

DESIGNING PERSUASIVE TECHNOLOGY TO PERSONALISE LEARNING ACTIVITIES IN FuPla PORTAL

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ABSTRACT

Nowadays, learning portals are becoming one of the popular learning tools in this era of pandemic. The existing of this tool becomes an essential necessity in the growth of Online Distance Learning (ODL). Challenges during ODL are students' engagement in the learning process. Interactive multimedia (CSC253) course involved theoretical terms which can drives students to lose their interest and focus in learning. The content consists of fundamental concept which require students to have high memorizing skills. Online teaching and learning tools are used to help students learning and engaging on online learning. Persuasive technology is used as crucial component for long terms engagement. This study has investigated the concept of persuasive and potential elements to be implemented for ODL and further developed the FuPla portal to incorporate elements of think, cooperate, involve and learn independently in a fun way. This portal is developed based on the gaming concept incorporating persuasive technology.

Keywords: *online distance learning, persuasive technology, portal, gaming*

Introduction

Teaching and learning is a process of disseminating and acquiring knowledge that takes place in every nation in the globe. This process evolves throughout ages as the community's influence by government, technologies, and modernization grow. Over time, technology has evolved into a critical component of the educational system and a fundamental instrument for improving education.

Due of pandemic concerns, online teaching and learning has been a viable alternative to face-to-face teaching for a few years. The pandemic challenges force institutions to shift away from traditional face-to-face study and toward online distant learning (ODL). Open distance learning (ODL) is defined as a flexible learning method aimed at teaching students virtually through Internet technology. The learning paradigm itself shifts from a heavy reliance on lecturers to nearly self-learning and isolation in the student's hometown. As a result, future education is increasingly reliant on online technology, which is now popular among today's youth.

Several studies have been conducted to identify the potential, performance and challenge of ODL among students. Libasin et al. (2021) have studied the performance of online learning specifically

on Calculus subject. The study split the performance that happen either via synchronized and asynchronous approach. The result showed that the assessment significantly higher among undergraduate students that study via synchronized, compared to asynchronous method. Further, Othman et al. (2022) has investigated the performance pre-university students on basic mathematics subject that happen fully via online learning. The students split into 2 groups: 1) study via assistant of mathematical teaching model via online learning. And 2) study without teaching model via online learning. The result showed that significant improvement in students' assessments within the group with mathematics teaching model compared to students that learn without model. Both of these study shows that the engagement between instructor and students in anyway have the significant impact in motivating students to follow the lesson thoroughly.

In addition, several studies that incorporating various tools in teaching online in order to increase the two-way communication among instructor and students has improved students' attraction and motivation when learning online. Yusoff et al. (2020) has investigated the student's interaction when teaching and learning via google online and KAMI application as interactive and easy to be implemented for online education. Further, the similar research was done again by Yusoff et a. (2021) that have investigated the impact of WhatsApp as an interactive instructional tool for ODL. The study showed very good feedback from students and even better compared to face-to-face in terms of student's ability to engage in lesson, enjoy the interactive communication and did not shy to ask questions and give responses. Another study by Rahman and Ghani (2021) has investigated and discover the effectiveness of notability and the use of ipad as a tool for teaching and learning Calculus on online class. The results positively showed the increment of active learning due to creativity of instructor in implementing different tools in online teaching.

As a result, there are numerous advantages and potential aspects of ODL for modern teaching and learning. Decentralization of the teaching process and individualised learning, flexible access at any time or place, promotion of active learning student motivation and satisfaction, cost-effectiveness and reduced instruction time, consistent delivery of instructional content, cost reduction and reuse of instructional material, and increased access to information are all advantages of educational strategies based on the web or e-learning tools (Alvarez et al., 2017). Despite all of its advantages, the ODL is still in its infancy to declare success. Garcia-moales et al. (2021) has described the barriers of ODL from perspective of three agents: students, professors and institutions. The main hurdle comes from students who have technological issues, such as internet connection accessibility and cost. Universities have given this issue their undivided attention, such as allowing low-income students to reside in hostels that provide both accommodation and internet access. Following that are physiological and attitude concerns

such as difficulty maintaining focus in a purely online situation, boredom, isolation, and a lack of self-organizing capabilities. These concerns have been ongoing and highly subjective, as they differ amongst students, courses, and instructors or professors.

This study will discuss on persuasive technology that will enable to monitor students in terms of attitudes, behaviour and belief throughout the online learning process. The rest of this article will discuss the concept of persuasive technology and development of FuPla portal based on the Persuasive technology.

