# DISTANCE EDUCATION AS AN ENVIRONMENTALLY-FRIENDLY LEARNING OPTION

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## Abstract

*Global warming has been a primary focus for institutions of higher learning. Although there are attempts made by many higher education institutions to promote sustainability through green retrofitting in buildings, encouraging green practices or habits among its staffs and students such as recycling, setting air-conditioning temperature at $24^0C$, and banning plastic bag use in campus, the operation of distance education via online instruction is deemed as an overlooked dimension of sustainable education in mitigating the impact of global climate change. Due to such circumstances, this paper will discuss on the significance of distance education as an environmentally-friendly learning option in higher education sector. The study would provide an avenue in which sustainability concept can be understood and achieved through the role of tertiary educational providers in offering courses via distance education mode. It also provides further understanding for universities and researchers in making most contribution to sustainability.*

*Keywords: Distance education, environmentally-friendly, sustainable learning.*

## Introduction

Global warming has been a primary focus of institutions of higher learning that wish to integrate sustainable concepts into their operations (Rappaport & Creighton, 2007). Due to that fact, distance education has been increasingly accepted as a mode of societal education in the world today. In 2008, almost 4.6 million students enrolled in courses offered through distance learning, which formed approximately a quarter of all higher education students in the United States (Dalton, 2012). According to Allen, Bourhis, Mabry, Burrell, &

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Timmerman (2006), the growth rate exceeds the 1.2% annual growth rate of higher education enrolment overall during the same period.

In Malaysia, distance education is perceived as an innovation in education (Ramayah, Asfaqi, & Ignatius, 2005). Based on the concept of diffusion of information through information and communication networks, distance education is deemed as a leading edge learning option which forms a competitive advantage for institutions embarking on delivering courses in such mode. Realising that distance education offers unlimited profit opportunities beyond the boundaries, many colleges, private institutions and universities eagerly offers courses which can be delivered through such mode. In Malaysia, apart from Universiti Sains Malaysia through its arm i.e. School of Distance Education, there are also other public and private institutions which offer distance learning courses, namely Open Universiti Malaysia (OUM), Universiti Teknologi Malaysia (SPACE), Universiti Putra Malaysia, Wawasan Open University, and Asia e-University. The increasing number of institutions offering courses through distance mode has also marked a growing demand from public for such courses.
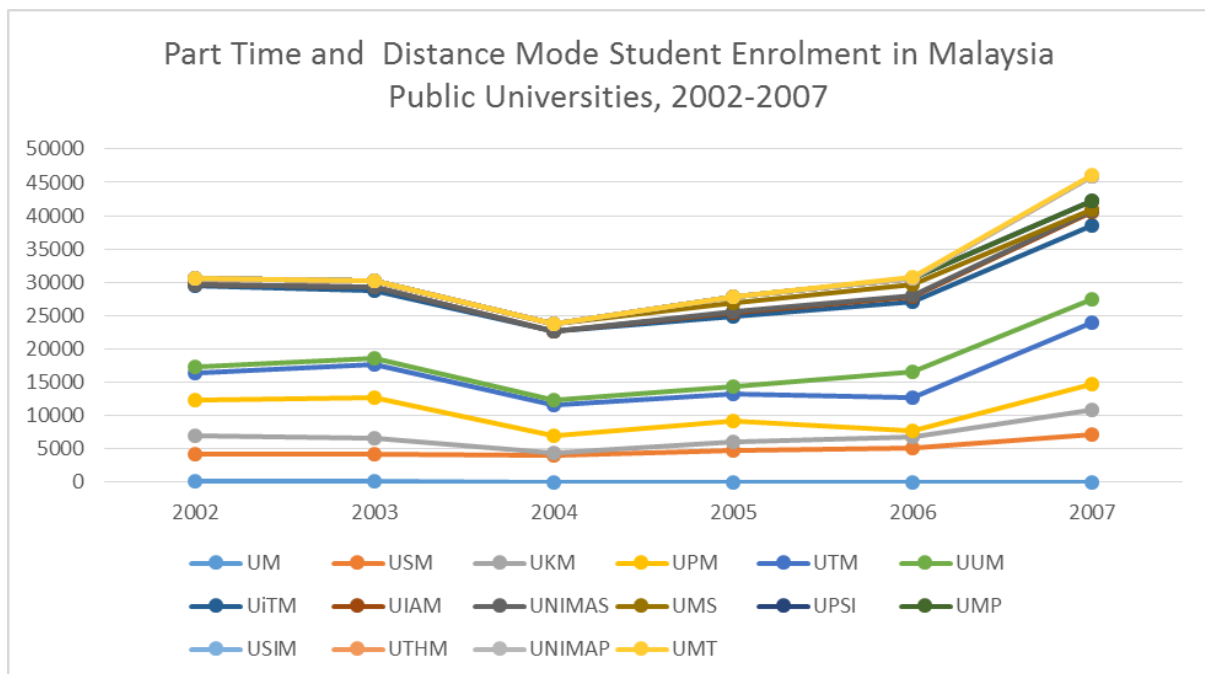


