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Deep Learning Using Serious Games: An Application for Andragogy in Human Resource Development

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Abstract. The progressive substitution of soft skilled jobs for technological advancement creates a necessity for adult learning and honing of soft skills. The objective of this research is therefore to effect and measure Deep Learning using Serious Games which are games created for purposes other than entertainment and in this case, a tool for teaching soft skills to adults in corporate environments. We have developed a framework called the Game ELC+ Framework to test the strength of adult teaching (andragogy) as well as facilitate Deep Learning of a soft skill – judgment and decision making in recruitment and selection – through a Serious Game. This novel quadripartite framework fuses Yu Kai Chow's Octalysis Framework which focuses on gaming elements, Bloom's Taxonomy which focuses on learning levels of the learner, Cognitive Theory of Multimedia Learning which focuses on learning channels, and Ruskov's four evidences of Deep Learning. As a result, this research aims to augment Human Resource Development efforts and contribute to adult Deep Learning.

Keywords: Game ELC+, Serious Games, Deep Learning, Andragogy.

1 Introduction

With rapid technological advancements, it would suggest that soft skills will be a critical component of employability for one to prove invaluable to a company [1]. This gives rise to the need to teach (soft skills) in a method that ensures Deep Learning by the adult learner, in order to optimize the quality of actions taken based on knowledge learnt [2].

Following Ruskov's theory [3], the assessment for evidence of deep learning will be framed around **Ev1:** Change in complexity of reasoning; **Ev2:** Considering new concepts; **Ev3:** Relating new to previous knowledge; and **Ev4:** Adopting the vocabulary of what is learned.

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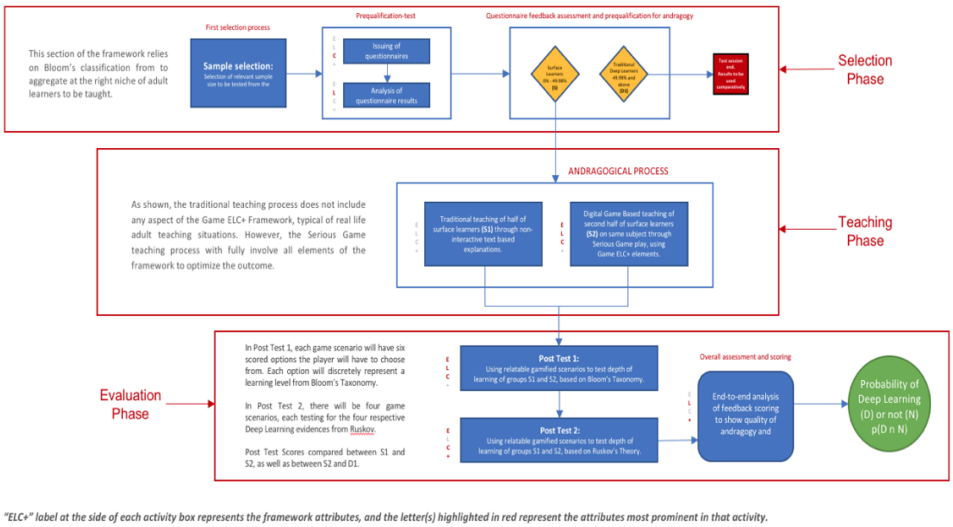

Fig. 1. Game ELC+ Framework: Game play assessment and feedback structure

2 Expected Results and Hypothesis

H1: Deep Learning can be created, measured, and assessed using Serious Games. H2: Deep Learning in adults can be more easily achieved through Serious Games than traditional teaching.

Combining the four existing frameworks to create the Game ELC+ framework considers the critical aspects involved in the processes of both andragogy and learning (dissemination of information and absorption), being the end-to-end process involved in Deep Learning. The expected results should prove to have created a scientific means by which Deep Learning can be defined and measured, by proving a measurably higher level of knowledge and understanding in adults who learnt through playing the Serious Game created using the Game ELC+ framework, compared with a control group who learnt the same skill through traditional learning methods.

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