Access to a learning management system by full-time and part-time students reveals notable differences

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ABSTRACT: A learning management system can provide ubiquitous access to students in higher education. This can help improve student engagement and academic success. However, such a system can also be used to reveal the study habits of students that can help academics to identify necessary academic student support as required. The purpose of this article is to contrast the accesses of full-time and part-time students to a learning management system in South Africa, so as to identify notable differences and possible concerns. A time-lag study is used (2016-2019) where accesses to BlackBoard™ are analysed quantitatively in terms of when these students engage with the course content. The contrast represents students who are full-time on campus to those who are part-time on campus due to external work commitments. The results show that the accesses of full-time students tend to peak on Fridays, and be less on the weekends than the part-time students who tend to access the system more on Wednesdays. Both types of students tend to get at least six hours of sleep per day, which can be increased if appropriate academic student support mechanisms are used.

INTRODUCTION

Time stays long enough for anyone who will use it.

These words, by a world famous Italian artist Leonarda da Vinci, well conveys the truth that we need to use our time wisely, while here on earth, for it does not stay with one forever. One of the best ways to use time wisely is to improve the quality of our lives by furthering our education through means of life-long learning. Indeed, lifelong learning leads to an enriching life of self-fulfillment [1].

However, it must be noted that not all people have the same amount of time available to further their education, especially, when it comes to higher education. Students who enter higher education for the first time right after completing their schooling career usually have more time to study than older students who return to university later in life to upgrade their qualifications. This gives rise to the terms *full-time* and *part-time* students.

Full-time students can be defined as students that are full-time engaged with their studies and receive full-time training at the university, whereas part-time students, on the other hand, are usually involved in other activities outside of the university. The definition of part-time students may differ from university to university [2], but is used in the context of this study to describe students who are working full-time for an employer, while studying part-time at a local university. These students would typically attend classes in the evening or on the weekends, when they are free from their work commitments.

However, both types of students need to avoid poor study habits if they are to achieve academic success. This includes avoiding noise during study periods, ineffective time management, inappropriate techniques for review of learning materials and incomplete notes or bad note taking [3]. Of particular note here is ineffective time management skills that would also include the number of hours that students sleep per day.

A study found that students need to sleep at least six-seven hours per day and wake up feeling refreshed in order for them to have obtained a good quality measure of sleep [4]. Sleeping less than six hours is considered potentially to compromise health and well-being [5], and is not conducive to improving the quality of one's life.

The purpose of this article is to contrast the accesses of full-time and part-time students to a learning management system in South Africa, so as to identify notable differences and possible concerns in terms of sleep patterns. This may assist an academic to better understand and address possible poor study habits of these students at the start of a semester. The article firstly considers the difference between full-time and part-time students, followed by a brief consideration of important study habits. The context, methodology, results and conclusions then follow.

FULL-TIME VERSUS PART-TIME STUDENTS

A considerable portion of part-time students who work full-time while attending university have to balance financial urgencies, such as paying rent, buying food and maintaining a family [6]. They are more likely to be financially independent, be married, and have one or more dependents [7]. Many such students state that balancing these different responsibilities with their studies is challenging [8].

Research further shows that full-time working students are more susceptible to emotional burnout than part-time students [9]. They could be sacrificing needed sleep time to complete assignments or they could become overly stressed and anxious about upcoming assessments that are scheduled at the same time as a deadline for a work project.

Part-time students tend to be older than full-time students, are a less homogenous group and are less likely to qualify for bursaries and awards to supplement their income [10][11]. Full-time students may see a qualification as a means to improve their chances to obtain work, whereas part-time students are more cynical about their studies value in the workplace [12]. Part-time students, however, do see the qualification as a way of being promoted [13].

A comparative study of part-time and full-time students in the Faculty of Education at the University of Technology in Malaysia found significant differences between emotional intelligence and mode of learning, where part-time students seemed to be more emotionally intelligent than the full-time students [14]. This emotional intelligence relates to their ability to assess and control his or her own feelings and the feelings of others, which would be necessary in the workplace where personal interactions between different cultures and races may occur on a daily basis.

As most part-time students are working, they are limited to attending classes after hours or on weekends if offered by the university [15][16]. Many part-time students prefer e-learning above the traditional classroom methods [14], as this negates the loss of time spent in travelling from their place of work to the classroom and then back home again. It helps these students to manage their time more wisely, as they can now spend their lunchtime at work completing an assignment or they can be present at home with their children while studying for an assessment.

For full-time students, effective time management also contributes to their academic success [17]. However, being full-time on campus during the day gives them direct access to an academic, to a study group, to a laboratory and to additional study resources. They can easily seek clarity to a question that may arise during the course, whereas the part-time student may need to wait for a response to his or her questions.

