Towards an Artificially Intelligent Pedagogy: A Case Study of Tertiary-Level Educators

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Abstract— **In the ever-evolving technological arena, change is expected. In such a context, different fields – including pedagogy are subject to continual change. Accordingly, Artificial Intelligence (AI), has been positioning itself within this realm, and there seems to be no one unaware of AI at present. In the tertiary level education context, AI is seen in the limelight. With the objective of understanding the perception of educators and observing the manner in which pedagogy is connected with AI, this study was undertaken. The study takes a qualitative stance, using six case studies of lecturers at NSBM Green University, selected through convenient sampling. The data was collected through initial and extended interview sessions, after which it was analyzed thematically. The results yielded state that AI integration in pedagogy is a major concern. The participants reported that as educators, students need to be educated on the proper use of AI. However, it was noted that the students' over reliance on AI is quite challenging. Thus, it is highlighted that AI was positively addressed by the case study respondents. As the research study was limited to a small number of participants and a single institution, it is recommended that the study be extended to other institutions with higher numbers of participants. Nevertheless, among the educators that are reluctant to promote the use of AI, the participants of this research study were acknowledging it. Therefore, it is essential to compare the findings with other studies thereof. In conclusion, as technology continues to revolutionize education, moving towards an Artificially Intelligent pedagogy seems to be increasingly seen as a necessity.**

Keywords— artificial intelligence, pedagogy, tertiary, educators, technology.

I. INTRODUCTION

Since the beginning of its existence, technology has never seized from evolving. In this tech-savvy era, the peak of technology, or even the articulation of the term being told, itself highlights one – Artificial Intelligence (AI). According to Chassignol et al. AI can be defined both as a field and a theory. AI as a field is a study area that aims at solving problems related to cognition mainly associated with the human intelligence that subsequently adapts. In theoretical terms, AI is defined as a theoretical framework that guides the development and use of computer systems with human capabilities such as intelligence and tasks that require it, including visual perception, speech recognition, decision-making, and translation between languages [1] (p.17)

At present, as Chen et al observes, AI-aided education includes intelligent education, innovative virtual learning, and data analysis and prediction [2] (p.75267). In terms of the application of AI in education, according to Sharma et al., it has taken the form of adaptive learning systems, intelligent tutoring systems, and other systems that improve the quality of administrative processes, instructions, and learning. [3] Along with this, it is imperative to identify the use of AI in educational settings. Many studies conducted on AI integrated pedagogy finds its possibilities to create a better classroom environment. However, as Buddhima and Keerthiwansha observes there has not been any attempt in Sri Lanka to familiarize this approach to the ESL classroom [4] (p.34). Within the period of the six years since this claim has been made, an exploration of Sri Lankan literature yet again supports the claim. A recent study by Jayasinghe states that Sri Lankan education systems lack transformation into AI-based personalized learning processes [5]. Similarly, Perera et al state that educators are divided on the views that AI tools are well known in the University [6]. In contrast to school level secondary education, technical devices and usage of such are prominent at university level tertiary education. Thus, it is necessary to explore the views of tertiary level educators.

At the onset of a background pertaining mixed views based on literature, this study was undertaken to answer the questions; what is the perspective of educators towards AI integrated pedagogy? To what extent do they promote the use of AI integrated pedagogy? and, how AI is integrated to classroom practices. In doing so, the acceptance and advocacy of AI in tertiary level classrooms were to be observed. Reasons being, in a country like Sri Lanka, where less prominence is given to classroom practices that do not involve technical devices, it is necessary to understand if the now controversial and debatable AI tools are advocated by the educators. Accordingly, this study could shed light to spread awareness on artificially intelligent pedagogy.

II. METHODOLOGY

Employing a qualitative stance, the study appropriated a case study approach. Case studies, according to Stake gives deeper understanding while allowing to explore the complexities of the research issue [8].

