INTEGRATING DIGITAL CONTENT TO PROMOTE COLLABORATIVE LEARNING IN A PHYSICAL CLASSROOM CONTEXT

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ABSTRACT

Digital content of various types has become an integral part of current educational practice. Since students are more internet-savvy, integrating digital content-supported learning is essential to arouse their interest to engage and participate actively with classroom activities. This technology-integrated teaching strategy highlights significant benefits notably in promoting and supporting collaborative learning. The instructional activities with the use of digital content has successfully driven students to collaborate with their friends. Collaborative learning is prominent as it emphasises on student-centered approach where students work together in a group to solve or complete the assigned task. In order to ensure that students immerse themselves actively in learning activities with the aid of digital content, various strategies need to be distinguished. Since previous studies focused more on online context, this paper aims to discover the use of digital content to enhance collaborative learning in physical classroom setting. Thus, this study reviews relevant literature to explore the ways to integrate digital content in classroom and its relation in promoting collaborative learning.

Keywords: Digital Content, Collaborative Learning, Physical Classroom

1.0 INTRODUCTION

Collaborative learning involves an active learning process where students manage their own learning through purposeful group procedures. This kind of learning strategy highlights students' role in regulating the process to build and acquire knowledge. Previous studies have indicated that group learning offers students the chance to engage in discourse, develop critical thinking skills and retain knowledge for an extended period of time if compared to solitary learning (Cheng et al., 2021). Due to its significant educational benefits, collaborative learning is widely practised in classroom to enhance students' engagement and performance. Collaborative learning has progressively improved with the technological advancement. Technology enhancement has evolved digital learning content significantly, both its form and functionality, supporting a wide range of activities from individual to collaborative learning (Berthelsen & Tannert, 2020). Unlike traditional collaborative learning, the integration of technology in this learning strategy is more advantageous to provide students with greater

autonomy and initiative. Incorporating digital content such as videos, multimedia and texts has the potential to enhance collaborative learning environment.The use of digital content which also support the learning beyond the classroom provides students the chance to collaborate on editing and sharing educational resources, participate in group discussions, offer and receive feedback from peers on their collaborative learning progress (Männistö et al., 2019).

Despite of educational benefits offered by collaborative learning in using digital content, some issues have arisen. As stated by Talan (2021), in term of digital support learning, the incompatibilities include the design used that was inadequate to meet participant demands, including a lack of social interactions. He further states that another concern is technical issue due to lack of technological support and teachers might not possess the necessary knowledge and abilities to apply this technology. In order to obtain the favourable outcomes offered by cooperative learning, it is crucial for teachers to make appropriate instructional judgements in order to obtain these favourable outcomes by considering the contextual factors like the number of groups working together, the size of the class, and the use of technology to promote cooperation which later determine the type of supervision a teacher may offer. According to Ilie (2023) collaboration is good for learning, but from a pedagogical standpoint, it's important to figure out how to provide students the chance to work together and what kinds of circumstances work best for both individual and group learning. Digital contents should be engaging and interactive so that it could promote active learning by enhancing students' participation and involvement in learning activities. Thus, the underlying principles for integration of digital content in promoting more effective collaborative learning should be discussed in depth.

2.0 COLLABORATIVE LEARNING AND ITS ROLES IN LEARNING PROCESS

Collaborative learning is a process when students are working in small group consists of two or more students in order to search information, build understanding, find solution or create a product (Andreev, 2019). The key principle underpinning this educational strategy is that it employs groups to improve students' learning. Instead of completing the assigned task individually, collaborative learning allows students to accomplish it mutually with other members. Students will work to solve an issue in an interactive asynchronous manner which offers them he chance to engage in discourse, develop critical thinking skills, and retain knowledge for extended periods of time (Cheng et al., 2021).

Since students become the active agent during the learning session, the traditional teacher-centered found in classrooms has significantly changed with the advent of collaborative learning. Despite of disseminating and delivering curriculum content for hours, teachers become the ones who plan plans group activities that allow the students to engage with one another, evaluate their own learning progress, take ownership of the material they are assigned, allow them to learn from better students, pick and consider questions they still have about the subject matter (Nerona, 2019). Under the guidance of the teacher, a group of students engages in learning activities where they exchange ideas through discussion or challenge each other's skills in order to solve problems or complete assigned projects.

