



**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS**

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**SHORT ABSTRACT**

Attention deficit hyperactivity disorder is an incurable neurological disorder affecting acquisition of education when present in Children. It can be effectively managed if identified in early childhood ([1]). A recent and an effective method of managing children living with ADHD (ChADHD) is the use of digital devices and platforms in various contexts, including curriculum-based education. While these digital devices and platforms have demonstrated effectiveness in their use, there are still in their nascent stage ([6]). One of the ways which can help make the design of digital devices and platforms better is the utilization of ChADHD specific visual design guidelines ([2]).

Interestingly the curriculum-based content designed for ChADHD often mirrors the curriculum-based content that of neurotypical school children. This results in negligible impact to enhance the attention span of ChADHD in typical-learning environments. We find that the present visual design guidelines (VDGs) are either unavailable or exist in formats unsuitable for interpretation and application in designing of curriculum-based content for digital devices and platforms used by ChADHD ([2, 6, 5, 4]). There is, therefore, a critical need to systematically design the curriculum-based content using VDGs to enhance the attention span and in turn to facilitate the ChADHD management. This study addresses the gap of VDGs in-availability, by establishing a relevant and valid set of elements of visual design guidelines (eVDGs) for the designing of curriculum-based digital content for devices and platforms used by ChADHD in a typical teaching-learning environment. In addition, the study addresses gap in existing knowledge in terms of finding a specifically adapted methodology to help with the proposal of eVDGs for ChADHD.

This thesis presents these eVDGs by following a novel methodology - an adaptation of NIH stage model (NIHSM)([3]) and the co-design approach in a complementary manner. This results in a design research methodology with an inclusion of rigorous procedures from the domain of behavioural sciences. The methodology spans across three main

stages - Stage 0, Stage I and Stage III. In addition, it systematically engages experts in special educational needs, clinical psychologist, teachers designers, ChADHD, their parents and caregivers during various instances across the three stages.

This thesis contributes to the existing knowledge by establishing a relevant and validated set of 15 eVDGs. These eVDGs, when used to design curriculum-based digital of devices and platforms used by ChADHD in typical learning-environment, have shown through empirical experimentation an enhancement in the ChADHD's attention span. The study, in addition to eVDGS, delivers a novel design research methodology, an adoption of NIH stage model combined with co-design approach, for the systematic establishment of relevant and valid set of eVDGs, and for similar other research objectives.

## References

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