Music Teachers' Readiness to Teach Artificial Intelligence in Schools in Kedah

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Abstract

Artificial Intelligence (AI) represents a significant recent development in the education sector, with the potential to transform the traditional role of teachers. Despite controversies regarding its use in content creation—such as writing, art, and music composition—AI offers substantial benefits to the teaching and learning process.. Among the benefits of AI in education is its ability to stimulate conversation, thereby increasing learners' interest and engagement. It can also be used for pedagogical planning and analysing students' data. AI helps make the learning experience more personalized, engaging, and effective, providing learning opportunities that suit students' individual styles and paces. This is because AI uses algorithms to analyse and identify data patterns. By doing so, AI can predict outcomes that assist educators in shaping students' learning experiences. However, AI could present both technical and ethical challenges for teachers interested in incorporating it into their teaching practices. This paper aims to lay the foundation for research that examines the factors influencing the readiness to adopt AI among music teachers in Kedah. This will be done by reviewing relevant literature and proposing suitable methods for measuring teachers' readiness. This conceptual paper is intended to enable the researcher to develop a comprehensive literature review, formulate appropriate hypotheses, and identify suitable methods to measure AI readiness among music teachers in Kedah.

Introduction

The research is focusing on the music teachers' readiness to teach artificial intelligence in selected schools in Kedah. This conceptual paper is intended to enable the researcher to develop a comprehensive literature review, formulate appropriate hypotheses, and identify suitable methods to measure AI readiness among music teachers in Kedah.

Research Background

Artificial Intelligence (AI) represents a significant recent development in the education sector, with the potential to transform the traditional role of teachers. Artificial Intelligence is the term used to refer to a machine or computer that are

able to notice, distinguish, absorb, respond and explain problems (Kumar & Thakur, 2012 in Holmes & Tuomi, 2022). Artificial Intelligence will transform the workplace in the future (Horakova, Houska & Domeova, 2017 in Holmes & Tuomi, 2022). Due to this, it is important for the educational sector to incorporate AI into the teaching and learning session in the classroom. Some of the schools had also started to integrate Artificial Intelligence into their school programme (Dai et al., 2020 in Holmes & Tuomi, 2022).

Among the benefits of Artificial Intelligence in education is its ability to stimulate conversation, thereby increasing learners' interest and engagement. It can also be used for pedagogical planning and analysing students' data. Artificial Intelligence helps make the learning experience more personalized, engaging, and effective, providing learning opportunities that suit students' individual styles and paces. This is because Artificial Intelligence uses algorithms to analyse and identify data patterns. By doing so, Artificial Intelligence can predict outcomes that assist educators in shaping students' learning experiences (Tahiru, 2021; Adıgüzel, Kaya, & Cansu, 2023; Baidoo-Anu & Ansah, 2023).

Artificial Intelligence could be utilised in education sector in several aspects and not limited to classroom application only. Among the utilisation are the automation of the administration task, creating content for education, and creating system to enable Intelligence tutoring for the students (Berendt, Littlejohn & Blakemore, 2020).

Despite controversies regarding its use in content creation—such as writing, art, and music composition—Artificial Intelligence offers substantial benefits to the teaching and learning process. One of it is that the usage of Artificial Intelligence in the classroom is seen as not sufficient enough to create learning experience similar to the human teachers (Beck et al., 1996 in Berendt, Littlejohn & Blakemore, 2020). However, Artificial Intelligence could present both technical and ethical challenges for teachers interested in incorporating it into their teaching practices. Although the Artificial Intelligence is used to increase the knowledge, it does not exclusively shorten the process of delivering, monitoring and evaluation of educational content (Popenici & Kerr, 2017 in Berendt, Littlejohn & Blakemore, 2020).

Research Objectives and Questions

This article aims to lay the foundation for research that examines the factors influencing the readiness to adopt Artificial Intelligence among music teachers in Kedah. In order to do so, the research had set up a few objectives and questions. The objectives are:

i. To find suitable methods to measure the teachers' readiness to adopt AI.
ii. To find relevant literature related to the factors influencing the readiness to adopt Artificial Intelligence among music teachers in Kedah.

In order to fulfil the objectives, the researcher had also set up a couple of questions. They are:

i. What are the suitable methods to measure the teachers' readiness to adopt AI?
ii. What is the relevant literature related to the factors influencing the readiness to adopt Artificial Intelligence among music teachers in Kedah?

Literature Review

The research is focusing on the music teachers' readiness to teach artificial intelligence in selected schools in Kedah. Due to this, selected literature review will be focusing on several issues related to the focus of the research such as readiness, factors influencing teachers' readiness, factors influencing teachers' readiness to teach artificial intelligence and method to measure teachers' readiness to adopt artificial intelligence.

Readiness

Readiness could be interpreted as a situation that shows the willingness of an individual in carrying certain tasks (Gill & Dalgarno, 2008 in Hata & Mahmud, 2020). Readiness could be related to motivation that an individual has. Readiness would also benefit an individual in terms of their determination in carrying certain tasks (Asmawi, 2020 in Hata & Mahmud, 2020). Teacher readiness is related to their ability or eagerness in carrying responsibilities and related to the factors of their interest, behaviours, knowledge and skills (Wearmouth, Edwards & Richmond, 2000 in Jalan & Ahmad, 2022). Readiness could also be understood as someone confidence and willingness in portraying positive attitudes in an organisation (Holt et al., 2013 in Norok & Khairuddin, 2022).

