

Adaptive Hypermedia in Education

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INTRODUCTION

Since the definitions of the pertinent terms such as multimedia, multiple media, interactive multimedia and hypermedia are given in a previous study (Turel, 2015a, pp. 2495-96), in this article, only the definition of adaptive hypermedia (AH) is focussed on, and the role of adaptive hypermedia (AH) in education is concentrated on. The aim of this article is: (a) to give the definition of AH and state what AH means, and (b) to explore the role of AH in education at this digital age, in which the majority of learners are generally digitally fluent and competitive (Turel 2015b, Gros et al., 2012, pp. 190-210) although some claims otherwise (Bullen, Morgan & Qayyum, 2011, pp. 1-24). Pedagogically and epistemologically, educational institutions (i.e. nursery, primary, secondary and high schools, colleges, vocational schools and colleges, life-long learning centres, adult education centres, and universities) should respond to such learning demands and differences to accommodate the digital-literate, wise and efficient learning style preferences of today's learners by providing AH learning materials for them. More frankly, educational institutions have to use and provide AH learning materials for their learners in order to be competitive in this digital age (Turel, 2014a; Turel, 2013; Duncan-Howell, 2012).

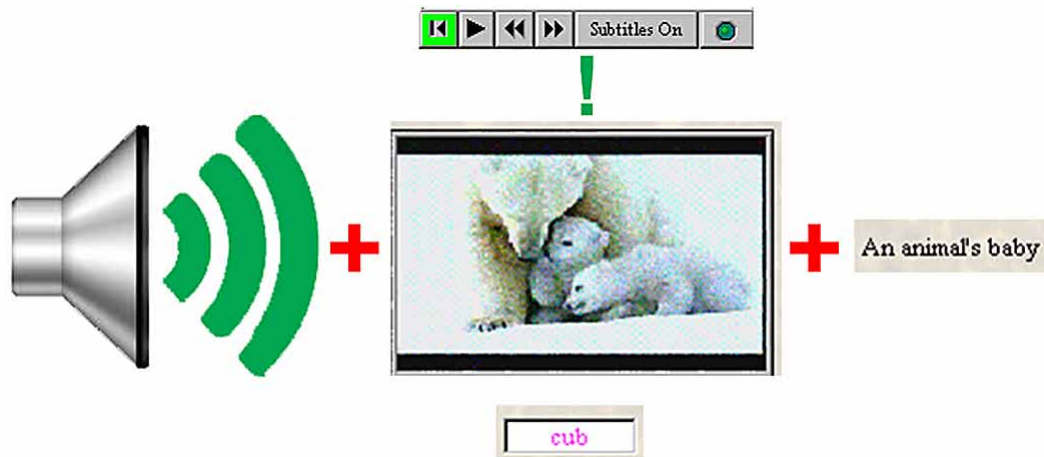
BACKGROUND

When educational (computer) technologists speak of adaptive hypermedia (AH), mostly one thing comes to mind. It is the use, combination and delivery of digital video, audio/sound, text,

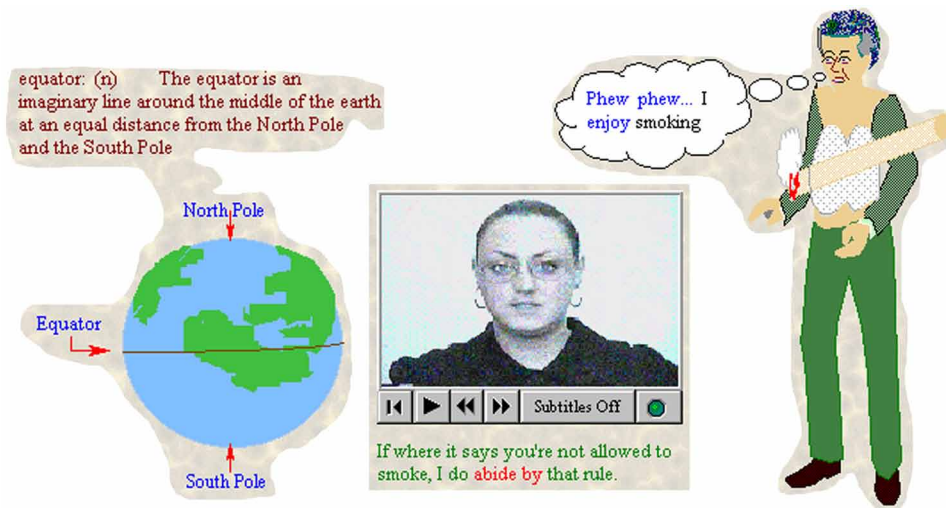
visuals (i.e. pictures/images/photographs, graphics, tables, figures), animations, hyperlinks, optimum combinations, instructions etc. on the same digital platform, which are totally computerised and under computer as well as learners' control. This digital platform also enables learners / users to make preferences, record these preferences, their individual needs and learning goals, and then uses them throughout interaction with the learners in order to meet their personal needs so that they can learn better (Turel, 2015a, p. 2497; Turel 2015b). In other words, AH (a) is a digital environment where a wide range of digital elements are combined and delivered on the same environment through hyperlinks (Figures 1 and 2), (b) has a learner model where learners can make preferences, record these preferences, their individual needs and their learning goals, and (c) uses the learner model to adapt the contents of the hypermedia according to the learners' needs (based on the data provided and the preferences made by the learners through the learner model) (Brusilovsky 2012, p. 46; Brusilovsky, 2007, Brusilovsky & Millán, 2007; Brusilovsky, Eklund & Schwarz, 1998). It is because of this 'adaptation feature' that it is now called 'adaptive hypermedia' (AH). AH is relatively a new direction in the field of educational technology (Brusilovsky 2012, p. 46), consists of different models (Kahraman et al. 2013, p. 60) and can be classified according to its application areas such as Educational Adaptive Hypermedia, which is the most popular area for research (Brusilovsky, 1996). To sum up, when the combination and delivery of a wide range of digital elements on the same digital platform offers 'personalised learning', then such a digital platform is called AH.

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*Figure 1. An example of hypermedia where optimum combinations (i.e. text, video, audio, visuals, control buttons, text boxes etc.) can be provided on the same digital platform
Turel, 2015b, p. XXXIII.*



*Figure 2. An example of hypermedia as well as hyperlinks. The “word in red colour” (i.e. abide by) contains a hyperlink. When it is clicked on, the provided definition is displayed for the learners
Turel, 2015b, p. XXXVIII.*



ADAPTIVE HYPERMEDIA IN EDUCATION

In terms of education, outstanding differences between AH and conventional materials (CMs) exist. These are: (a) the combination and instantaneous delivery of different digital elements on the same digital platform, (b) being navigational and interactive, (c) user control and ease of use

and (d) offering ‘personalised learning’. The objective of educational AH is to design and create pedagogically sound and epistemologically flexible learning environments which (a) not only supports a wide range of learners who are diverse in terms of abilities, disabilities, levels, interests, backgrounds, and other characteristics, but also (b) enables learners to make maximum use of the available personalised interactive and

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