

The influence of class attendance on student performance: the case of a digital literacy module

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ABSTRACT: Class attendance is not always compulsory in higher education. Various reasons exist for this, which include challenges in the administration thereof. Personal challenges faced by students may also prevent them from attending regularly. However, the importance of class attendance cannot be overemphasised, as it can expose students to social interactions, to the expertise of the lecturer, and to further student engagement with the course content. The purpose of this article is to highlight the importance of class attendance on the performance of students in a digital literacy module. A correlation design study is used where quantitative data is considered that includes the final grades of students and their class attendance as a percentage over a two-year period. A positive significant relationship was found to exist between class attendance and student performance. The Pearson's correlation coefficient for 2022 was $r = 0.77$ and $r = 0.87$ for 2023. Overall, this study underscores the critical role of attendance in academic performance of first-year students and highlights the importance of considering attendance-focused interventions in higher education.

INTRODUCTION

It is so important to understand your good attendance ups your chances of graduating [1]. Tyra Banks, an American model, uttered these words that emphasise the importance of regular classroom (or class) attendance, which relates to improving one's performance and chance of academic success. It is a lesson that some students need to learn. Why? Well some students take for granted class attendance by not attending regularly and by not paying attention in class [2]. Some do have valid reasons for not attending regularly, such as work commitments and personal challenges. However, if a student registers for a module at a university, then the student needs to commit to that module and to its requirements. For example, if one registers to attend a conference, then it is expected that payment and attendance will follow. Registering without attending makes little sense and is really a waste of resources.

Early student engagement occurs when students start to engage with the content of a module during the first week of a semester, and especially by attending the first class discussion [3]. This enables the student to start forming social connections that may lead to the formation of a study group. It further exposes the student to the expertise of the lecturer, who can help motivate students to reach their potential. This is especially so when the academic is enthusiastic, passionate and consistent in delivery.

However, there is evidence to suggest that mandating class attendance leads to a culture of distrust and antagonism between students and faculty, thus leading some to believe that attendance should be recommended or encouraged or even mandated, but with some flexibility for free passes incorporated [4].

Students need to see the benefits that come from voluntarily attending class discussions that do include social interaction, participation by asking questions, note taking and regular reminders of what is important. Students also need to be made aware of the possible negative consequences of poor class attendance. This includes significant implications for academic performance, overall success [5] and a weaker student-teacher relationship [6].

Therefore, this study, in consideration of the non-mandatory class attendance policy at a university of technology (UoT), seeks to answer the following main research question: *What statistical relationship exists between student's class attendance and final mark for a digital literacy module?* The following section of the article provides a review of literature on why students may not be attending class. The context of the study and the results then follow.

LITERATURE REVIEW

Despite the numerous advantages outlined above, previous studies have identified how detrimental non-attendance of class has on student performance, disadvantages of class attendance, and other underlying factors influencing students'

non-attendance of classes. A study by Swanepoel et al found that non-attendance of classes by first-year microeconomics students at the University of the Western Cape (UWC), South Africa, was influenced by factors, such as preparation for tests, unhelpful and boring lectures, assignments to be completed, sufficient on-line learning resources, and tutorials, resulting in lower examination marks [7]. Top performing students in Greece preferred autonomy as compared to compulsory attendance of classes, as this provided them a better chance of performing better in their modules [8].

In addition, undergraduate business and economics students in Egypt outlined that class attendance presented disadvantages, such as excessive length of class time and inconvenient class schedules [9]. Furthermore, it is argued that the influence of attendance on student performance decreases when other factors, such as attention, involvement and motivation are taken into consideration, meaning that attendance alone may not be sufficient in improving student performance [10].

STUDY CONTEXT

The study context focuses on a digital literacy module offered at the Central University of Technology (CUT), which is situated in Bloemfontein, Free State, South Africa. The University has two campuses, one in Bloemfontein where all learning programmes are offered and one in Welkom where selected modules are offered.

