In this regard, experts commented that *using visual learning materials in nonformal classroom activities is positive for the scope of engaging students more active in learning.Visual*

materials could provide self-motivated learning opportunity as well as learning by doing for learners considering their psychological aspects. Teachers also found learners interactive in peer and group activities for the joyful learning environment which is significant from learners' psychological point of view.

Major Challenges and Way forward

Although it is found that children are always eager to be learnt by watching video, audio, picture, graph, there exist some major challenges for effective teaching-learning using visual learning materials. The major challenges of using this material is to synchronize the learner and managing all the learners properly when they are talking together at a time on any topic. According to expert's opinion, the main difficulties of using the visual materials effectively is infrastructural inconvenience as well as poor projection system, noisy sound system, poor accommodation for the students in the classroom or lab. These actually causes classroom mismanagement which hampers both teacher's and learners' concentration to the content. Another difficulty is that sometimes it can be shifted the focus of achieving learning outcome of the content when students take the materials as entertainment item and it basically causes due to lack of teacher's pedagogical knowledge. Insufficient ideal visual learning materials in the market for teaching primary school children is another limitation as well.

In order to minimize this kind of limitations, teachers and experts suggested some pre-requisite based on their everyday experiences. These are most essential for using this kind of materials in the classroom effectively as well as multimedia classroom consisting of computer/ laptop, proper projection system. Sufficient sound system, sound classroom infrastructure, stable internet connection also need to be ensured. A teacher expressed, "In order to ensure these logistic support for using visual materials, authority has the most vital role as they can establish ideal digital classroom or ICT lab and also provide in-house professional training for teachers." Experts also emphasized on the technological pedagogical content knowledge (TPACK) of both material developers and teachers in order to ensure effective applicability of visual materials.After all, visual materials should be developed more in quantity for every topic focusing pedagogical consideration, the teacher added. However, a considerable number of learners (78%) disagreed that the use of visual materials in class activities is time consuming but still a minor portion (15%) agreed that sometimes these tools can create the waste of time whereas few learners (7%) became neutral to express their opinion regarding this (see figure 6). Sometimes students found the use of these materials wasted time because of the setting of PowerPoint projector, screen and laptop device in the classroom. Experts also agreed with this statement and they opined that not all the classes are well equipped with multimedia setting. So teachers are to carry the laptop, projector bag and multimedia screen and set them to use audio-visual materials in the classroom.

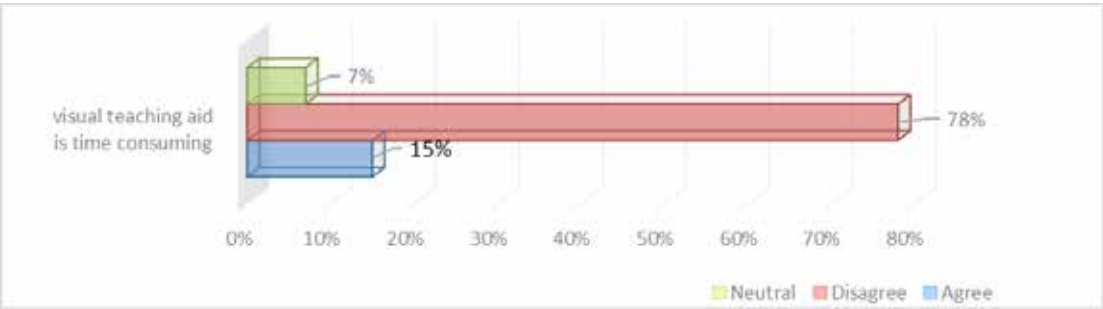

Figure 7: Visual materials as time consuming teaching aid

Discussion

The technology extends the teaching-learning practices to a new dimension. This study has revealed that visual learning materials are used in nonformal classroom teaching-learning activities to increase the teacher-learner interaction as well as peer and group interaction. It has improved the relationship between learners and contents which is greatly supportive to achieve the learning outcome properly. The study has also found that using visual method in classroom teaching-learning teachers get more benefit rather than using traditional method in terms of getting learners' attention to the classroom activities. Along with this, data also indicates that visual material is helpful for teachers in context of evaluation through innovative ways and fruitful for content delivery especially for effective classroom management. These findings have similarities with Mohanty (2001) who identified multifarious values of using visual aids in teaching and learning process. Additionally, data has also claimed significant effects of using these materials on learners' learning these includes for the scope for learners' prior knowledge test, joyful active participation through peer work, group work, home-work, scope for deep learning, and easy and clear understanding of the topic. Regarding this, Singh (2005) remarked the easy appreciation which executed by the foundation of all learning consists in representing clearly to the senses and sensible objects to the learners.

However, the study has investigated the challenges of effective implementation of teaching-learning activities. The data collected from teachers and experts interview has claimed that infrastructural limitations cause major challenges in using visual materials properly. For example, the insufficient accommodation proportionate to all students in the classroom or lab, difficulties in clean & clear sound system, and poor projection system. Improper selection of materials is another challenge for the visual methods that causes due to lack of teacher's professional & technological knowledge. Children's' learning can be distracted from targeted learning objective as Hindocha (2016) concerned that visual materials can be a distraction for some students and can discourage learning if they are used in the wrong circumstances. Leaving a video on in the classroom and not getting the students to do anything with the video can create

trouble. Another challenge for effective use of visual learning materials is sometimes it seems entertaining to a portion of the students in the classroom that values nothing pedagogically. Expert's remarks also stated that when audio-visual aids are used too much that might hinder the actual learning experience from the classroom. Study by Chhaya A. Khanzode, Ravindra D. Sarode (2017) also found some significant obstacles of using technology in classroom practices. They narrated that there exists a 'digital divide' - the divide between learners regarding the access to digital technology and the internet. Other challenges found in this study is implementing and then maintaining technology is costly; particularly as the systems demand up to date version after a certain period of time. However, teaching is definitely more effective when the students are not just listening to the teacher but working on something proactively whether it is completing a classwork, answering questions or participating in a discussion. The risk of using too many audio-visual aids can cause waste of time for learners' active learning.

Recommendation

The study suggested some recommendation has been figured out based on the major findings of as below:

- Visual materials should be more content-focused ensuring the scope of active participation of the students in order to make the learning environment interacting and enjoyable.
- Visual materials should not be encouraged to use full time in the class rather giving the students opportunity to discuss or share their ideas or expressions regarding the materials in order to achieve clear and proper understanding.
- To resolve these challenges regarding the pre-requisition of using visual materials, school authority should be more responsible and liable to establish ideal digital classroom or computer lab with updated facilities for conducting effective teaching-learning activity.
- Teachers and learners should get involved ensuring significant roles in the utilization and improvisation of visual resources when necessary.
- The study also suggested that school authority should organize in-house trainings and workshops for teachers to develop their professional and technological knowledge.

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