

The Correlation between the Demographic Factors and Students' Moodle Logs and their Academic Achievements in a Pre-degree Course

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ABSTRACT: The study explores the correlation between the demographic factors, the Moodle logs, and the academic achievements of the LLFXX students. The demographic factors analyzed were students' age, gender, program of study, and their time at the University of the South Pacific (USP). A quantitative research method was employed to collect and analyze the data. A total of 80 Blended mode students filled out a questionnaire on the Moodle page and their results were analyzed using the Spearman's Rank Correlation Coefficient Test in the SPSS software. It was found that there was no correlation between the demographic factors and students' Moodle logs on the LLFXX Moodle page. Moreover, there was no correlation between the LLFXX students' demographic factors (age, gender, and time at the USP) and their academic achievements. However, there was a correlation between students' study program and academic achievement.

KEYWORDS: correlation, demographic, eLearning, interaction, Moodle

Introduction

Moodle is a crucial component of the teaching and learning process. Schools and tertiary institutes in the Pacific countries use it due to its 'access-free feature' (Yuksel 2022, Cejudo 2007, Escobar-Rodriguez and Monge-Lozano 2012). It has benefitted the instructors and students in many ways and has become an integral part of the everyday life of the instructors and students. Moodle is increasingly being used as a platform for adaptive and collaborative learning and to improve online assessments (Gamage, Ayres and Behrend 2022). Moodle ensures that online learning activities can be carried out without any difficulties (Simanullang and Rajagukguk 2020).

It has been argued that there are many factors that affect students' Moodle Log (Essel and Apeanti 2017, Karishma and Raghuwaiya, Factors Affecting Interaction on Moodle: An Empirical Study Based on TAM 2023) and their perception of Moodle and its use (Mijatovic, Jovanovic and Jednal 2012, Ramadania 2021). These include demographic factors such as a student's age, sex, income, and education (Aristovnik, et al. 2017, Aliyu, Arasanmi and Ekundayo 2019).

Background

The University of the South Pacific (USP) is a regional university managed by 12 member countries (Cook Islands, Fiji Islands, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu). All the campuses are connected on Moodle via satellite. Moodle was introduced at the USP in 2008 (Whelan and Bhartu 2007) and it has become a mandatory component of all courses offered via Blended, Online, Face-to-face, and Print modes.

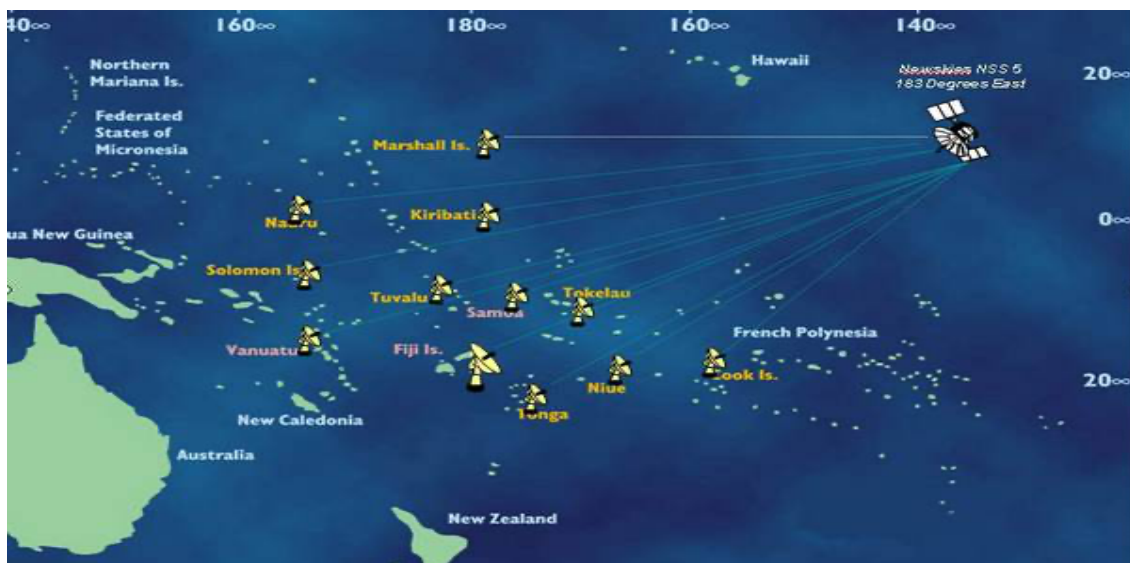


Figure 1. USP connectivity: Moodle (The University of the South Pacific 2015)

The Rationale of the Study

Research on students' demographic factors and their Moodle logs and academic achievements have been carried out at the degree and postgraduate levels. Such study has not been carried out in pre-degree programs (Year 13 equivalent) in the Pacific. It is crucial to know if students at this level have similar factors affecting their interaction on the Moodle page or their academic achievements. Therefore, the following research questions framed this study:

Q1: Do the demographic factors influence students' Moodle Logs on the LLFXX Moodle page?

