My Profile:

Dr Chau Kien Tsong is the Senior Lecturer at the Centre for Instructional Technology and Multimedia, Universiti Sains Malaysia (USM), Malaysia. He holds a Ph.D. degree in Multimedia from USM and Master of Science (IT) from Universiti Putra Malaysia (UPM). Currently, he is teaching graduate students in digital graphics, 2D and 3D animations. Dr. Chau is an academic consultant and external examiner of a private institution of higher learning in Malaysia. His project entitled "Tangible Multimedia Cooking System for Preschoolers" won the gold medal in the 4th International Innovation, Design, and Articulation in 2018. He has also won Best Paper Award for research paper entitled "Designing a Motivated Tangible Multimedia System for Preschoolers" in "International Conference on Education, Teaching, and E-Learning" in 2017. He was a research fellow in USM. He is currently META and IEEE member, and has been judge, session chair, and program committee for several conferences. Dr. Chau has over 20 publications and presentations, which include SCOPUS and ERA indexed journals. Her research interest is in the field of multimedia, 2D and 3D animations, tangible system, and Educational technology.

Full Title：Physicality and Tangibility in Digital Multimedia

Abstract:

Recent years have observed remarkable advancement in ICT, particularly in the field of the human-computer interaction (HCI). *iPad*, a line of touch-screen tablet computers, has emerged as an innovation that greatly facilitates intuitive HCI in the delivery of digital information. With *iPad* in hand, preschoolers interact with the computer naturally using finger. Many multimedia learning systems for preschoolers have followed the pace of *iPad* where touch-screen is also adopted in aid of teaching and learning. In fact, there exists an inconspicuous problem in multimedia learning. Preschoolers are in a category where much behaviour is described by its own specific characteristics. They are said to be in a state of preoperational level where their mental structure on which all subsequent learning attained is highly dependent on external concrete stimuli. In addition, they have limited vocabulary and unskilled motor acuity. Conversely, multimedia only delivers information in digital visual and auditory format. The repercussion for these two opposite ends is a large learning gap between preschoolers and multimedia learning system. The gap further deepens considering that most of the instructions nowadays are overwhelmed by huge amount of materials that exceed the young children's learning capacities. For preschoolers who have special nature signified by Piaget, intuitive interaction observed in *iPad* is insufficient. They need additional attribute that is truly adapted to their cognitive structure. As interaction-friendly innovation does not mean it is cognitive-friendly to preschoolers, thus, a new attribute in digital multimedia has to be sorted out for them. Based on the idea of constructivism and cognitivism, physical objects are the attribute necessary for cognitive learning to take place effectively in digital multimedia for preschoolers. Their points of view support the need of physical sensation via physical objects for preschoolers to grip in order to make sense of the concepts, especially ideas outside of their immediate context. In light of the theories, a novel multimedia system augmented with physical objects has been conceived. The idea of physicality and tangibility brought forward by the new "breed" of multimedia system and its implementation will be discussed extensively in this speech.