Concept of Persuasive Learning for on Online learning

A growing variety of information technology systems and services are being developed in order to influence user attitudes, behaviour, or both. Persuasive Technology (PT) refers to technologies that are designed to change users' behaviour, attitudes, and beliefs about an issue without resorting to intimidation or deception. Persuasive Technology intervention has been found to be successful in motivating people to attain a certain goal in a variety of domains, including health, physical activity, and even education (Alok, 2020; Orji, 2018;Widyasari, 2019).

According to Behringer et al (2013), persuasive technology is tool developed from several principles of persuasive design (PD) that covers different aspect of persuasion and become crucial when implementing for e-Learning. Figure 1 shows persuasive technology at the intersection of interactive computer technology and persuasion.

The propose of persuasive design strategies consist of elements which are; 1)Reduction that allow to skips certain process tailor to user prescribe; 2)Tunnelling that has predetermine direction helps user to narrow down to right steps of choice; 3)Suggestion based on user favour or interest; 4)Self-monitoring allow user to check for progress, surveillance helps user to not only check progress but double cross information with another similar user to inspired actions; and 5) Kairos for opportune moment to perform persuasive action.

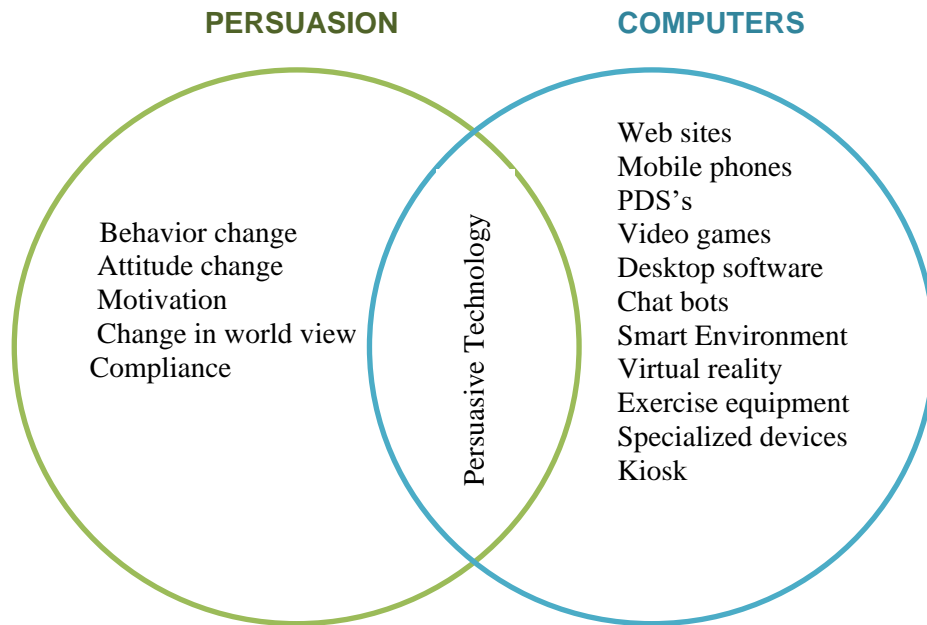


Figure 1: Persuasive technology as intersection of persuasive concept and computers applications (Fogg,2003; Behringer et al.,2013)

Oinas-Kukkonen et al. (2009) has proposed persuasive system design that consist 28 design principles for designing and evaluating intended system. As illustrated in Figure 2, the suggested framework is divided into several phases. The key issues, the process model, and the design principles to be employed for the development and evaluation of persuasive systems are all specified in this model. The primary focus is on primary task, dialogue, system credibility, and social support, which are all categories in designing of persuasive system principles.