The module is offered to first-year students enrolled for the Bachelor of Health Sciences in Medical Laboratory Science (B_MLS) degree. It is called Computer Skills I with six credits attached to it (this represents 60 notional hours) and is usually presented in the second semester of each calendar year. The B_MLS is a four-year 492 credit bearing qualification offered at National Qualifications Framework (NQF) level 8 as outlined in the CUT calendar of 2023 [11].

Digital literacy is part of CUT's core curriculum in providing students with an understanding of essential computer concepts by introducing the components of a computer system, exploring the basics of Windows 10 and its file management system, Internet and the World Wide Web, cloud computing and Office 365. The module also aims to provide students with the basic knowledge of how to use MS Word and Excel 2021 to create reports and charts that demonstrate the practical application of generally accepted conceptual procedures in the field of information technology.

This module is based on continuous evaluation, meaning that it has no examinations, but students are assessed continuously throughout the semester to ensure that they achieve the learning outcomes. Both theory (40 minutes or 1 period) and practical (80 minutes or 2 periods) classes are offered each week. The module's schedule and weight contribution towards the student's final mark for 2023 are presented in Table 1.

Table 1: Module schedule and weights.

Week	Date	Tasks	Weights
1	24 - 28 July	Introduction	
2	31 Jul - 04 August	MS Word unit 1 18 learning outcomes	Project = 2.5% Discussion/reflection = 2.5%
3	07 - 11 August	MS Word unit 2 14 learning outcomes	Project = 2.5% Discussion/reflection = 2.5%
4	14 - 18 August	MS Word unit 3 and 4 33 learning outcomes	Projects = 5% Discussions/reflections = 5%
5	21 - 25 August	MS Word assessment	20%
6	28 August - 01 September	MS Excel unit 1 and 2 30 learning outcomes	Projects = 5% Discussions/reflections = 5%
7	04 - 08 September	MS Excel unit 3 10 learning outcomes	Project = 2.5% Discussion/reflection = 2.5%
8	11 - 15 September	MS Excel unit 4 11 learning outcomes	Project = 2.5% Discussion/reflection = 2.5%
9	18 - 22 September	Main test week (No classes)	
10	25 - 29 September	MS Excel assessment	20%
11	02 - 06 October	Recess	
12	09 - 13 October	Computer concepts (CC): self-study 61 learning outcomes	Discussion/reflection = 5%
13	16 - 20 October	Computer concepts assessment	15%
14	23 - 27 October	Sick tests	

Project-based learning (PBL) is applied, whereby students complete projects enabling them to learn by doing [12]. PBL is based on constructivist learning theories [13], engaging students in learning activities to make sense of the knowledge they have gained. For example, students apply project steps by editing and formatting a new Word document to create a flyer for advertisement purposes. One of these steps is *Begin by changing the orientation to Portrait so the page is longer than it is wide*. The student will then apply the step and change the orientation.

METHODOLOGY

This research employs a correlation design study to analyse the influence of class attendance on student performance over a period of two years. This design is used to examine relationships between two or more variables without the researcher’s influence [14]. Furthermore, this design approach allows one to observe the strength and direction of the relationship between two or more variables, and it is effective for non-experimental studies.

Data for the study were collected over a period of two years, 2022 and 2023, which included records of first-year students who enrolled for the B_MLS degree. For each year, two primary metrics were collected:

1. Class attendance: recorded weekly as a binary variable by scanning the student cards to record their student numbers in a spreadsheet. The class attendance for a student for the semester is based on how many times they attended class as a percentage.
2. Student performance: a final mark calculated according to the weighting on Table 1 for the module at the end of the semester.

The study’s independent variable is class attendance, which is the cumulative percentage of attended class, and student performance is the depended variable which is a final mark at the end of the semester. MS Excel was used to analyse the data. The following analytical procedures were performed.

- Step 1: Frequency analysis. The study conducted a frequency analysis for the independent variable to show the trend in class attendance between the two years. This is shown as a histogram under the results.
- Step 2: Statistical analysis. A correlation analysis was conducted to determine the coefficient determination (R^2) and Pearson’s correlation coefficient (r). This was done to determine if a statistically significant relationship exists between class attendance and student performance. A scatter plot is used to present the coefficient determination, and a table is used to present the significance under the results.