STUDY CONTEXT

The context of this research is limited to electrical engineering education, where first-year students are contrasted to senior engineering students. Two modules are used in this regard, being Electronics 1 (a compulsory module in the National Diploma) and Electronic Communications 4 (an elective module in the BTech degree) offered at the Central University of Technology (CUT), Bloemfontein, Free State, South Africa, between 2016 and 2019.

This National Diploma is a National Qualifications Framework (NQF) Level 6 qualification that requires students to obtain a minimum of 360 credits over a minimum of three years, while the BTech degree represents an additional year of study after completing the Diploma (120 credits are associated with it). Full-time first-year students enrolled for the Electronics 1 (ELE) module, while part-time students enrolled for the Electronic Communications 4 (EKM) module.

CUT operates on a semester basis of roughly 13 weeks, where part-time students attend one classroom session per week (five periods of 45 minutes in duration on one specific day). Full-time students attend two classroom sessions per week (four periods of 45 minutes in duration) and one laboratory session (two periods of 45 minutes each) which usually spans three days.

RESEARCH METHODOLOGY

A time-lag study (2016-2019) is used to gather quantitative data from an institutions learning management system (LMS). This data includes student accesses to the LMS, termed eThuto, built on the Blackboard™ platform. These accesses are obtained by running a specific report in the LMS, termed *Summary of user activity*. This was done at the end of each semester when all students had completed their final summative examination.

This report indicates the time of day and day of the week in which each student accessed the LMS. It must be noted that the LMS terminates a login session if no interaction has occurred after a limited period of time. Students cannot, therefore, remain logged into the system, if they are not engaging with it through uploading, downloading or accessing specific content. This data thus represents actual student engagement with the LMS over a four-year period.

The student sample comprises 748 first-year students (classified as full-time) and 54 senior-engineering students (classified as part-time). Ethical clearance was not required by the University as the data was drawn from the institution's LMS. No student names or identities were used as the data is anonymous.

RESULTS AND DISCUSSIONS

Figure 1 shows the time of day usage of the LMS from 2016 to 2019 for part-time students in the module Electronic Communications 4 (EKM). Data from each year are shown separately on the graph with no significant differences regarding the time of day use for the different periods. A sharp rise in activity is observed between 6 am and 8 am, and the usage stays relatively constant until about 8 pm when a gradual decrease occurs.

From these results, it can be deduced that the majority of part-time students do get adequate sleep between midnight and 6 am. This correlates well with literature, which indicates that students need six-seven hours of sleep per night in order to feel refreshed. Many of the part-time students are working and may have time and access to the internet during working hours. That may explain the relative constant use from 8 am until about 8 pm. The decline after 8 pm may indicate that some students are finishing off their daily study activities. However, approximately 0.7% of the 54 senior engineering students are not sleeping between 1 am and 6 am, which could be addressed by using additional academic support mechanisms to raise awareness of the importance of maintaining good sleep patterns.
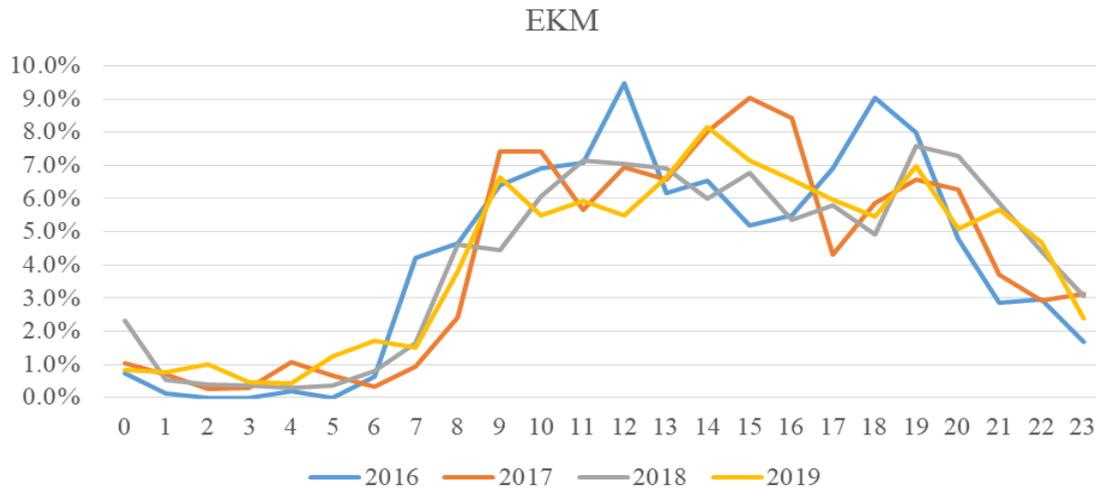

Figure 1: Time of day usage over the 4-year period for part-time students.