Q2: Do the demographic factors influence students' academic achievements in LLFXX?

Literature Review

Moodle plays a crucial role in the education system in the 21st century. It facilitates both synchronous and asynchronous learning (Karishma, Raghuwaiya and Lingam, 2023) and ensures that activities on Moodle are carried out without difficulty (Simanullang and Rajagukguk 2020). Moodle also enables developers to accommodate for individual needs as it connects enormously with several web-based resources permitting developers creativity and flexibility (Kotzer and Elran 2012).

There are many factors that affect interaction on Moodle. While the gender of the students has no effect on their interaction with Moodle, it does affect their willingness to use computers; however, male learners are more accommodating to new technologies than females (Gunduz and Ozcan 2017). The age of the students may also influence Moodle acceptance (Saleem, Al-Saqri and Ahmad 2016, Aristovnik, et al. 2017). The experience of the teaching staff may be another factor that drives Moodle's acceptance and adoption (Saleem, Al-Saqri and Ahmad 2016). Lack of infrastructure (Singh, Pathak and Naz 2009), various learning styles of students (Gulden 2013), their social influence (Aliyu, Arasanmi and Ekundayo 2019), and knowledge of using computer-based teaching methods (Nisbet 2004) vastly contribute to interaction on Moodle.

In addition to this, Studies have been carried out to find the influence of demographic factors and students' performance. Students' IT self-efficacy should not be taken as a strong predictor of students' academic achievement (Abulibdeh and Hassan

2011). The results reveal that gender affiliation correlates with overall performance but does not affect the selection of training materials (Zhang, Ghandour and Shestak 2020). Learning analytics factors were not related to, nor could they predict student academic performance (Strang 2016). Studies have shown that students' demographic factors may or may not affect students' Moodle logs and their academic achievements.

Methodology

A quantitative research method has been employed to collect data for this study. The Blended mode students enrolled in LLFXX were given the information sheet and consent form to fill in. 80 Blended mode students gave consent to participate in the study. These 80 students were based at the Laucala campus (main campus) of the USP. They were enrolled in the researcher's sandbox page on Moodle. A questionnaire was uploaded on this Moodle page for the participants to fill out. The demographic details were extracted from here. The Moodle Logs on the LLFXX Moodle page were extracted from the LLFXX Moodle page and the result Excel sheet gave details of students' academic achievement (marks).

The Spearman's Rank Correlation Coefficient Test in SPSS was used to analyze the data from the Moodle page to find a correlation between students' demographic factors and their academic achievements and Moodle Logs. The data from Excel was used to derive the non-verbal texts.

Results

The data collected from the questionnaire on LLFXX students' demographic factors have been analyzed below in the non-verbal texts.

Demographic Factors

The demographic factors that were studied were the age, gender, program of study, and time at the USP of the LLFXX students.