The meaningful interaction between students with diverse academic levels helps to increase their knowledge retention. The intellectual synergy of several brains working together to solve a problem and the social stimulation of mutual participation in a shared project are the results

of collaborative learning (Smith & MacGregor, 1993 as cited in Ilie, 2023). Through collaborative teaching and learning, students can feel a sense of belonging to the process, be free to develop their common sense and creativity, engage in discussion, actively seek out additional teaching resources, freely express and share ideas with peers, present their work to peers, and receive supervision and motivation from lecturers (Supriyadi, 2021). Additionally, collaborative activities facilitate the development of soft skills by allowing students to collaborate and practise dispute resolution and critical thinking.

Collaborative learning techniques, however, may not always guarantee success, since studies reveal certain drawbacks to this approach (Johler, 2022). Freeloaders who relying on others to complete the group's task is common unfavourable thing in collaboration. There will be inequality in managing the group activities especially when there are gaps in the group's abilities. Students who feel they understand things better than others become victims when it comes to completing assignments and work (Misra & Mazelfi, 2021). This occurrence disrupts effective group productivity as freeloaders receive the same rewards as the other team members while they are putting limited or zero effort to produce the group end product. Other distinguished obstacles for successful collaboration are multiple cognitive perspectives and a lack of common ground in shared interactions (Pang et al., 2018).

Therefore, teachers' roles are vital in regulating the effectiveness of collaborative learning by monitoring group dynamics, evaluating students' participation and designing auspicious learning setting with the incorporation of digitally-enhanced instruction. Therefore, with meticulous planning and monitoring by teachers, the integration of digital technologies in classroom is significantly foster collaborative learning (Selfa-Sastre et al., 2022). Even if some current relevant educational research looks at and emphasises the possibilities of online collaboration and communication in particular, there are plenty of other options that do not revolve around virtual communication. In contemporary educational setting, teachers employ digitalisation in both online and physical classroom which consequently promoting intriguing chances for better collaboration practices (Johler, 2022). Thus, the use of digital content, in both face-to-face and virtual learning environment offers a great capacity to enhance collaborative learning.

3.0 DEFINITION AND TYPES OF DIGITAL CONTENT

The rapid development of technologies has transitioned the medium of instruction. This shift is crucial in creating the best teaching and learning culture that suit with the current needs of the student. Technology has led to a paradigm shift to conduct instruction by replacing conventional chalkboard instruction to interactive and collaborative digital content that support global collaboration, individualised learning, and higher levels of student engagement (Korriz, 2023). The widespread use of technology allows students to have unlimited access to a lot of educational resources digitally. Generally, many types are available for digital content, including:

i. Text

It includes anything that is mostly textual and is one of the most fundamental types of digital material. Written content such as blog entries, ebooks and educational articles are some examples of textual digital content.

ii. Images

Graphical data representations, photos, infographics, and illustrations fall under this category.Visual material is useful in simplifying data and making information more attractive and appealing to the viewer.

iii. Audio

This category includes digitally generated and transmitted audio material such as podcasts, audio books, and music.

iv. Video

Video is a combination of text, audio and images that can be downloaded or viewed online. This type of video content includes live events, podcast and online conference.

v. Interactive features

This type of material, which includes quizzes and games enhance active engagement among participants.

(Lynos, 2023)

In the current information era, digital content is vital, influencing people's communication, education, leisure, and business practices. The creation, distribution, and consumption of information have all changed as a result of the digital revolution, presenting both new opportunities and difficulties for publishers, consumers, and content producers.It offers teachers a wide range of content resources instead of relying merely on hard-copy materials.

4.0 THE INTEGRATION OF DIGITAL CONTENTS IN CLASSROOM

To maximise learning achievement, teachers should endeavour to distinguish students' behaviour and their style of learning. It is vital for them to carefully analysing students' needs to enhance their motivation and willingness in participating actively in learning activities (Glock & Kleen, 2018). Apart from that, the way the classroom is set up to meet the demands of the students on an intellectual, social, and emotional level as well as its physical layout, seating arrangements, and general environment must all be taken into account (Cox, 2019). This is crucial to enhance students' integration and collaboration throughout the process of learning. By having a better grasp of the learning styles of their students, teachers are guided to create and develop various teaching techniques to help students improve their learning. The integration of digital content in classroom is best in collaborating students with diverse learning styles which eventually can encourage students to actively participate in pedagogical experiences. Nhi (2023) states that students' attention is captured and learning is made more fun by incorporating digital content in physical classroom setting such as the use of multimedia presentations and gamified learning platforms. The following are several ways that digital content can be used to support learning in a physical classroom:

