The Role of ICT in Engaging with the Institution: A Learners Perspective

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ABSTRACT: This study explores students' perception of the role of Information and Communication Technology (ICT) and Moodle in the teaching and learning process at the pre-degree level at the University of the South Pacific (USP). A total of 80 Blended mode students from the pre-degree level were given a Likert scale questionnaire to express their perceptions of ICT and Moodle at the university. Cron Bach Alpha Test in SPSS was used to find the reliability of the data from the Likert scale. These perceptions were then correlated with students' Moodle Logs and academic achievements (marks). The association of these perceptions with the Moodle Logs and academic achievements was calculated using Spearmen's Rank Correlation Coefficient Test in SPSS. It was found that few perceptions correlated with students' Moodle Logs, academic achievements, and with each other. The Cron Bach Alpha Test showed that the data from the Likert scale was reliable. It was found that students at pre-degree have positive perceptions about ICT and Moodle at USP and some of these have correlations with students' Moodle Logs, academic achievements, and with each other.

KEYWORDS: Engagement, Institution, Learner Perspective, Moodle, Moodle Logs

Introduction

A learner's engagement with the learning resources and the learning environment is crucial whether it is a physical or a virtual classroom. For virtual classrooms, the students' engagement with the learning platform is of utmost importance. These engagements are mostly derived from or are a result of students' perceptions. What a learner perceives is how he or she engages with the learning resources and environment. If a learner feels that the learning resource or engagement will not give the satisfaction that he or she desires to achieve then they may refrain from engaging with it. This can affect their performance in classrooms and in exams. ICT and Moodle (a learning and teaching platform) act as a medium to ensure students receive the learning resources they need. Students use the ICT services and engage on Moodle to access the learning resources and enhance their productivity in the learning tasks to excel academically.

Background

The University of the South Pacific (USP) is a regional university located in the Fiji Islands. Its member countries are the Cook Islands, Fiji Islands, Kiribati, Marshal Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu (12 countries). However, it has students also from outside the region. USP's Prospectus (published annually), its Handbook and Calendar (published annually) and its Strategic Plan (published every 3 years) are some of the documents that act as guidelines for USP staff and students to ensure that the teaching and learning process is holistic and successful.

At the USP, students' engagement with the resources and the environment are given priority despite their various learning modes (Face-to-face, Blended, Online, Print). The Flexible Learning Policy defines the students' engagement under 'Dimensions of Flexibility'. Amongst engagements like learner to content, learner to other learners, learner to instructor, learner to learning environment, learner to assessments, and learner to feedback, there is a learner engagement with the institution. This is about the choices learners have in relation to their engagement with the services of the educational institution (The University of the South Pacific, The Flexible Learning Policy 2017).

These services are not only physical services like a library, book center, and medical center but virtual services that are provided by the ICT department, like the Learning Management System (LMS: Moodle). Priority Area 1: Education in the Strategic Plan 2022-2024 focuses on 'enhancing the student experience and engagement (USP Strategic Plan 2022-2024, 2022). The 2013-2018 Strategic Plan had ICT as Priority Area 4 (USP Strategic Plan 2013-2018, 2013). A lot of emphasis has always been given to ICT development and to teaching and learning in the USP's Strategic Plans.

Based on the extensive usage of ICTs in education, the need appeared to unravel the myth that surrounds the use of ICT as an aid to teaching and learning, and the impact it has on students' academic performance (Noor-Ul-Amin 2013).

The Rationale of the Study

Since so much emphasis is placed on ICT and Moodle in the USP, it is mandatory to explore if the learners have the same perception of these two components as the other stakeholders. Also, it is crucial to investigate if the students' perceptions impact their Moodle usage or the total marks in the course at the end of the semester. These areas have never been investigated in the Pacific and thus would be a pioneer study, especially at the pre-degree level.
Therefore, the two research questions that framed this study were:
Q1: Is there a correlation between students' Perceptions of Moodle and ICT at the USP and their Moodle log on the LLFXX Moodle page?
Q2: Is there a correlation between students' Perceptions of Moodle and ICT at the USP and their academic achievement (total mark) in LLFXX?

