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ISSN 2080-9069
ISSN 2450-9221 online

„Edukacja – Technika – Informatyka" nr 4/26/2018
www.eti.rzeszow.pl
DOI: 10.15584/eti.2018.4.23

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The Use of Information Technology in Course Delivery and Students' Cheating: Case Study

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Abstract

Information Technology (IT) entered the world of education with authority and with general assumption that it would enhance students' learning. It is used in the educational environment for many uses, with class delivery as one of the most important purposes. The aim of the study was to investigate the preferences in the delivery methods by students and compare with those favoured by the instructors. Additionally, the study assessed the use of IT in preparation (by instructors) and access (by students) of material related to learning. A separate issue addressed was classroom cheating by students and IT application for that purpose. The study indicated a clear preference by both students and instructors for blended learning of traditional face to face lecturing with additional on-line material. The study also confirmed the use of IT as a tool for class cheating. Although reluctantly, up to 73% of students confessed to cheating using one or other method.

Keywords: use of information technology, educational technology, university students, student learning, engineering education

Introduction

Information Technology (IT) is a major part of modern society and is already well embedded in everyday life. It is due not only to the advances in computer technology but also to drastic drop in computers' prices and general use of the computers in everyday life (Atif, Chou, 2018).

In today's tertiary institutions, a typical mix of students' backgrounds, together with the development in IT, requires a different educational approach, in the teaching and delivery methods. Advances in IT and diversity of student population oblige education professionals to constantly investigate and revise delivery me-

thods. The traditional "chalk and talk" transforms gradually to student centred learning, computer-based training and e-learning (McSporran, King, 2005).

There are numerous delivery methods, many of them related to each other. However, it is not obvious whether the use of a particular lecture delivery method is superior to others.

Typically, the following delivery methods are listed (McSporran, King, 2005):

– Lectures – including traditional lectures on the board, using Power Point (PPT) and/or transparencies and an overhead projector (TOHP)
– Small group Discussion – from classroom to video conferencing
– Computer Assisted Learning (CAL)
– Computer Mediated Conferencing (CMC)
– E-learning – also application of Virtual Learning Environment (VLE)
– Blended Learning

There is no conclusive study stating the superiority of one method over the other. For instance, various studies have been conducted to compare the effectiveness of lectures using PowerPoint (PPT) in comparison to the lectures using chalkboard (Szabo, Hastings, 2000). Garg,Rataboli and Muchandi(2004) have observed that students want the teachers to include audio-visual aids during the lectures, but it is not certain whether it actually increases their understanding or performance in the examinations.

A common component of all courses, face-to-face or virtual, is assessing student learning. Whatever the method of the delivery, testing students and prevent cheating, including "digital cheating", is a major challenge (Rogers, 2006). Digital cheating is a term used to describe application of computer technology in deception during formal university assessments (McCabe, 2005; Carpenter, Harding, Finelli, Montgomery, Passow, 2006).

Subjects & Instrument

The study included **343 undergraduate students from the** Faculty of Production Engineering, University of Life Sciences in Lublin, Poland. The period covered one academic year, 2016/2017, and **the students registered for the following programmes: agriculture and forest engineering; transport; management and production engineering; geodesy and cartography.**

The survey was used as a research method and the data was collected by a pre-tested, semi-structured questionnaire.The questionnaire was developed based on the literature, informal discussion with experts and experience from a similar study conducted in 2009/10 academic year (Lorencowicz,Kocira 2009). However, the current survey included some aspects not investigated earlier, such as delivery preference and use of IT in classroom cheating.

The survey was administered in the middle of the semester and consisted of questions regarding respondents' profile, preference in the delivery method and cheating aspect of IT use.

Results

Demographic Data

The basis for the deductions in the current study was the empirical data collected through the questionnaires administered in the academic year 2016/2017. The data was collected from students registered in 4 programmes, ranging from Year 1 to Year 4 of 4-year degree programmes (Figs 1 & 2).

There were 343 responses, with almost equal distribution in terms of gender (55% male and 45% female respondents), with an average age of 21.7. The most popular IT device was laptop/notebook with 91% of students declaring their use (the survey did not differentiate between laptop and notebook), followed closely by smartphones (85%). The desktop computers showed 31% users and tablets disappointing 16% – Fig. 1. Almost all students use IT either constantly or at least few times a day (98% – Fig. 2).