i. Interactive Whiteboards and Smart boards

The use of these tools display a wide range of digital content including graphic, animation, sound, picture and video enables lesson to be very engaging, which piqued students' attention, motivation and concentration (Akar, 2020). This allows easy integration of digital content in instructional delivery such as videos, graphics and simulations which makes concepts clearer and makes learning materials more concrete. Compared to conventional teaching methods by using whiteboard and marker, the utilisation of interactive whiteboard and smart boards enables teachers to display more dynamic presentation and visually appealing teaching content which can improve active learning among students (Zhou et al., 2022). Active learning with the aids of smart boards gives students more opportunities to engage directly with the lesson content, which eventually promotes high levels of student participation and collaboration. Therefore, it can be concluded that the use of an interactive whiteboard and smart boards offers a great help to teachers in their attempts to draw in and hold the attention of students as well as students' accomplishment levels.

ii. Digital Textbooks

Teachers utilise digital textbooks as a complement to traditional textbooks, rather than depending exclusively on them. A digital textbook is more interesting as it incorporates a variety of digital contents, including animations, audio, and videos which significantly cater to students' different learning styles. The fundamental digital content like images, audio, animation, video, sound, and graphics are all included in the accessible digital textbook as well as digital text which are shown on a screen in a variety of fonts, colours, and layouts (Wambaria, 2019). According to Lee et al. (2022), the usage of digital textbooks in classroom leads to greater academic improvement among students. Due to its genuine qualities, such as collaboration and interaction, digital textbooks are more advantageous than print ones which potentially leads to greater academic improvement.

iii. Flipped classroom models

Flipped classroom is an innovative instructional strategy and it changes the directions of the traditional learning process where educational content is distributing earlier outside the classroom before learning taking place in classroom setting (Bhat & Bhat, 2018). Prior to class, students are expose to digital instructional content, frequently through readings, video lectures and tutorials so that they could learn at their own pace to fully comprehend the subject matter (Hoshang et al., 2021).

iv. Virtual Reality (VR) and Augmented Reality (AR)

VR and AR technologies create immersive learning environments by bringing digital content to life. VR is a computer-generated environment that imitates the real world and allows users to interact with things and people and offers a sense of presence and immersion while (Evanick, 2023). The term augmented reality (AR), on the contrary, refers to technology that projects digital material onto the physical world to provide an engaging and dynamic learning environment (Al-Ansi et al., 2023). Unlike traditional learning environments, VR and AR brings the 'real' world into the classroom by permitting students to feel and interact with three dimensional objects in a simulated environment (Evanick, 2023). Additionally, interactive simulations made with AR and VR may help students to explore complex concepts in a fun and safe setting without leaving their classroom.

v. Video Conferencing

Students in the classroom can connect virtually with other educators and students from all around the world through video conferencing. The famous video conferencing applications like Zoom, Google Hangouts, and Skype digitally bringing them together in a synchronous and genuine online setting (Sutterlin, 2018). All these applications offer a multitude of avenues for educators to collaborate and distribute digital instructional content such as dynamic, static picture files and short videos (Correia et al., 2020). When students are exposed to a variety of learning resources and real-world applications of their learning through this global connectivity, they could enrich their educational experiences.

5.0 THE USE OF DIGITAL CONTENT TO SUPPORT COLLABORATIVE LEARNING

The integration of digital content in both online and physical classroom offers pedagogical benefits especially in enhancing students' participation and engagement.The increased usage of digital information in the classroom encourages student engagement and collaborative learning, which has an effect on students' academic performance (Qureshi et al., 2021). When students with different abilities and and proficiency works collaboratively to achieve a common goal, it maximises their interaction and participation and engagement. Incorporating digital content like image, audio and video makes the learning process more engaging, entertaining as well as improves students' retention and collaboration (Hanson, 2024). There are several collaborative activities supported by the use digital content in physical classroom context.

