

## Chapter 2

# Enhancing 21st Century Learning Using Digital Learning Objects and Multiple Intelligence Theory: A Conceptual Model

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### ABSTRACT

*The educational system is undergoing radical pressure to change. The increased need for individuals to learn and adapt has resulted in a huge demand for higher education. However, higher educational institutes are failing to keep pace with learner and societal needs. Firstly, the skills profile required for individuals to succeed is changing; there is a change in emphasis from discipline-specific to transversal skills due to the dynamic labor market. Secondly, the learner profile has changed with individuals from diverse backgrounds, cultures, abilities, and contexts, and catering for such a diverse range of students is challenging. Technology is a key enabler in providing HEIs with the means to address such issues. This chapter explores a conceptual model which integrates pedagogical approaches such as multiple intelligence theory, learning styles, competency-based education with digital technologies to offer a solution to some of the concerns facing higher education in the 21<sup>st</sup> century.*

### INTRODUCTION

Today we live in a fast-paced society that requires citizens to be proactive and responsive. (Chai & Kong, 2017) Many of the jobs that exist currently will phase out over the next decade, leading to new skills which are required for emerging job roles. (Kirschner & Stoyanov, 2018) In light of this it is difficult to prepare individuals for a future workforce. With the advent of new technologies multimedia literacies are gaining traction as a 21<sup>st</sup> century skill. Multimodal literacies advocate the need for students to curate and

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critically consume materials of all forms of material (Sinclar, 2010). Furthermore, skills that empower individuals to become self-directed, autonomous learners are necessary to adapt to change

Fuelled by this uncertainty the education sector is experiencing a significant transition. The learner profile is diversifying with students from a variety of backgrounds, abilities and needs (Digitalisierung, 2017) This provides potential to offer to a richer learning environment where peers can learn from each other., However often such learners must juggle multiple personal and professional demands with educational commitments. Ensuring these learners are fully engaged in the learning experience allowing them to both benefit and contribute to the learning environment is a challenge.

Given the heterogeneity and complexity of the learner profile a one size fits all, mass education system is no longer appropriate. (Digitalisierung, 2017) Policies are criticising the one to many teaching approaches and advocating more flexible, personalised approaches to learning, which motivates and engages learners (Beetham and Sharpe, 2013) However the current educational system is under resourced and educators have limited capacity to tailor their approaches for different learners. Leveraging from technology can provide the capacity to offer tailored personalised learning to students. (Union, 2014). ICT can provide the potential to facilitate the provision of timely, relevant content to learners in formats or through medium that align to their preferred modality and preference of learning

This chapter will explore a conceptual model which integrates Multiple Intelligence Theory, Learning styles, Competence Based education and digital learning objects to offer personalised approaches to learning in the 21<sup>st</sup> Century. It will examine how technology can facilitate personalised learning approaches by enabling learners to develop a learner profile by self-assessing their competence level, multiple intelligence and learning style. Using this profile and algorithms based on instructional design principles a Personalised Learning Environment, can automatically search for relevant digital learning outcomes.

## **PERSONALISED LEARNING PEDAGOGIES**

The concept of personalised or individualised learning is not a new phenomenon. The concept is strongly rooted in the constructivism pedagogical paradigm. Theorists back as far as Socrates have recognised the importance of identifying the individuals '*ability and natural disposition*' (Lawrence, 1970, p. 4). This was later reinforced by Rosseau in his theory of well-regulated freedom in which students are given choice to support their natural capacity to learn. (Dishon, 2017) and was advocated by Dewey in his criticism of the traditional didactic model.

### **Theory of Multiple Intelligences (MI)**

Later this was expanded by Gardner in his theory of multiple intelligences. Gardner highlights that contrary to traditional perceptions which identify one dimension of intelligence, several types of intelligences exist and are developed differently in each individual. (Gardner 1993) He argues that these intelligences can develop over time and are not static. The capacity to develop different intelligences may depend on the developmental stage a learner is at (in line with Piaget's developmental theory), their natural disposition, their experiences and background. It is important to note that MI theory does not identify if a student will to learn in a particular way, it is a measure of the student's level of ability in each intelligence. In total Gardner has identified eight intelligences these are (Gardner 1993)

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