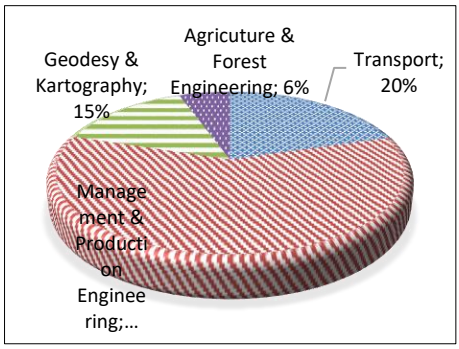

Fig. 1. Programme distribution

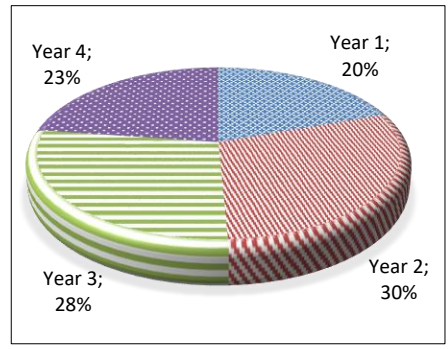

Fig. 2. Year of study distribution

Delivery preference

Great majority of the students opted for the blended delivery of courses; a combination of face to face lecturing augmented by on-line material (58%) – Fig. 3. However, one third of the respondents were in favour of face to face lecturing only (34%). The pure online lecturing, both synchronous and asynchronous, were not popular, as both were selected by only 4% of students.

Students' preferences have been compared to the instructors' preferences, reported before (Uziak, Lorencowicz, Koszel, Kocira, 2017). Blended learning, with face-to-face lecturing with online material, was also the most prefered method by instructors (58%) – Fig. 3. However, sole face-to-face method was

also popular with 45%; almost nobody opted for on-line learning, neither synchronous or asynchronous (2% each).

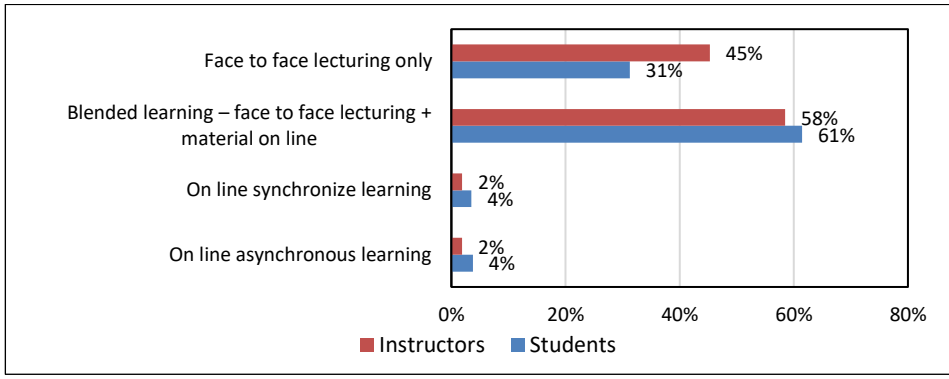

Fig. 3. Course delivery preferences

Cheating in Classrooms

Only 27% of students openly admitted to using IT when cheating during class assessments (Fig. 4). However, 251 students answered positively to one (or more) options of cheating, meaning that 73% (251 of 243) students in fact admitted to cheating (Fig. 5).