Literature Review

ICT is the use of technology to inform and communicate with each other. It includes computers, the Internet, and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in today's education field (Fu 2013). ICT's role in education and its importance will develop in the 21st century (Noor-Ul-Amin 2013). With the utilization of ICT, learning can be flexible as it can occur anytime and anywhere (Fu 2013). In many countries (like Flanders), ICT has a clear impact on the development of educational curricula (Tondeur, Braak, & Valcke 2006). The education government has identified and defined a framework of ICT competencies for expected outcomes, related to knowledge, skills, and attitudes that pupils are expected to achieve at the end of primary school (Tondeur, Braak, & Valcke 2006). Many concepts like digitally supportive school, digitally confident and supportive teacher, and digitally confident and supportive student have been introduced with ICT in the education system (Wastiau, et al. 2013)

With ICT, LMS was also introduced. Moodle (a form of LMS) is used in schools and at tertiary levels. It effectively improves student performance, satisfaction, and engagement (Gamage, Ayres, & Behrend 2022). Moodle is increasingly being used as a platform for adaptive and collaborative learning and improves online assessments (Gamage, Ayres, & Behrend 2022). The use of Moodle is developing rapidly to address

academic integrity, ethics, and security issues to enhance speed and navigation and incorporate artificial intelligence (a dominant influencer amongst students) (Gamage, Ayres, & Behrend 2022)

Despite the importance ICT and Moodle may play in the education system, it is crucial for the students to identify and accept this importance. Their perception of ICT and Moodle will decide on their usage of them. Students need to experience them to make decisions on the role ICT and Moodle can play for them. For example, after experiencing the grammar teaching-learning instruction, most students respond positively towards the implementation of Moodle in the grammar teaching-learning process (Thamrin, Suriaman, & Maghfirah 2019). There were positive responses from the students dealing with Moodle-based online learning (Apoko 2022). It is believed that satisfaction has the highest significant effect on the behavior intention of Moodle (Damnjanovic, Jednak, & Mijatovic 2015). Another study proved that male and female students are equally satisfied with Moodle (Horvat, Dobrota, Krsmanovic, & Cudanov 2015).

However, there is a gap between expectations (perceptions) and satisfaction (experience). ICT should be used to fulfill the aims and goals of the institute to enhance students' satisfaction with the teaching-learning process (Goyal & Purohit 2011). Having a technologically advanced education system does not guarantee or reflect student satisfaction. The usage has to be in accordance with the requirements of the students to make it successful (Goyal & Purohit 2011). When the students get what they want, their acceptance for the same would be higher and hence, the efficiency with which it is being used; thus improving the performance and productivity of the students (Goyal & Purohit 2011).

Methodology

A quantitative research method was used to carry out this study. A questionnaire was designed using a 5-point Likert scale. Four questions enquired about students' perceptions of the role of ICT in engaging with the institution. These questions were based on ICT and Moodle in the USP. The questionnaire was uploaded on the researcher's sandbox page on Moodle. 80 Blended mode LLFXX (pre-degree) Laucala campus students, who had signed the research consent form, were enrolled on this Moodle page. Their response was extracted from the Moodle page and analysed using Excel and SPSS.

The mean (μ) and standard deviation (σ) of students' perceptions were calculated in Excel. Cron Bach Alpha Test was used on SPSS to find data reliability (internal consistency). Spearmen's Rank Correlation Coefficient Test was used to find the correlation between students' perceptions and the Moodle logs on the LLFXX Moodle page and their academic achievements (total marks).

Results

The results discuss students' responses to their perceptions of Moodle and the role of ICT in engaging with the institute (USP). It also shows the results of the Cron Bach Alpha Test and Spearmen's Rank Correlation Coefficient Test.
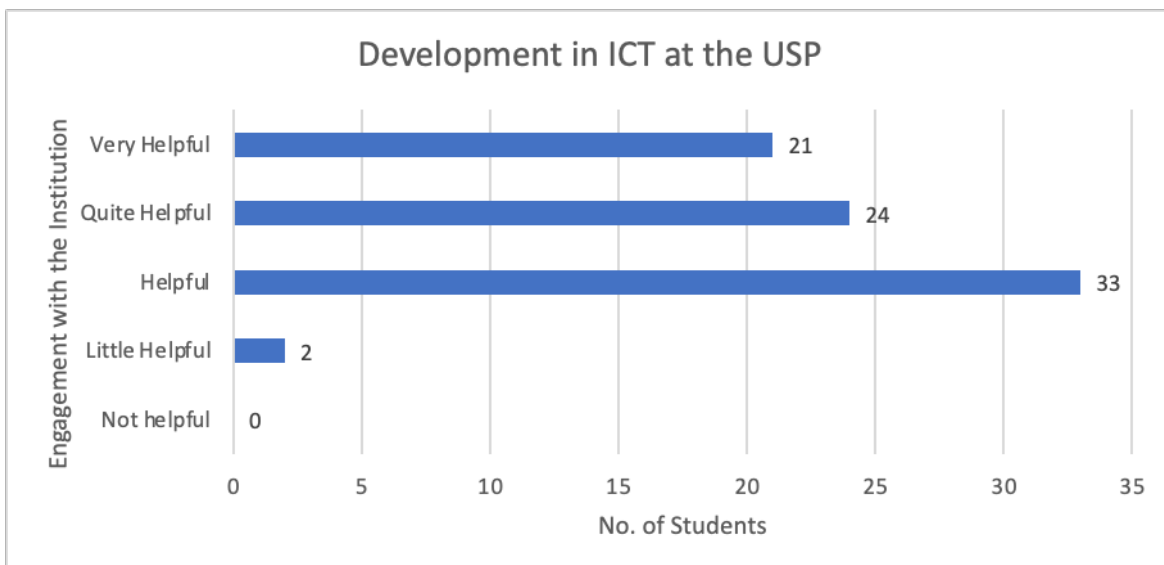
Figure 1. Development in ICT at the USP