Age

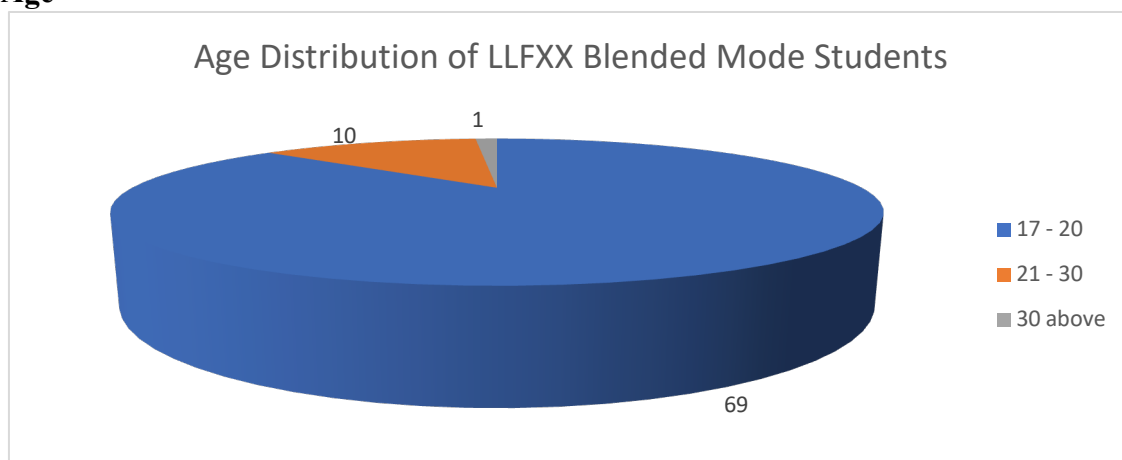


Figure 2. Age distribution of LLFXX Blended mode students

Figure 2 shows the age distribution of LLFXX Blended mode students. A total of 80 Blended mode students participated in the study. Most of the LLFXX Blended mode

students (69 students) were between the age of 17-20 years, and 10 students were between the age of 21-30 years. Only 1 Blended mode student was above 30 years old.

Gender

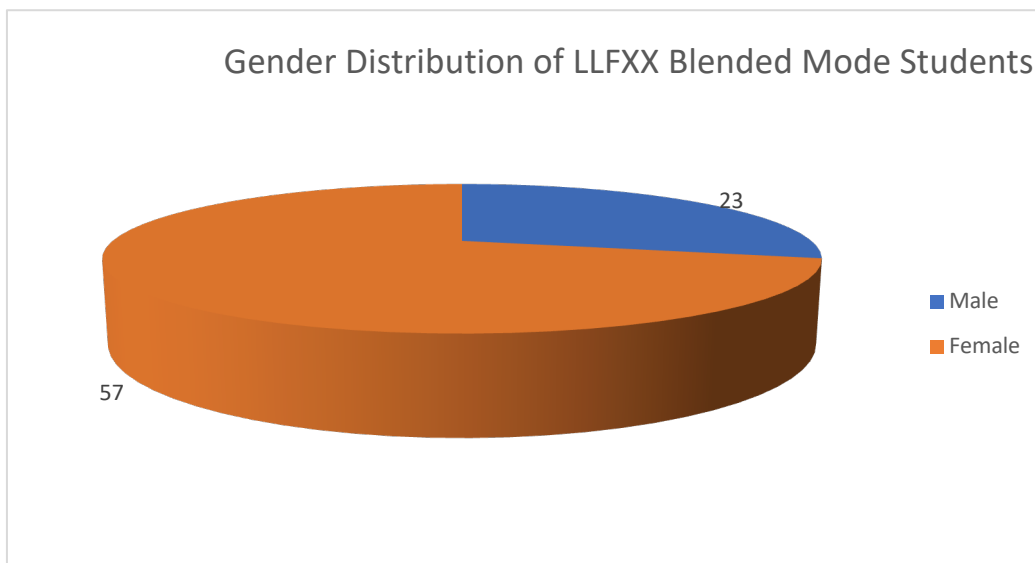


Figure 3. Gender distribution of LLFXX Blended mode students

Figure 3 shows the gender distribution of the LLFXX Blended mode students. Of the 80 students, more than half of the students (57 students) were females. Less than one-third of the total students; 23 students, were males.