i. QR code educational games and activities

"Quick Response'' which widely known as QR is a kind of two-dimensional or matrix bar code that may hold data and it is made to be readable by smartphones (Tiwari, 2016). QR codes which appear in square shape and series of black square/white space patterns have been used extensively as they provide quick access to websites, text messages, and application downloads through smartphones and other camera-equipped (Gressick et al., 2014). They may be used in educational settings in a number of ways since it facilitates learning in various contexts due to its versatility. One of the distinguished activities with QR code employment is Scavenger Hunt. This game associates the conventional Scavenger Hunt with QR code utilisation which navigate students along the journey. Students are first divided into group, scan the QR code to find clues that lead them to the next adventurous expedition. The Qr code, which is one of the digital content is significantly used in this game, offering thrilling and engaging adventure that suit with digital-savvy generation. Continuous engagement among students in their group throughout the game provides a unique opportunity for teamwork and collaboration (Torgensen, 2023). Communication that takes place between team members while solving the clues and struggling to accomplish the group's mission serves as a great way to enhance collaboration (Dennen et al., 2018). In addition, teachers could use QR codes for other collaborative classroom activities. They can use QR codes that link to online documents and ask students to complete the task collaboratively with their friends.

ii. Tablet-Based Group Projects

The growing popularity of tablets technology leads to more opportunities for student-centered classroom activities that highlight cooperation among students and their active participation (Kim et al., 2019). Given the current emphasis on students becoming producers and creators of digital content in this digital age, tablet-integrated class is extremely pertinent since it makes possible for teachers and students to communicate, collaborate and explore the real world outside of the classroom. When teachers integrate tablet in the lesson, they can assign group projects that requires students to make their research, create and present digital content. Apart from finding fact on the internet, other typical tasks assigned by teachers is designing group projects such as creating digital presentations in PowerPoint and videos. This pedagogical activity that using tablet is capable of promoting key collaborative and creative processes (Selfa-Sastre et al., 2022). To ensure the continuity of collaborative element, teachers can encourage peer feedback and discussion after final projects are presented using projector or interactive whiteboard.

iii. Virtual Reality (VR) explorations

Collaborative learning such as virtual problem-based activities and goal-oriented activities could develop students' interdependence as well as enhancing their social skills (Wang et al., 2021). When accomplishing the group task, students have defined responsibilities for acquiring and sharing knowledge with their teammates. The experiences gained by students while using VR in exploring educational content,develop their critical interpersonal skills including communication and that will be necessary in the future. Students can work in pairs or small groups, sharing their observations and insights with their peers as they take turns interacting with the VR content. Additionally, gamification of learning in virtual reality (VR) accelerates collaboration between students other than making lesson more engaging, joyful, and effective (Marougkas et al., 2023). Apart from enriching students' experience, the objective of this game-based learning is to encourage and facilitate teamwork since students need to cooperate in groups to go through the different levels in the game.

iv. Video conferencing

Video conferencing creates new learning opportunities by fostering collaboration through virtual face-to-face interaction that permits immediate feedback and engagement (Krukova, 2022). Video conferencing connects students virtually with other classrooms and educators from all over the world without having to travel around. It empowers collaboration since it facilitates digital instructional content sharing such as videos, presentations and animations as well as fosters real-time communication (Sam, 2020). Furthermore, students get to socialise with new people by engaging in discussion and sharing ideas which help them to develop their language, communication, and interpersonal skills. While remaining sitting in their classroom, students are highly exposed to authentic learning learning experience by communicating actively with other people and engaging with meaningful learning content.

v. Collaborative Document Editing

Collaborative document editing tools such as Google Docs and Microsoft Word provide a great opportunity for students to work together on academic writing such as assignment and other research projects. Students have autonomy to edit the shared digital contents by adding new ideas, revising and deleting existing text (Montserrat Castelló et al., 2023). The key feature of

collaborative document editing is that is allows multiple students to work on the same documents simultaneously which encourage them to share their ideas freely and collaborate closely both in and out of the classroom (Gopinathan et al., 2022).

6.0 CONCLUSION

Using digital content in various collaborative learning activities in physical classroom offers significant advantages particularly in developing essential 21st-century skills in communication, social interaction, and problem solving and technology literacy. It is not only makes not only makes learning more dynamic and interesting, but it also helps students get ready for the digital age by improving their cooperation, communication, and technology use abilities. All these skills are prominent in promising students' successful and brighter future. It is crucial for teachers to integrate digital content effectively in classroom setting by carefully planning the engaging activities that promote active students' participation and involvement (Chama & A, 2023). In general, digital content facilitates collaborative learning by giving students channels for interaction, information exchange, and active participation, not limited to online context but also in face-to-face settings.Therefore, teachers should develop captivating cooperative classroom activities by integrating digital content so that the instructional objectives could be reached while equipping students with fundamental life and career skills.

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