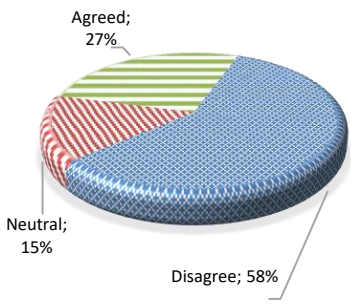

Fig. 4. Cheating declaration by students

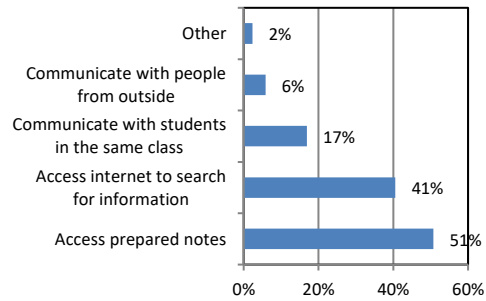

Fig. 5. Type of cheating affirmed by students

The most popular method of using IT in cheating was accessing already prepared notes (51%) and internet access to search for information (41%). Communication with other students in the same class was less popular (17%), whereas communication with people from outside of the class was quite rare (6%). In terms of cheating methods, there were no substantive differences between different levels of study, although more Year 1 students reported accessing internet in search of information than accessing notes (Fig. 6).

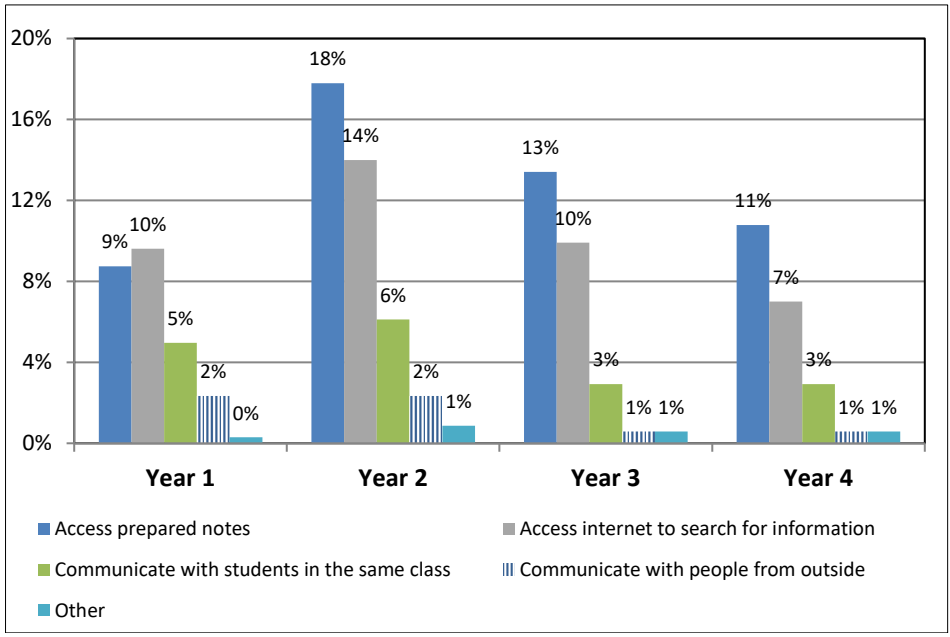

Fig. 6. Type of cheating distributed through the years of study

Conclusions

The students were very clear on the delivery preference opting in majority (apart from Year 1students) for blended learning, i.e. a combination of traditional face to face lecturing with additional on-line material (58%). Although there was still a considerable fondness for traditional approach with only face to face lectures (33%). The same applies to the instructor preferences, which shows a pleasing agreement between instructors and students. Pure on-line learning (synchronous or asynchronous) was not a viable option. However, it is not clear how the on line part of the blended learning is supposed to be achieved as from a separate study, it is known that the same population of students hardly use the virtual learning environment (VLE), available in the university (Uziak et al., 2017).

Students, most often used IT to access information on curriculum and syllabi (84%), followed by the lecture material (43%), with lab/tutorial materials, and exam and test question, with 37% and 21%, respectively. That is in contrast to the instructors, who most often used IT for class presentation preparations.

The study confirmed IT as a tool for class cheating. The students were not frank enough to openly admit to that fact. However, although only 27% of students openly confessed to using IT for cheating in the class assessments, 251 of 243 students participating in the survey answered positively to one or more methods of cheating. That clearly indicates that almost three quarters of students

(73%) in fact acknowledged cheating, using one or other method. The most popular methods were accessing already prepared notes (51%) and internet access to search for information (41%).

Academic dishonesty, or cheating, has become a serious, and almost a chronic problem at institutions of higher education. Unfortunately, that has been even augmented by the application of IT. It is the role of each institution and also individual lecturers to appeal to the ethical judgment and higher morals of the students to prevent such events.

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