Figure 2 shows the time of day use of the LMS from 2016 to 2019 for full-time students in the module Electronics 1 (ELE). A similar pattern for part-time students can be observed between midnight and 7 am, which may indicate that full-time students also obtain the required sleep of around six-seven hours. However, approximately 0.4% of the 748 students are still active on the LMS during this time. These full-time students engage with the system from 8 am onwards, peaking at around 9-10 am and then declining steadily until midnight. This engagement during class time at the University can be expected as the students may have access to the LMS via the Wi-Fi network of the University, as well as access to computer laboratories. The results in Figure 2 indicate that full-time students tend to spend less time after hours on the LMS as compared to the part-time student in Figure 1. This may indicate that they have enough time at the University during the day to attend to their studies.
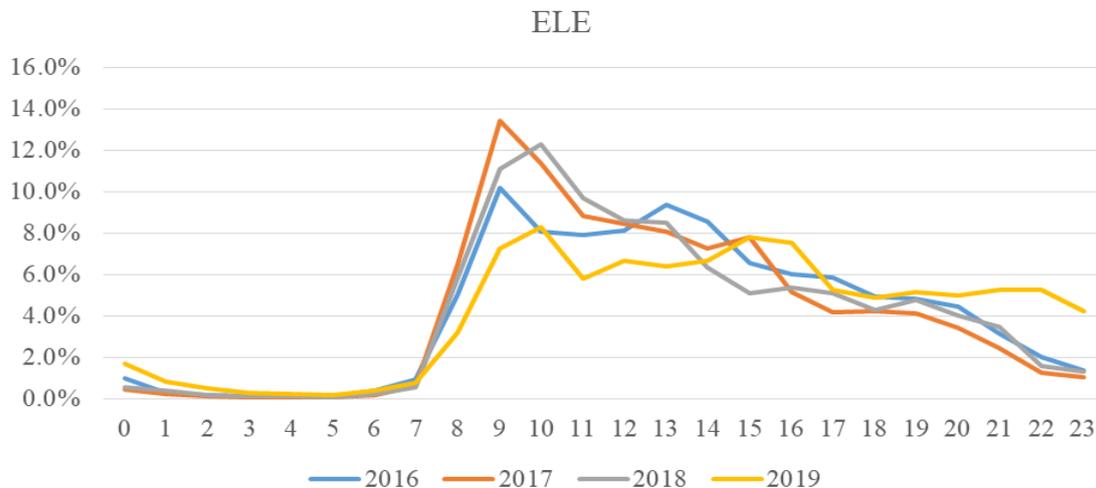

Figure 2: Time of day usage over the 4-year period for full-time students.

Figure 3 indicates the median from 2016 to 2019 for both full-time and part-time students regarding the time of use during the day. As already discussed, it can be seen that adequate sleep from midnight until 6 am is observed for both groups. A higher usage from 8 am until 3 pm is observed for full-time students, after which the usage gradually

declines. Usage of the LMS is more constant from 9 am until 7 pm for the part-time students. Again it can be derived that full-time students spent time at the University on the LMS where part-time students may have less time during working hours, thus also spending relatively more time after hours on the LMS.
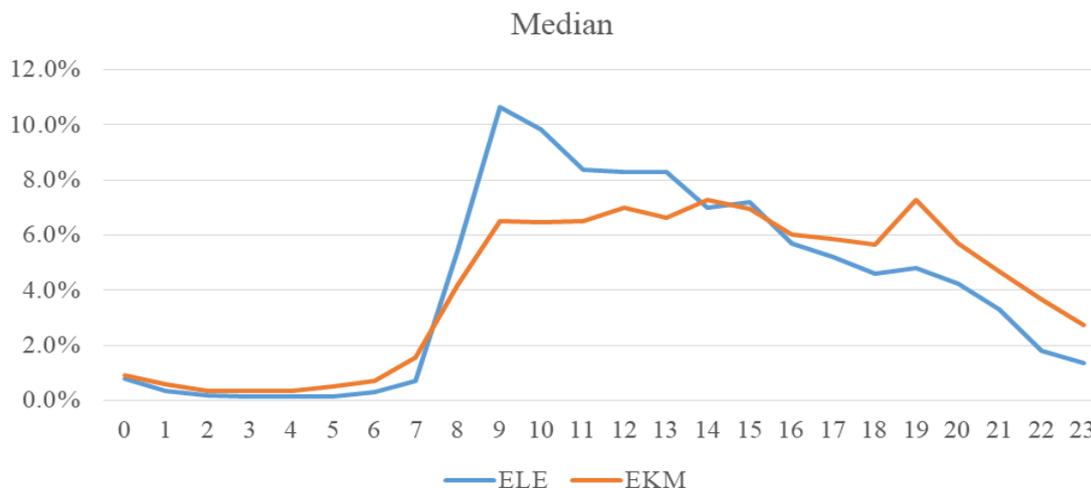

Figure 3: Comparison between full-time and part-time students in terms of the time of use during a day.