RESULTS

Table 2 provides a few statistics for 2022 and 2023 in terms of the number of students enrolled for the module and the pass rate. The pass rate for 2023 was less compared to that of 2022.

Table 2: Class statistics.

Year	Number of students	Number passing	Pass rate (%)
2022	44	36	82%
2023	62	45	73%

Figure 1 presents the class attendance statistics. In 2022, of the 44 students enrolled for the module, 52% attended more than 80% of the class, while 71% of the 62 enrolled students in 2023 did the same.

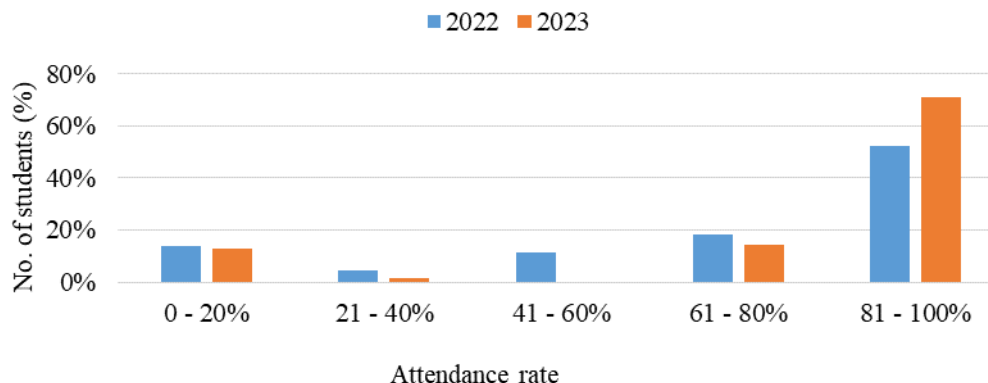


Figure 1: Class attendance.

Figure 2 illustrates the relationship between the independent variable (class attendance) and the dependent variable (final mark) for 2022. A coefficient of determination (R^2) of 0.5924 for the linear trend line was found, indicating that 59% of the variation in the dependent variable was explained by the independent variable.

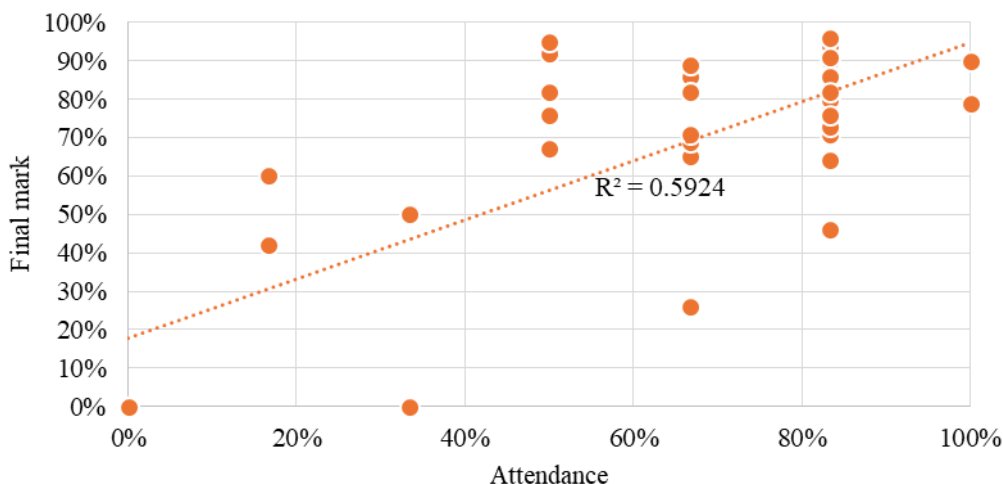


Figure 2: 2022 Class attendance vs final mark.

Figure 3 shows the relationship between the independent variable (class attendance) and the dependent variable (final mark) for 2023. A coefficient of determination (R^2) of 0.7814 for the linear trend line was found, indicating that 78% of the variation in the dependent variable was explained by the independent variable.

