
INTERACTIVE AND COLLABORATIVE ONLINE TEACHING WITH ARTIFICIAL INTELLIGENT & NEARPOD

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Abstract: *The Covid-19 virus pandemic presents new challenges for schoolteachers and students to complete online learning. Educators conduct distance learning so the challenge is the lack of control that can be exercised over students. Engaging learning is essential to create enthusiasm and interest in learning during online learning. The development of digital technology such as artificial intelligence and Nearpod can be used to create interesting learning that can increase the spirit of learning. This community service was conducted to teachers at SDN Sampay 01 and 02, Cisarua, Jawa Barat. The implementation of the community service began with an observation phase, followed by detailed planning of the event. The execution phase involved material presentations and discussions, spanning approximately 3 hours per session. A post-event evaluation was conducted based on participant feedback, ensuring the effectiveness of the community service. The results of this community service show that the knowledge of teachers of both SDN Sampay 01 and 02 regarding the use of Artificial Intelligence and Nearpod technology increased after the service was held. In addition, the majority of teachers are also more confident with the use of technology in their teaching.*

Introduction

Covid-19 gives a new challenge of online learning to teachers and students in schools. This affects teachers to adapt themselves to a new method of learning. The previously usual learning system, that is an offline face-to-face method, is changed into a newer learning method, that is an online meeting (Churiyah et.al., 2020). Although global changes are ongoing, our collaborators, SDN Sampay 1 and Sampay 2, are dealing with unique challenges. These challenges serve as the foundation for the involvement of our community service team.

Student-student and student-teacher interactions are essential in the learning process to motivate learning enthusiasm, which in turn enables students to reach maximal results. Both student-student and student-teacher interactions should always be enforced to enhance

communication and discussion on each teaching and learning processes (Van Leeuwen, 2019).

In order to motivate students to be involved in a learning activity, it is important for an instructor employ the technology in his/her learning environment (Pedro et.al., 2019). To do so, he/she should know how to do an interactive learning in his/her classroom (Blaine, 2019; Prabowo et.al., 2019). Interactive learning is impossible to do if the learning tools are deemed as only some presentation tools (Furlong., 2020). Therefore, a teacher's role in his/her class needs to be adjusted from giving knowledge to learners to encouraging the learners to involve themselves in active assignments in the time of teaching and learning (Fauth et al., 2019; Looney et al., 2018).

Digital technology, which is enhanced by artificial intelligence (AI), has been playing an important role in our daily life activities. With its significance, the digital technology has been changing how we think, act, and interact. Since its inception, AI has developed rapidly, especially with the emergence of Artificial Neural Network (ANN) and Deep Learning (DL) (Hwang, 2020).

Applications and tools that are powered by artificial intelligence (such as intelligent robots and adaptive learning systems, for example) are becoming increasingly utilized by educators and students in the context of elementary, secondary, and tertiary education. According to Zawacki-Richter et al. (2019), artificial intelligence technologies offer learners the opportunity to engage in individualized learning that caters to their specific requirements. Given that every individual is self-sufficient and possesses their own distinct learning styles, capabilities, and requirements, it would be challenging for traditional educational techniques to cater to the requirements of each and every learner. Artificial intelligence, on the other hand, enables teachers to cater to the specific requirements of each individual student (Della Ventura, 2017). As a result, students have the potential to show increased levels of motivation, engagement, and autonomy throughout the learning process (Della Ventura, 2019; Wang Ciolacu et al., 2018). Moreover, artificial intelligence technology presents chances to promote the engagement of students who have learning difficulties within the classroom.

Instructors are given the opportunity to eliminate tasks that are repetitive and tedious, as well as to respond to students in a timely manner, which contributes to the advancement of adaptive and personalized teaching processes (Alam, 2022; Ciolacu et al., 2018). This is made possible by the increasing prevalence of the application of artificial intelligence technologies for schooling and education. Notably, the development of computer hardware, such as high-speed graphics processing units, and the increasing availability of a wide variety of software libraries have contributed to the expansion of the application of artificial intelligence technologies. This is especially true when considering the recent developments in deep learning research and the implementation of data analysis techniques. Furthermore, the growth of artificial intelligence will be very closely connected to the development of education in the future to a significant degree. Therefore, the development and advancement of these new technologies, as well as the processing capability of intelligent machines, will stimulate and improve education in the future to a greater extent.

