

# A Proposed Concept of Learning Based 3D Hologram to Enhance Attention Among Primary School Learner

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**Abstract:** *This paper discusses the children attention enhancement in education and presents a conceptual phase of learning via 3D hologram. Attention enhancement is important to keep children engaged and sustained their attention skills of learning in school. It is the very first step in the learning process that occurs in the brain. It is the brain's ability to concentrate on something through careful observing or listening. However, the children's concentration span is very limited and easily distracted. They will quickly shift their attention to something more interesting when they feel the task given is not fun. Therefore, the methodology of meta-analysis is carried out based on three-dimensional hologram (3DH) as digital learning tools, to identify the factors that will influence children's attention, and its effectiveness to develop the content for 3DH. Ten studies from the year 2007 to 2017 were analyzed qualitatively and summarized according to the visual elements and content, based on children's learning style. This study shows the significance of learning style characteristics used for 3DH, such as visually engaging, character animation, duration, colour graphic, audio, and storyline in order to draw children's attention and continuously maintain focus during the learning process. Children are able to grasp the concepts of topics easily when they focus, get fun and understand the illustrations of 3DH. Based on the analysis, the paper presents a heuristic concept generated, lead to integrate 3DH technology as an effective teaching tool in attracting students' attention and enhance their understanding. In fact, young children have the limitation in their thinking abilities as they cannot understand and increase more scientific notions. Hence, 3DH technology as a teaching material is applicable for teaching on the concept of scientific topic, such as the phenomenon of astronomy, the structure and developmental process of human, animals and plants.*

**Index Terms:** Attention Enhancement, Children Attention, Digital Learning, Education, Hologram

## I. INTRODUCTION

Many people understand that learning requires the ability to focus and pay attention. Paying attention is a key skill for learning and subsequently for academic achievement [1]. In fact, most children often struggle to sustain attention in their study, as they can easily get distracted by the littlest things, such as background noise, bright lights, hunger, or there is a very interesting idea comes from their mind. Besides, they also find it hard to focus on things that do not interest them and easily get bored.

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This always happens in their learning process, and it is part of growing up for the children. Much research has looked at children's attention and concentration. In order to improve it, one of the key findings is children learn better and pay more attention when their individual learning styles are recognized [2]. Gardner also outlined three majors learning styles of auditory, visual, and kinesthetic (VAK), as centered learning models, which have found success helping children learn in the way that is best for them hence focus. Therefore, the usefulness technology based learning is able to incorporate all these three learning styles of auditory, visual, and kinesthetic (VAK) approaches into a class, to catch the children's attention in learning. This is also supported by VAK theorists that, presenting information using all three styles allow all children to become involved, no matter what they preferred. 3DH technology utilizes an effective visualization tool towards generating audio, visual, and haptic contents in three-dimensional space. This technology allows children to learn more on-the-spot experience and integrate with the real environment, hence gaining children's attention skills of learning is a great advantage. Yet, 3DH is a new technology and still in its infancy stage in the field of education as the paper quoted in [3]. In order to develop 3DH technology with effective learning content, a meta-analysis is carried out in this study to identify the learning style characteristics in digital learning, to attract children's attention and enhance their understanding in their study.

## II. LITERATURE REVIEW

Written works of past researchers who have done a similar or related research of children's attention in learning and 3D hologram technology were reviewed, to provide brief ideas, findings and summary in which relating to this study.

### A. Children's Attention in Learning

Attention is a critical first step and acts as a gateway to think toward learning. The ability of children to learn to focus effectively and consistently lays the foundation for academic achievement. In the perspective of psychology, [4] explains attention is the cognitive process of taking possession by the mind in clear and vivid form that has limited capacity while ignoring those which are less important. Apart from that, attention span is the total amount of time given by a person to concentrate on any particular activity without getting distracted [5]. As a matter of fact, many children are unable to maintain attention throughout long lessons in