*Source: Ministry of Higher Education (2014)*

Figure 1        Part time and distance mode student enrolment in Malaysia, 2002 to 2007

## Background of Study

Research on sustainability in education has been limited (Bourke & Simpson, 2009). At present, there is not much research which focused on efforts to reduce greenhouse gas emissions through organisational action (American Psychological Association, 2010) particularly in higher education institutions. Although there are attempts made by many higher education institutions to promote sustainability through green retrofitting in buildings, encouraging green practices or habits among its staffs and students such as recycling, setting air-conditioning temperature at 24◦C, and banning plastic bag use in campus, the operational of distance education via online instruction is deemed as an overlooked dimension of sustainable education in mitigating the impact of global climate change (May, Cox, Kroder, & Franklin, 2011). As part of important steps in providing sustainable education, the method of delivery needs to be considered particularly with regard to distance learning which appears to have sustainability implications that have not been fully explored (Roy, Potter, & Yarrow, 2008). Offering courses through distance education mode may be able to result in behavioural changes with subsequent environmental impacts (Campbell & Campbell, 2011).

To date, there are very few studies which directly assessed the link between distance education and environmentally-friendly practices. As a result, people cannot truly relate the significance of distance education to the environmental preservation aspect. A study done by Din, Haron and Ahmad (2013) attempts to analyse the awareness of green ICT in the context of self-directed learning. However, the study only focuses in respondents who have the Facebook account. Other than Facebook, students who are engaged with distance education via online may have other social networking applications such as Twitter and Whatsapp or may still relying on conventional methods such as email and fax as their main learning interactional methods.

Enrolling in the course offered through distance education may reduce the number of driving trips to campus which resulted into environmental savings in terms of carbon dioxide ($CO^2$) reduction. The combined effect of all these commuters may result in a significant source of atmospheric $CO^2$ from the campus community (Campbell & Campbell, 2011). Thus, distance education may be a better option in overcoming the adverse environmental effect of travelling and commuting to and from campus.

## Distance Education

Distance education involves teaching methods which are delivered separately from learning activities (Mohd. Daud, Musa, Nor Azman, & Masri'alah, 2007). Most of the tools used in distance education emphasize sharing and collaboration among students and instructors (Herring & Roy, 2002). According to Dalton (2012), instructors benefitted from distance education by sharing course documents which include course syllabus, PowerPoint presentations, and assignments. Besides, instructors can share their course documents via a web tool, such as their own website or blog, or via a campus learning management system such as Blackboard or Moodle which offers additional feature of grade book integration. On the other hand, students can benefit from distance education tools by having a quick access to course resources and organise them while joining the course.

