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Using Assistive Technology for Spiritual Enhancement of Brain-Impaired Children

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Abstract

The purpose of this paper is to evaluate the feasibility of using assistive technology for spiritual enhancement of brain-impaired children. The assistive technology in this case is the humanoid robot. A qualitative approach was employed where the sample size was twenty teachers based at a special education primary school in Shah Alam, Selangor, Malaysia. Data were collected through interviews using a semi-structured interview guideline. From the analyses of the interview transcripts, the findings suggested that the teachers are optimistic on the use of humanoids to enhance the children's spiritual or religious knowledge, in particular, the repetitive motions in praying and memorizing the verses from the Quran. It is important to note that the teachers and school children are all of the Islamic faith. Although the study suggests a positive influence of humanoids for spiritual enhancement, more research is needed in this area to provide empirical evidence on assistive technology for brain-impaired children, especially those suffering from autism.

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1. Introduction

In the Information Era, religion continues to play a significant role in the upbringing of brain-impaired individuals, particularly citizens from developing countries. Moreover, religion and spiritual beliefs have been the defining factors of coping among families that have children with disabilities [1]. For example, in Malaysia, religion continues to play an important role among the three major races; Malaysia, Chinese and Indians. Having a child with disabilities require families to divert to the spiritual well-being as a coping resource including internalizing the religious values to the child. In doing so, both the parents and teachers are involved in teaching the various religious practices especially in prayers.

With that in mind, ensuring that prayers are performed and recited correctly require repetitive activities; more so for brain-impaired children. For this study, the majority of the students and teachers at the integrated special education program are of the Islamic faith. Hence, there is affinity in religious values. Nonetheless, in guiding these special children to perform the five daily prayers and recite the Quranic verses correctly require every day, repetitive coaching. However, that is not possible as classes are conducted every alternate day or twice a week. When at home, the children turn to their parents for these repetitive coaching. Again, the progress on each child's spiritual internalization depends on the frequency of the activities. Besides that, the parent or teacher has to be patient as progress is slow [1].

With many, significant developments in assistive technologies, in particular, robotics, it is expected that human-like robots or humanoids will be the apt assistive technology in cases of pedagogy for brain-impaired children. Furthermore, a positive outlook on the resemblance of the physical structure of the robot to humans promotes a preference for humanoid robots and a future in which robots serve human beings [2].

2. Methodology

This study employs a qualitative design as rich, in-depth data are needed to answer the research questions and attain the objectives [3]. As such, interviews were conducted on a pre-determined sample where the units of analysis are the teachers (n=20) working at the integrated special programs of SRK Raja Muda, Section 4, Shah Alam, Selangor, Malaysia.

The sampling technique used for this study is non probability sampling or more specifically, purposive sampling. Only one criterion is used, that is, a teacher at an integrated special program class.

Nevertheless, the qualitative method requires interviews to be conducted on the teachers. A structured interview guideline containing 10 open-ended questions were posed to the teachers. The interview was limited to 10 minutes for manageable transcription. This principle is based on the fact that the longer the interview, the transcription time would be two times more [4]. In constructing the interview questions, firstly, the researcher had some initial guiding questions or core concepts to ask after extensive literature review. There is no formal structured instrument or protocol but the use of common sense to break the ice is a practical choice before posing the first question. In using a structure interview guideline to gather data, there are times when the researcher or interviewer is free to move the conversation in any direction of interest that may come up [4].

Anyhow, another unique element to this project is the case study employed. As recommended by Trochim [4] and Babbie [3], a case study is an intensive study of a specific context, which, for this project is the integrated special program at SRK Raja Muda. Moreover, in the conduct of a case-oriented study, the interview method is considered appropriate [4]. Aside from this, the inductive reasoning allows for the discovery and confirmation of a set of patterns [3].

As for the analysis of the transcriptions, coding method was used. In analyzing the transcriptions line-by-line, the ten interview questions provided the tentative themes on spirituality feasibility and enhancement.

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