Factors Influencing Teachers' Readiness

Teacher readiness could be influence by several factors. For example, research had stated that the teacher readiness for teaching online is influenced by six factors; learning content availability, technological devices availability, technological aptitude, ability to buy internet data, internet signals availability and students' surroundings. The teachers' readiness is varied according to the corresponding factors (Andarwulan, Fajri & Damayanti, 2021). Teachers' readiness could be influenced by their own awareness, behaviours, knowledge and skills (Jalan & Ahmad, 2022). Teachers' readiness in applying a new intervention could also be influenced by their own knowledge about the technique that is being applied in their classroom (Norok & Khairuddin, 2022). In an online language teaching, teachers' readiness could be referring to their willingness to prepare, design and facilitate effective courses in online learning environment (Hoppe, 2015 in Zou, Li & Jin, 2021).

Factors Influencing Teachers' Readiness To Teach Artificial Intelligence

Teachers' readiness to teach artificial intelligence could be influenced by several factors. Among these factors are artificial intelligence anxiety, artificial intelligence readiness, artificial intelligence relevance, artificial intelligence relevance, attitudes towards artificial intelligence, artificial intelligence for social good, confidence in artificial intelligence and behavioural attention (Ayanwale et al., 2022; Jatileni et al., 2024). Teachers' readiness to teach artificial intelligence could be influenced by the teachers' reasoning, skill, vision and ethics in using artificial intelligence in education (Wang et al., 2023). Teachers' self-efficacy could also be the factor that determined the teachers' readiness to teach artificial intelligence (Rajapakse et al., 2024).

Method to Measure Teachers' Readiness to Adopt Artificial Intelligence

The researcher had selected the method applied by Ayanwale et al. (2022) to measure the teachers' readiness to teach artificial intelligence. Eight dormant variables were spread in a questionnaire with 33 items to be answered by the respondents. This method was developed by adapting previous research approach employed by Chai et al. (2021), Chai, Wang & Xu (2020) and Keramati et al. (2011). Ayanwale et al. (2022) had used 385 respondents for their questionnaire. The eight variables are consisted of artificial intelligence anxiety, artificial intelligence readiness, artificial intelligence relevance, artificial intelligence relevance, attitudes towards artificial intelligence, artificial intelligence for social good, confidence in artificial intelligence and behavioural attention. Although consisted of 33 items, only items with outer loadings ≤ 0.60 would be considered. The result would also be tested with discriminant validity using heterotrait-monotrait correlation (HTMT). Anything below 0.90 is considered as establishing discriminant validity (Ayanwale et al., 2022).

Expected Results

The researcher believes that a strong foundation for the upcoming research could be established by using the relevant literature reviews. In order to find the research outcomes related to the teachers' readiness to adopt artificial intelligence, the suitable method as suggested in the previous section could be applied. The research had suggested that the method to collect research data based on Ayanwale et al. (2022) is one of the most relevant methods in measuring the music teachers' readiness to adopt Artificial Intelligence in Kedah? This would enable the future research to establish solid foundation for the theoretical and methodology of the future research.

Finding and Discussion

A post-structuralist reading of Heitor Villa-Lobos' *Prelude No. 1* invites us to examine the fluidity of meaning and the dynamic interplay between harmonic, rhythmic, and textural elements as they transcend traditional structural conventions. Through this lens, Villa-Lobos' compositional choices can be viewed as subverting and reinterpreting classical guitar norms, revealing multiple layers of interpretation and potential meanings.

To Identify the Musical Form

The structural organization of *Prelude No. 1* reveals Villa-Lobos' approach to musical form as a fluid and dynamic construct rather than a rigid framework. The composition's recurring sections in the sequence of A, B and A as showed at figure 2.

Conclusion

The research had asked two questions at the start of the research. These two questions are (i) what are the suitable methods to measure the teachers' readiness to adopt Artificial Intelligence and (ii) what is the relevant literature related to the factors influencing the readiness to adopt Artificial Intelligence among music teachers in Kedah?

The first question is use to achieve the objective of finding suitable methods to measure the teachers' readiness to adopt Artificial Intelligence. The research had suggested that the method to collect research data based on Ayanwale et al. (2022) is one of the most relevant methods in measuring the teachers' readiness to adopt Artificial Intelligence. It was also one of the most cited methods for measuring the teachers' readiness to adopt Artificial Intelligence (Labrague et al., 2023; Rahimi & Sevilla-Pavón 2024; Alshorman, 2024)

The second question is to identify the relevant literature related to the factors influencing the readiness to adopt Artificial Intelligence among music teachers in Kedah. The outcome from this article had shown that the related literature reviews should include the reviews on the readiness, factors influencing teachers' readiness, factors influencing teachers' readiness to teach artificial intelligence and method to measure teachers' readiness to adopt artificial intelligence.

The readiness could be interpreted as several different things. Among them are an individual's willingness, motivation, determination, ability, confidence and eagerness in carrying a task, taking responsibilities and portraying positive attitude while being a part of an organisation.

A number of factors could be influencing the teachers' readiness. This depends on the context of the application or the focus of the research that was carried out. But, a theme could be detected. Teachers' readiness is related to their willingness in carrying certain tasks, depending on the context of the application.

There are several factors influencing the teachers' readiness to teach artificial intelligence. Those factors are artificial intelligence anxiety, artificial intelligence readiness, artificial intelligence relevance, artificial intelligence relevance, attitudes towards artificial intelligence, artificial intelligence for social good, confidence in artificial intelligence and behavioural attention, the teachers' reasoning, skill, vision and ethics in using artificial intelligence in education (Ayanwale et al., 2022; Wang et al., 2023; Jatileni et al., 2024). Teachers' self-efficacy could also be the factor that determined the teachers' readiness to teach artificial intelligence (Rajapakse et al., 2024).

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