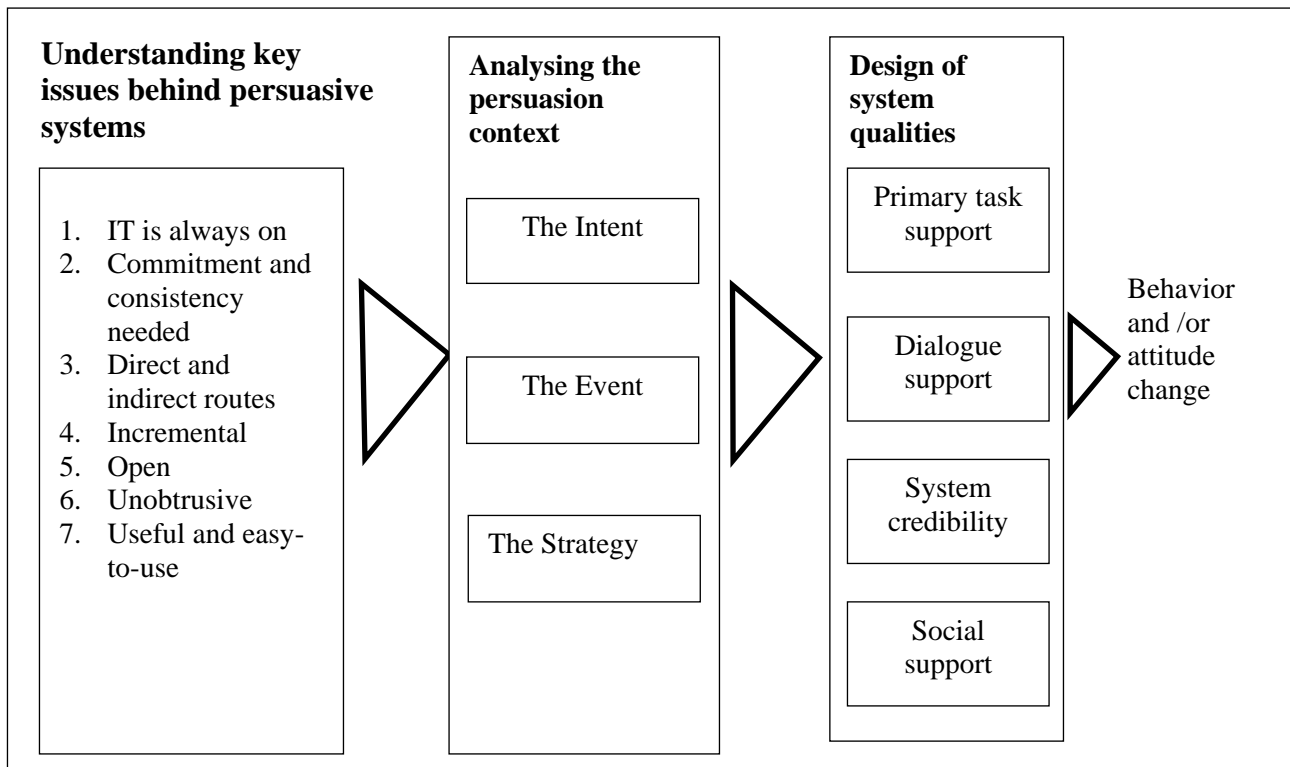


Figure 2: Phases in Persuasive System Development (Oinas-Kukkonen et al. ,2009)

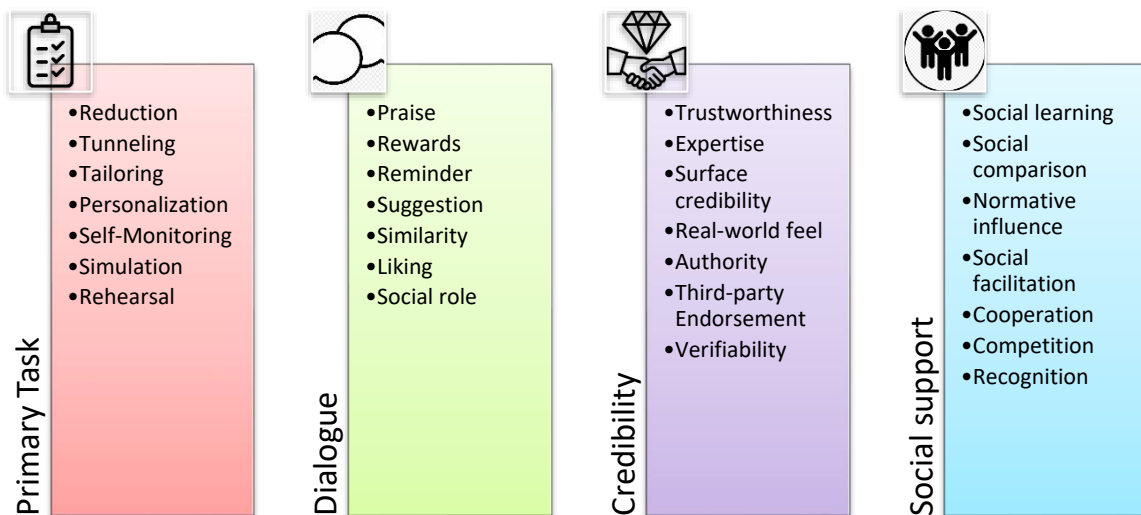


Figure 3: Description of Persuasive Design principles (Oinas-Kukkonen et al. ,2009)