Method

The implementation of this community service involved lecturers with interdisciplinary fields at Sampoerna University. There are four departments involved in this activity, namely the Visual Communication Design, Industrial Engineering, and General Education. The target of this activity was elementary school teachers at SDN Sampay 01 and 02, which are located at Jalan Gandamanah & Jalan Sindang Subur, Tugu Selatan, Cisarua, Bogor, Jawa Barat. The training was attended by 20 teachers at the school.



Figure 1. This is our activity diagram. We start from observation (*observasi*), then we plan the rundown event (*perencanaan*), then we execute the plans (*pelaksanaan*), and we do an evaluation based on the input from the attendees (*evaluasi*).

This community service activity was opened with remarks from the Head of the Dean of the Faculty of Engineering and Technology, Mr. Surya Danusaputro Liman (will be abbreviated as SDL). In his remarks, he conveyed the importance of collaboration between universities and the community. The event continued with remarks from the Principal of SDN Sampay, Mr. Jakil Mubarak (JM). He expressed his appreciation to Sampoerna University for the collaboration.

The next event was the material presentation session. The first speaker was Mr. Santo Tjhin (ST). Crucially, the planning phase involved not only university lecturers but also active engagement from teachers at SDN Sampay 01 and 02, contributing insights and perspectives to tailor the material presentation to the unique needs of their classrooms. He gave material about the use of AI in learning. After that the event continued with a question-and-answer session led by Mrs. Sri Susilawati Islam (SSI). This aims to make participants better understand the material provided. The event then continued with the second speaker session, Mr. Lukman Baihaqi Alfakihuddin (LBA) who provided material about Nearpod. Here, the involvement of SDN Sampay 01 and 02 in the planning and organizational aspects ensured that the material

presented by LBA resonated with the practical needs of the teachers, fostering a collaborative and mutually beneficial learning environment.

Result

This community service activity at SDN Sampay 01 and 02, Cisarua, Bogor took place on Thursday, July 7th, 2022 and were divided into 2 sessions. Each session consisted of material presentation and discussion which lasted about 3 hours. Prior to the initiation of the community service, a comprehensive preparatory phase took place, establishing the groundwork for a cooperative and influential educational encounter. The importance of this stage should not be underestimated, as it entailed the active engagement of faculty members from both universities and instructors at SDN Sampay 01 and 02. The objective of this collective endeavor was to customize the delivery of the material to suit the specific requirements of the elementary school classrooms, thereby guaranteeing its applicability and efficacy.

Engaging SDN Sampay 01 and 02 teachers was a major departure from top-down education. This collaboration aims to incorporate educators' viewpoints into the planning process, recognizing the value of direct ideas from individuals intimately aware of their classroom issues and complexities. Workshops, focus group discussions, and one-on-ones were carefully planned to achieve this. These workshops allowed instructors to share their experiences, helping university lecturers comprehend elementary school difficulties, instructional approaches, and technology infrastructure. This inclusive engagement method was the foundation of a collaborative planning approach to personalize material presentations to SDN Sampay 01 and 02's distinct needs and contexts.

University lecturers customized the subject presentation using SDN Sampay teachers' insights. The purpose was to communicate knowledge that was relevant to educators' daily lives. In the collaborative planning phase for insights into AI in learning, instructors' readiness to integrate AI tools, classroom technology availability, and potential obstacles were discussed. This made the material informative, practical, and implementable. The Nearpod session preparation considered teachers' knowledge base, technological integration infrastructure, and areas where Nearpod may improve teaching methods.

Based on their conversations with SDN Sampay 01 and 02 teachers, university professors tailored the material presentation to classroom needs. Beyond knowledge transmission, the goal was immediate applicability to educators' daily lives. The collaborative planning phase discussed teachers' willingness to integrate AI tools, classroom technology availability, and potential impediments in preparing insights into AI in learning. This complete approach ensured that the material was educational, practical, and easy to execute. For the Nearpod session, the teachers' knowledge base, technology infrastructure for seamless integration, and areas where Nearpod could improve their teaching methods were carefully considered. By addressing these intricacies during preparation, content presentations were carefully adapted to SDN Sampay 01 and 02's individual needs and circumstances, creating an

effective and relevant learning environment.