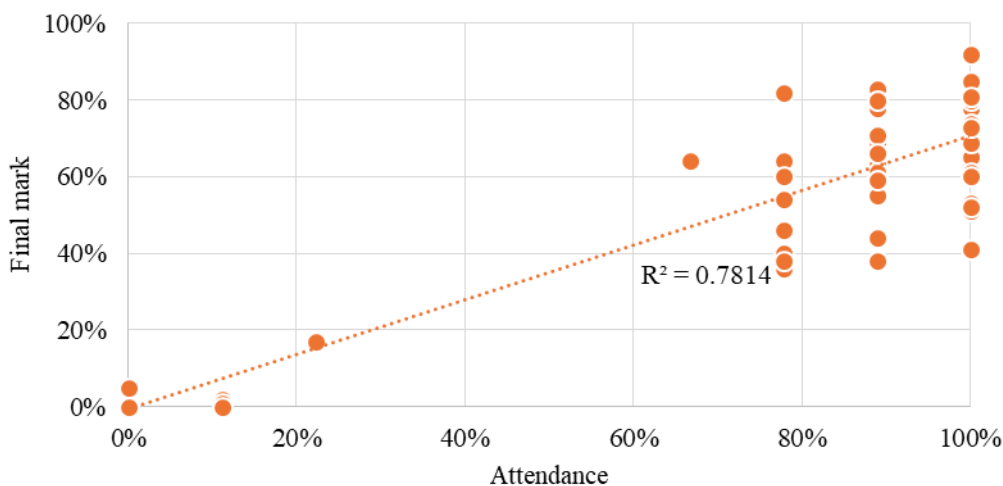


Figure 3: 2023 Class attendance vs final mark.

Table 3 provides the correlations of the study between class attendance and student performance for 2022 and 2023, showing the Pearson's correlation coefficient (r) and significance. The Pearson's correlation coefficient for 2022 is $r = 0.77$ and $r = 0.87$ for 2023.

Table 3: Correlations.

Year	Coefficient (r)	N	T -statistic	Degrees of freedom (df)	Sig. (2-tailed)
2022	0.77	44	7.81	42	0.000
2023	0.87	62	13.96	60	0.000

DISCUSSION

It was observed that the pass rate dropped by 9% in 2023 as compared to 2022. However, an academic performance of 70% and above is considered excellent [5], with 82% of students passing in 2022 and 73% in 2023.

The results further show an almost similar trend in class attendance between the two years with most students having attended more than 80%. The attendance rates observed in these years align with what Muresherwa and Bama found in their study, where approximately 80% of first-year tourism and events management students attended class as compared to an attendance rate of approximately 50% of third-year students [5].

According to Bai et al, a correlation coefficient (r) of 0.70 - 0.90 represent a high positive correlation between variables [15]. Therefore, the r values (see Table 3) and R² (see Figure 2 and Figure 3) between the two variables in both years suggests that these variables are highly correlated. Most importantly, the results showed that the relationship between these variables is statistically significant at $p < 0.001$ for both years. Based on these results, there is a strong positive significant relationship that exists between class attendance and student performance.

This finding aligns with previous studies highlighting high success rates with class attendance. The more students attend class regularly, the more they gain additional knowledge from materials and other in-class support and resources, and the higher their chances of succeeding in their performance [15]. Fadelelmoula found that respiratory care students who attended more classes earned higher final grades [16]. Another study found that undergraduate students in an English course who attended class and took notes were able to experience positive learning benefits [17]. In addition, a study by Al Shenawi et al revealed a significant positive correlation between undergraduate medical students' attendance and academic performance during their surgical clerkship [18].

CONCLUSIONS

The purpose of this article was to highlight the importance of class attendance on the performance of students in a digital literacy module. The results of this study suggest that improving attendance policies, for example, making class attendance compulsory for first-year students, may lead to improved academic performance. However, it should be noted that the results were only based on a period of two years for a first-year digital literacy module, and therefore, cannot be generalised. Thus, future research could explore whether the relationship between class attendance and student performance holds across different learning programmes, student levels and cultural contexts. Overall, this study underscores the critical role of attendance in academic performance and highlights the importance of considering attendance-focused interventions in higher education.

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