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There are several forms of online courses that can be offered through distance education method:

| Proportion of Content Delivered Online (%) | Type of course | Description |
|---|---|---|
| 1 to 19 | Web-facilitated | Course that utilises web-based technology to assist face-to-face course; may employ course management system or web pages to post the syllabus and assignments |
| 20 to 79 | Blended / hybrid | Course that blends online and face-to-face delivery; has a substantial proportion of the content delivered online, typically uses online discussions, and has a reduced number of face-to-face meetings |
| Exceed 80 | Online | Course in which most or all the content is delivered online; typically has no face-to-face meetings |

Table 1      Types of online courses (Dalton, 2012)

The 'separateness' between teaching activities and learning activities is a distinctive characteristic of distance education (Mohd. Daud et.al., 2007). Due to such uniqueness, distance education is deemed as an alternative which offers equal opportunities for individuals in accessing education. Besides, distance education is also able to overcome several limitations in conventional learning situation such as lack of instructors, distant between students and institutions, and lack of quality instructors and materials. Dalton (2012) added that the characteristics of distance education is also defined based on the nature of its online course offered which is different based on the amount of time required for online communication and collaboration as compared to the amount of time required to communicate and collaborate in a lecture room setting. Since distance education delivery mode offers an alternative method of delivering lessons, the characteristics of students who opted to enroll in programs and courses via such mode should also be looked upon.

**Distance Education and Sustainability**

The concepts of sustainability affect the way educational providers such as higher learning institutions operate, influence the design of curricula, and the method of delivering learning (Stephens, Hernandez, Roman, Graham, & Scholz, 2008). Besides, distance education is commonly regarded as important to sustainable education (Bourke & Simpson, 2009). Research showed that distance education was far more sustainable than conventional form of higher education (Herring & Roy, 2002). The study also indicates that distance-taught courses involve 90 percent less energy and $CO_2$ emissions than campus courses, although electronic delivery did not result in a reduction in energy or $CO_2$ emissions as compared to

print-based distance learning. In another study of distance education in the UK, Roy et.al. (2008) found that distance learning delivery method consumed 87% less energy and emitted 85% less $CO_2$ than traditional brick and mortar classes. Based on the nature of delivery method provided, distance education may provide an avenue for public universities and other higher learning institutions to embark on sustainability in order to realise their visions and missions.

In tackling the issue of sustainability in higher education, many researchers suggested for the Elkington's (1994) Triple Bottom Line (TBL) perspectives of social, economic, and environment sustainability (Boo & Park, 2013; Font, & Harris, 2004; May et.al., 2011). In applying the TBL perspectives in the theoretical framework, it is proposed that distance education provides an opportunity for the universities to strengthen their financial bottom lines while providing social benefits to students and faculty as well as environmental returns to the planet.

## Distance Education as an Environmentally-Friendly Learning Option

Evaluation of distance education commonly involved comparison with conventional face-to-face instruction (Campbell & Campbell, 2009; 2011). Comparing both distance education and conventional face-to-face instruction, Campbell and Campbell (2009) asserted that both methods resulted in essentially the same learning outcomes and similar student satisfaction levels (with a slight difference for the face-to-face format) besides showing no effect between degree of student-teacher interactions and amount of lessons learned.

When students are satisfied with distance education teaching format, they might have a favourable attitude towards it as well. Furthermore, after knowing that the teaching format of distance education is also good for the environment, their acceptance of distance education as a sustainable learning option might be enhanced as well (Campbell & Campbell, 2011). However, studies have yet to acknowledge the acceptance of distance education as an environmentally-friendly learning option among students who enrolled in distance education courses, particularly in Malaysia settings.

## Conclusion

Past researches have overlooked the essence of distance education as an important dimension of sustainable education in higher institutions. Thus, it is pertinent to portray the concept of sustainability through the role of tertiary educational providers in offering courses via distance education mode. The study also provides further understanding for universities and researchers in making most contribution to sustainability.

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