Program of the Study

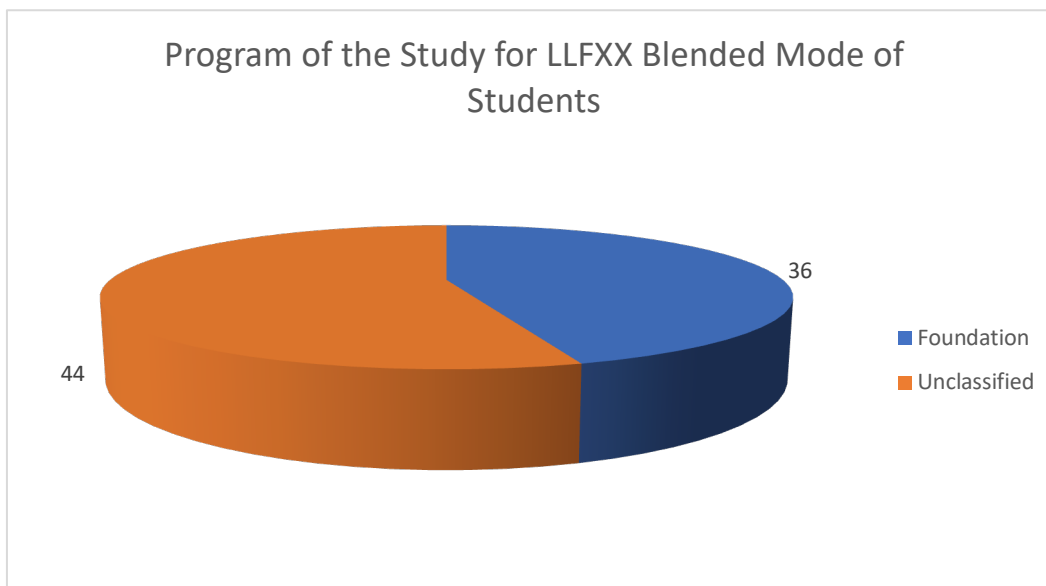


Figure 4. Program of study of LLFXX Blended mode students

Figure 4 shows LLFXX Blended mode students' choice of program. Full Foundation students take eight pre-degree courses. 36 of the LLFXX Blended mode students are enrolled in the Foundation program. The unclassified students are bridging students. They are enrolled in a few (either 1 or 2) pre-degree courses before they can be fully enrolled

in the degree program. 44 of the students who participated in the research are enrolled in the unclassified program.

Time Spent in the USP

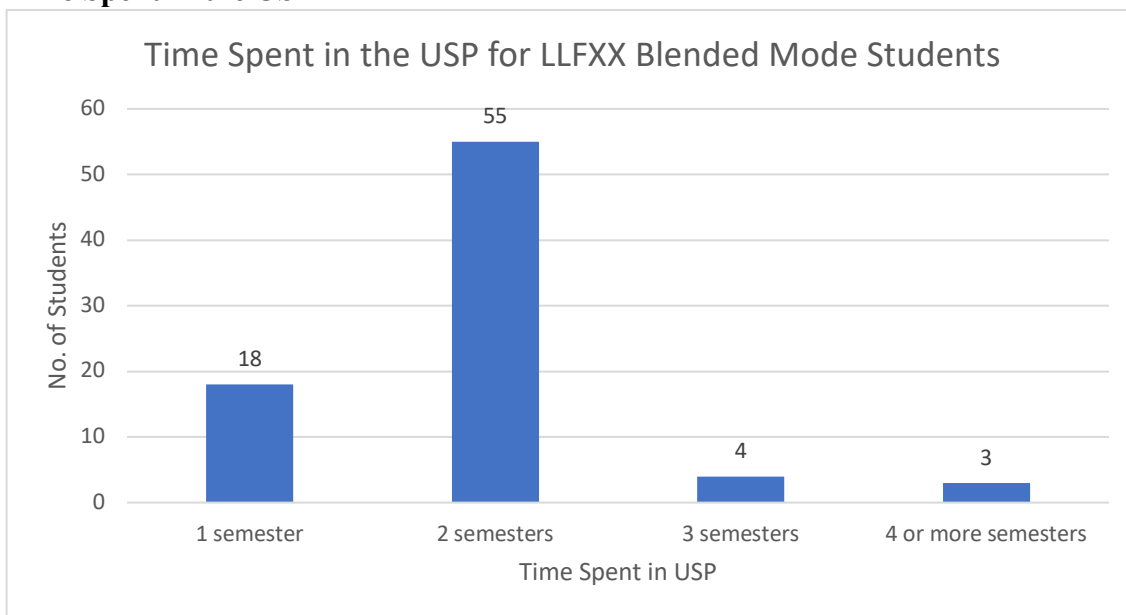


Figure 5. Time spent in USP for LLFXX Blended mode students

Figure 5 displays the time spent by the LLFXX Blended mode students in the USP. The greatest number of students (55 students) had spent 2 semesters in the USP. Additionally, 18 students had spent 1 semester in the USP. Three semesters were spent by 4 students and 4 or more semesters were spent by 3 students.

Spearman's Rank Correlation Coefficient Test

The Spearman's Rank Correlation Coefficient Test was used to analyze the correlation between the students' demographic factors and the Moodle logs and academic achievements. For this study, it was decided that $\alpha = 0.005$ (p-value). The hypothesis for this test was as follows:

Ho: There is a correlation between students' demographic factors and their Moodle logs and academic achievements.

Ha: There is no correlation between students' demographic factors and their Moodle logs and academic achievements.