Figure 4 indicates the use of the LMS during certain days of the week for both full-time and part-time students. The usage of the system peaks on Fridays for full-time students (ELE). This may be because of the fact that they have access to the Wi-Fi network at the campus. Some of them may not have access to the Internet at home, and therefore, they make use of the opportunity to finish urgent work before leaving for home. It must also be noted that these first-year students had deadlines to meet on Sundays, either being an on-line assessment or on-line submission of a practical assignment.

It does seem that many of the 748 full-time students choose to submit their work at least two days prior to the deadline, as indicated by this peak. As full-time students have more time during the week to spend on their work, it can be observed that they spend less time during weekends as compared to the part-time students. The usage of the system peaks for part-time students (EKM) on Wednesdays. This may be because some urgent items at their work are dealt with early in the week, and they may have a bit of extra time on Wednesdays to spend on their studies. As can be expected, full-time students spend less time during weekends on their work than part-time students.
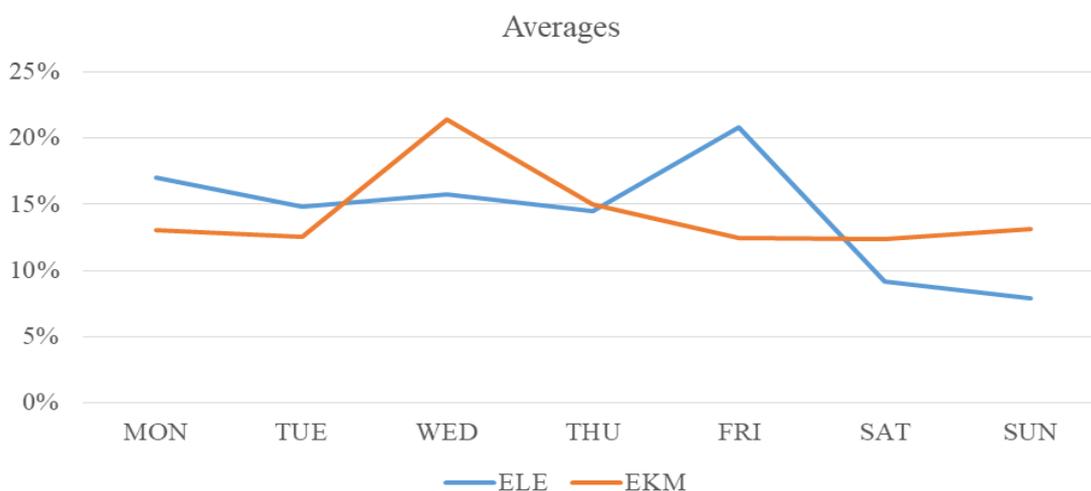

Figure 4: Comparison between full-time and part-time students in terms of time of use during a week.

CONCLUSIONS

The purpose of this article was to contrast the accesses of full-time and part-time students to a LMS in South Africa to identify notable differences and possible concerns in terms of sleep patterns. Access to the system was used to determine when students are active and when they could be sleeping. Previous research indicated that students need six-seven hours of sleep per night in order to wake up refreshed and be ready for their study activities.

The study found that both full-time and part-time students have similar patterns regarding inactive time on the LMS, where the majority seem to be sleeping between 1 am and 6 am. However, a small percentage (0.7% of 54 part-time students and 0.4% of 748 full-time students) of students still access the LMS between 1 am and 6 am, when they should

be getting the required sleep for the day. A recommendation in this regard is to using additional academic support to create further awareness among all these students about the necessity to obtain more than six hours sleep per day. This is a requirement if they are to succeed with their academic studies.

The results further show that full-time students peak in their access to the LMS on Fridays, which was 2 days ahead of a weekly deadline for online assessments and submissions. Students may also have wanted to complete their assigned work for the week on that day, as they had free access to the WiFi system on campus, which may not always have occurred at their place of residence. Part-time students accessed the LMS more on Wednesdays and on weekends than did the full-time students, given the fact that they have limited study time during the week due to their work commitments.

It can be assumed that the majority of these full-time and part-time students are making wise use of their time in completing their assigned tasks. The majority seem to be cultivating good time management skills in terms of meeting deadlines and obtaining the required sleep per night.

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