Consequently, six case studies were selected through convenient sampling representing all four faculties; Business, Computing, Science, and Engineering of NSBM Green University. The qualitative case study approach was employed in order to explore deeply into the incorporation of AI into pedagogy which otherwise would not have been possible with large samples. In addition, the fact that the sample being from all faculties could be considered representative of all. Consequently, interviews, both initial and extended, were employed as the data collection tool. Furthermore, as the study itself is a case study, interviews allow the researcher to deeply analyze the respondents. The initial interview was conducted to receive an understanding of the respondents' stance on AI integrated pedagogy while the extended interview was conducted to discuss classroom practices in connection with AI. The data collection process was done within a month's duration, with the initial interview being limited to 10 minutes for each participant while the extended spanning from 20-25 minutes each. Moreover, informed consent with regards to the maintenance of the respondents' anonymity was communicated with the sample prior to the data collection. Generally, a qualitative research design undertakes a thematic content analysis, likewise this study follows a thorough observation of each case study to identify recurring themes, which forms the basis for inferences and conclusions. To facilitate the thematic analysis, Hazzam and Wilkins' [7] educational skills approach was employed. Thus, in alignment with the scope of the study, the methodology undertaken deems suited.

III. RESULTS AND DISCUSSION

A. Initial Interview

The initial interview was conducted to gather data to answer the first research question, what is the perspective of educators towards AI integrated pedagogy. The results can be observed as follows.

Table 1. Initial interview results

Case Study Participant	Do you use AI tools as teaching aids?	Do you allow AI tools to be used by your students?	Do you think AI tools are necessary for education?	Would you advocate AI use in classrooms?
01	Yes	In some lessons	In some occasions	These days it is quite popular so students anyways use it.
02	Sometimes	Yes, for activities	For self-learning activities, it is good	I don't always promote it, but I think it should be learnt to use wisely and appropriately
03	Not all the time	Yeah, activities can be done	Yeah but students should know to use it correctly	Yeah, only the proper use
04	Yes, I do	Not all the time but for certain tasks	Now we can't really get away with it	Correct use is okay, I think
05	Sometimes I do	For some classroom activities	Nowadays, it is normal	Students don't know to use it properly
06	Sometimes	In Activities	It is, to a certain extent	Not to depend on it but for occasional help

Based on the results, it can be viewed that while most of the participants have a positive perspective towards the AI integrated pedagogy, there is a looming concern of their learners' over reliance and awareness on the appropriate use of it. However, educators showing a positive awareness, understanding and advocating the use of AI tools is a highlighting factor.

B. Extended Interview

In the second interview, following educational skills approach [7], the results were thematically analyzed as follows.

1. Interaction with AI tools

Participants 1 and 2 mentioned of facilities that could be provided with regards to other AI tools. For instance, "Through Virtual Reality that is VR we can give live experience learning for our students" – Participant 2

In addition, participant 6 mentioned, "Many are of the notion that ChatGPT is the only AI tool."

2. Technological proficiency

Most of the participants identified that to teach AI tools both educators as well as their learners should be technologically proficient.

3. Adaptability

Participant 4 stated that, "I find some students who are not aware of AI tools as well, so they should be made aware of it, which most of us don't think about."

While participant 2 stated, "Many of us here advocate AI tools whereas most outside don't like to adapt to this."

4. Charismatic leadership

All participants believed that their students should not be discouraged of AI. An interesting response was made by participant 3 stating, "If we say no to AI, they will think we're old school teachers who think old"

5. Strategic AI integration

All participants were of equal opinion that students lack awareness on how to use AI tools correctly rather they are dependent on it that hinders their creative. Therefore, participants 3 and 5 stated that they assist their students to use AI tools to find errors, gather information, and assess their work. For instance, "I ask them to feed their work to ChatGPT and get an analysis of their errors. Then correct it on their own using

suggestions. This promotes self-evaluation" – participant 5.

6. Training and development

All respondents stated of a training program headed as 21st century learning that was conducted to guide them on the adoption of AI in the classrooms. Participant 2 was of the opinion that training sessions on using AI tools is also important.

IV. CONCLUSION

AI integration at tertiary level being quite common in the current pedagogy, the educators' perception as main stakeholders in the dissemination of knowledge, has been a growing concern. Perception, promotion and integration of AI tools were the key factors that led to the conducting of the study. In contrast to previous literature, the results yielded in this study took a positive note. The key findings revealed that the participants advocated the proper use of AI. In addition, they believed that more facilities for the use of AI tools, embracing AI integration to education, teaching the use of tools for the less aware and training programs were helpful. As a result, it is evident that, NSBM Green University is stepping towards artificially intelligent pedagogy. Nevertheless, this cross section alone is not a sufficient step rather, this awareness is a necessity in this rapidly evolving tech-savvy era. Therefore, it is recommended that comparative studies be done amongst other institutions. In conclusion, this study implicates that, the Sri Lankan educational system is broadening its limits towards an artificially intelligent pedagogy.

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