Table 1. Results of Spearman's Rank Correlation Coefficient Test of LLFXX students' demographic factors and their Moodle Logs

Factors influencing Moodle Logs	p-value
Age	0.093
Gender	0.413
Program of study	0.096
Time at the USP	0.793

Table 1 shows the results of the Spearman's Rank Correlation Coefficient Test results for LLFXX students' demographic factors and Moodle logs. The p-value of all the demographic factors was > 0.05 and was statistically insignificant. $\alpha = 0.093$ for LLFXX students' age distribution. The gender distribution of the LLFXX students had $\alpha = 0.413$. $\alpha = 0.096$ for the LLFXX students' program enrollment. The LLFXX students' time at the USP had $\alpha = 0.793$. therefore, there was no correlation between students' demographic factors (age, gender, program, and time at USP) and their Moodle logs.

Table 2. Results of Spearman's Rank Correlation Coefficient Test of LLFXX students' demographic factors and their academic achievements

Factors influencing Marks	p-value
Age	0.426
Gender	0.210
Program of study	<0.001
Time at the USP	0.935

Table 2 shows the results of the Spearman's Rank Correlation Coefficient Test results for LLFXX students' demographic factors and academic achievement. The p-value for the demographic factors (age, gender, and time at the USP) was > 0.05 . $\alpha = 0.426$ for the age distribution of the LLFXX students. The gender distribution of the LLFXX students $\alpha = 0.210$. $\alpha = 0.935$ for the LLFXX students' time at the USP. These students' Spearman's Rank Correlation Coefficient result was statistically insignificant. However, $\alpha = <0.001$ for the LLFXX students' program of study. The result is statistically significant for this factor (Program of study). There is a correlation between students' program of study and their academic achievement.

Discussion

The study looked at the LLFXX students' demographic factors, their Moodle logs, and academic achievements. The first research question looked at the demographic factors that influence students' Moodle Logs on the LLFXX Moodle page. The demographic factors that were studied were age, gender, program of study, and time at the USP. Spearman's Rank Correlation Coefficient Test showed that the results are statistically insignificant (null hypothesis) as $\alpha > 0.05$ for these demographic factors (Table 1). Age had $\alpha = 0.093$, gender $\alpha = 0.413$, the program of study $\alpha = 0.096$, and $\alpha = 0.793$ for the time at the USP. This shows that there was no correlation between these demographic factors and their Moodle logs.

This shows that the age, gender, program of study, and time at the USP do not determine how many times a student logs in to Moodle or interacts with their course Moodle page. A student will log on to their Moodle page for their study purposes or when the need arises for this.

The second research question studied the demographic factors that influence the LLFXX students' academic achievements. The result was statistically insignificant (null hypothesis) for three demographic factors (age $\alpha = 0.426$, gender $\alpha = 0.210$, and time at the USP $\alpha = 0.935$) (Table 2). This shows that there was no correlation between age, gender, and time at the USP and students' academic achievement. However, the program choice had a statistically significant (alternative hypothesis) result as $\alpha = <0.001$ (Table 2). Since the p-value is < 0.05 , there is a correlation between LLFXX students' program of study and their academic achievement.

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The academic achievements of LLFXX students are influenced by their program of study. This means that students' enrollment in the Foundation program or the Unclassified program influences their academic achievement (marks). The students who are enrolled in the Unclassified program need to successfully complete a few courses before they can enroll in the degree program. Therefore, they need to strive to attain good marks in the LLFXX.

Students enrolled in the Foundation program are usually competing for scholarships and healthy grades. Thus, their marks would also be good due to their hard work and focus on getting good grades.

In contrast, being a male or female or the amount of time one has spent at the USP does not guarantee their academic achievements (marks). Most of the students are 17-20 years old (Figure 2). Some of these students can get high, average, or low marks. Hence, what marks they score is not dependent on their age but more on their hard work and compatibility with their program of study (Table 2).

Conclusion

The study was conducted on the correlation between students' demographic factors (age, gender, program of study, and their time at the USP) and their Moodle logs on the LLFXX Moodle page, as well as their academic achievements. There was no correlation between the demographic factors and their Moodle logs on the LLFXX Moodle page. Furthermore, there was no correlation between three demographic factors (age, gender, and their time at the USP) and their academic achievements in LLFXX. However, there was a correlation between the LLFXX students' program of study and their academic achievements ($\alpha = <0.001$).

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