Figure 2. The presenters and participants taking a group photo.



Figure 3. Mr. ST during the question-and-answer session.



Figure 4. Mr. SDL as the Dean of the Faculty of Engineering is exchanging souvenirs with the principal of SDN Sampay 01 and 02.

Discussion

Mr. ST gave a presentation on the website for Deep Sea. The resting places of notable shipwrecks are revealed on this page. Among these are the USS Johnston, which sank during World War II and is the deepest shipwreck ever discovered at a depth of 6,241 meters (20,475 feet), and the Titanic, which is 3,800 meters (12,467 feet) deep. Even though the conditions in the ocean's lowest troughs are extremely harsh, there are still a few indications of life and a great deal more to be discovered.

Following that, Mr. ST continued his lecture on the Stars Chrome Experiments. Subsequently, we deliberated on interactive three-dimensional representations of stellar surroundings, encompassing a vast assemblage of over one hundred thousand stars in close proximity. 100,000 Stars is a Chrome Experiment that utilizes authentic data from multiple stellar catalogs to map the positions of 119,617 stars in close proximity. From the solar system to the Milky Way galaxy, users can zoom in. There are a total of 87 stars that may be clicked on, and each star provides unique information related to itself. Furthermore, there is an automated tour that offers a guided perspective of the entire image. The lecturer guides participants through the utilization of Chrome Experiments in this lecture.

Subsequently, Mr. ST commenced his presentation on AutoDraw. Children commonly use paper and various coloring mediums, such as colored pencils, crayons, or paint, for drawing. This web-based drawing tool, developed by Google, incorporates artificial intelligence (AI) and machine learning technologies. The participants were assigned the task of creating a sketch, which was subsequently refined using AutoDraw to rectify any required adjustments to the drawing.

Concluding his presentation, Mr. ST provided an explanation of Kahoot and extended an invitation to the teachers to engage in a Kahoot game. Kahoot is an online educational platform that use interactive games in the form of quizzes to engage students and facilitate their learning process by presenting information in an enjoyable and captivating manner. Kahoot's provision of a free-to-use platform is commendable, considering its prominent position in the field of quiz-based learning. This accessibility greatly benefits both educators and learners. Additionally, it serves as a valuable instrument for hybrid programs that incorporate both digital and classroom-based instruction.

Mr. LBA was the second presenter, discussing the topic of Nearpod, a platform that can be accessed through an internet connection. Students have the option to access their educational resources during lectures through a web browser or the complimentary Nearpod application on their personal electronic devices, such as smartphones, tablets, or computers. In order to share their presentation slides with students, teachers can furnish a distinctive code at the commencement of the session. Upon obtaining authorization, the student will have the capability to see the presentation on the screen of their device. The teacher will possess authority over the pace of the presentation. Students have limited access to slides and cannot proceed to the next slide without the teacher's permission. The teachers are able to view the number of students that are participating in the classes that they are teaching. Through online

activities that are prepared utilizing the online website, the instructor is able to track student involvement and gain an understanding of the progress that students are making in their learning. It is possible to incorporate formative evaluation activities into Nearpod lectures. These activities include quizzes, polls, drawing functions, collaborative questions, and open-ended inquiries from students. Because of this, students are able to engage with the material, and the instructor is able to observe how each student reacts to a certain activity. Immediately following the completion of the task in the Nearpod, the instructor has the option of either continuing the discussion or providing formative feedback.

Conclusion

It is possible to create interactive teaching through the use of technology-integrated learning equipment in the context of distance learning. The use of artificial intelligence and Nearpod appears to provide a different method of instruction in comparison to the conventional method of instruction to engage students in a richer learning experience. SDN Sampay is strongly recommended to proactively embrace and implement the demonstrated interactive tools such as Nearpod and Kahoot. Adding technology to these digital learning strategies will undoubtedly enhance their adaptability and effectiveness, combined with a commitment to continuous collaboration among educators, students, and local communities. This approach ensures stakeholders' confident, engaging, and personalized educational experience.

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