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## Interactive Whiteboard Integration into Music Teaching and Learning: Preschool Children as a Case Study

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### Abstract

This comparative research paper contrasts the use of interactive whiteboards (IWB) and older models of teaching (OMT) to examine the effect of both upon children's learning attitude and their learning outcomes. This article extends the existing literature by addressing three key questions: 1. What are the reported advantages and disadvantages of integrating IWB into musical teaching and teaching without this technology? 2. How does each of these models of teaching perform in the music classroom when assessed using a standardized measurement? 3. Are there any significant differences in children's learning attitudes and learning outcomes when comparing these two models for teaching music in preschools? This study was conducted across two preschool classrooms in a regional daycare center in Taiwan. Classes were held as a 'one off' 50 minute lesson for the purposes of the experiment. One classroom used IWB and the other used older training methods. The research method entailed observational analysis of children's musical activity and a Likert Scale checklist was utilized to measure children's attitude towards music learning and their level of musical achievement. The participants included two head teachers, fourteen children, and five aides spread across both classrooms. Additional data were collected at the conclusion of the lesson via in depth interviews with the two classroom teachers. These interviews were intended to elicit evidence of perceived attitudinal change and validation of learning efficacy. The program of music activities used in this study offered multiple opportunities for children to improve their attitudes in the classroom while also acquiring musical skills and theory. The findings of this research showed that children are able to increase their own level of engagement and reach a high level of achievement during individual and peer play in a structured setting that is overseen by a professional. IWB and traditional methods of teaching both proved effective: it was the teacher's pedagogy, rather than technology per se, that brought about the benefits.

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## 1. Introduction

The impact of today's technology is challenging all forms of teaching and learning. There is a growing body of research concerning the role of Interactive Whiteboard (IWB) in education: in the last decade, it has been introduced and examined in classrooms worldwide in places as diverse as the United Kingdom, Austria, Czech Republic, Denmark, Hungary, Ireland, Italy, Portugal Switzerland, Australia, United States, and Taiwan (Ghislandi & Facci, 2013; Prosser & Ayre, 2010). Many schools in European countries and Australia (Wong, et al., 2013; Campbell & Martin, 2010) have already invested heavily in the installation of IWB in classrooms. Most Taiwanese primary schools have recently installed at least one IWB demonstrating that educational systems in Taiwan follow the trend of new technologies. The challenge for teachers is that they are now required to utilise new teaching methods to incorporate technological developments and provide effective educational experiences for their students. In the past, teachers typically stood and spoke from the front of the classroom next to a blackboard or later a whiteboard. Students' attentions were focused on a static screen. This style of teaching did not harness the visual or auditory stimulations now available via technology and it frequently failed to connect teaching with learning. Piquing and maintaining students' learning motivation is essential for long-term learning.

When compared to older model of teaching (OMT) – in which the entire teaching process centers on the teacher, with teachers setting the goals, content and schedule – Interactive Whiteboard (IWB) stands in stark contrast. One of the major concepts of IWB is valuing individual needs in which users can contribute to set the learning schedule and create plans and goals based on their own needs. This inherent feature of IWB fosters a more effective learning method. In the IWB learning process, learners become initiative takers who actively seek out knowledge instead of being passive learners and mere receptacles (Lee, 2012). Current education policies by governments worldwide have propelled IWB into classrooms due to its positive effects on teaching and learning (Kershner et al., 2010; Campbell & Kent, 2010; Nolan, 2009; Wood & Ashfield, 2008; Chen, 2006; Armstrong et al., 2005, Beauchamp, 2004). The benefits of IWB are manifold. It provides touch, visual and sensory stimulation, which research shows increases students' learning motivation. IWB is also interactive, bringing a level of dynamism into the classroom previously unheralded.

There is little published research literature on the use of IWB in the music classroom and its effect upon those involved. In light of the foregoing discussion it is clear that comparative research contrasting interactive whiteboard (IWB) and older models of teaching is warranted to examine the effect of both upon children's learning attitude and achievement. This study embarks upon that challenge by using music teaching for preschool children as a case study. It intends to extend the existing literature on this issue by addressing three key questions: 1. What are the reported advantages and disadvantages of integrating IWB into musical teaching and teaching without this technology? 2. How does each of these models of teaching perform in the music classroom when assessed using a standardized measurement? 3. Are there any significant differences in children's learning attitudes and learning outcomes when comparing these two models for teaching music in preschools?

## 2. Limitations of the study

Despite all the advantages of IWB in facilitating learning, IWB is still not utilized effectively in most preschool settings in Taiwan. Another limitation is the generalisability of the research findings given that participants in the present study came from a specific county in Taiwan. The findings in no way represent a comprehensive analysis of nor unqualified recommendations for the nation.

## 3. Literature Review on IWB

In the past decade, there has been a growing body of literature describing the benefits of IWB technology in conceptualizing practice and pedagogy (Prosser & Ayre, 2010). In the field of music education, Nolan (2009) presents recent research on interactive whiteboard use, numerous teaching ideas for general music educators, and two full-length music lesson plans demonstrating interactive whiteboard use. Baker (2007) explains that the use of

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