Students' perceptions of development in ICT at the USP are shown in Figure 1. Among the 80 respondents, 33 students found the development in ICT at the USP helpful for them, while 24 students found it quite helpful. An additional 21 students thought that the development of ICT at the USP was very helpful for them. In contrast, only 2 students believed that it was a little helpful. Therefore, most students (78 out of 80) expressed a positive perception of the development of ICT at the USP.
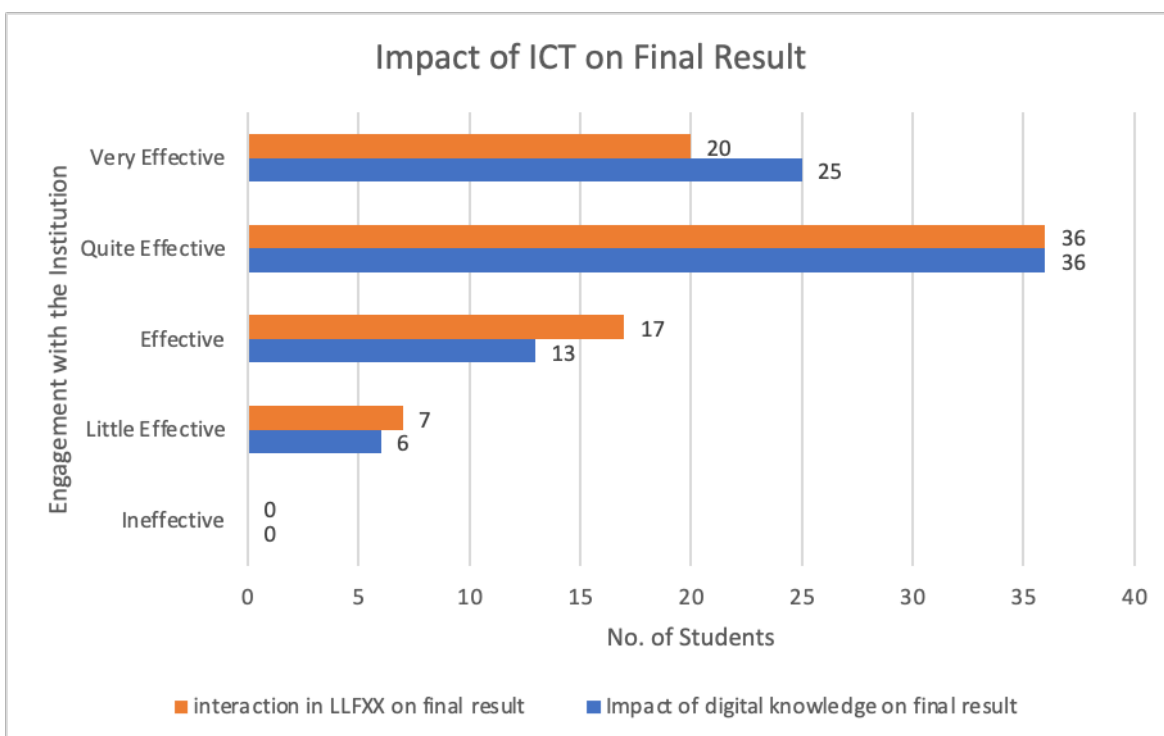

Figure 2. Impact of ICT on Final Result

Figure 2 shows students' perception of the impact of ICT on the results (academic achievement) of students. The perceptions of the impact were measured through two descriptors: interaction in LLFXX and impact of digital knowledge. 20 students thought that the interaction on the LLFXX Moodle page impacted their results very effectively, while 36

students found the interaction on the LLFXX Moodle page impacted their results quite effectively. An additional 17 students found that their interaction on the LLFXX Moodle page had an effective impact on their results. In contrast, 7 students perceived that the interaction on the LLFXX Moodle page had little effect on their results. Regarding the impact of digital knowledge, 25 students perceived it as highly effective, while 36 students considered it quite effective. Another 13 students found the impact of digital knowledge on their results was effective, but 6 students thought that the impact of digital knowledge on their results was little effective.
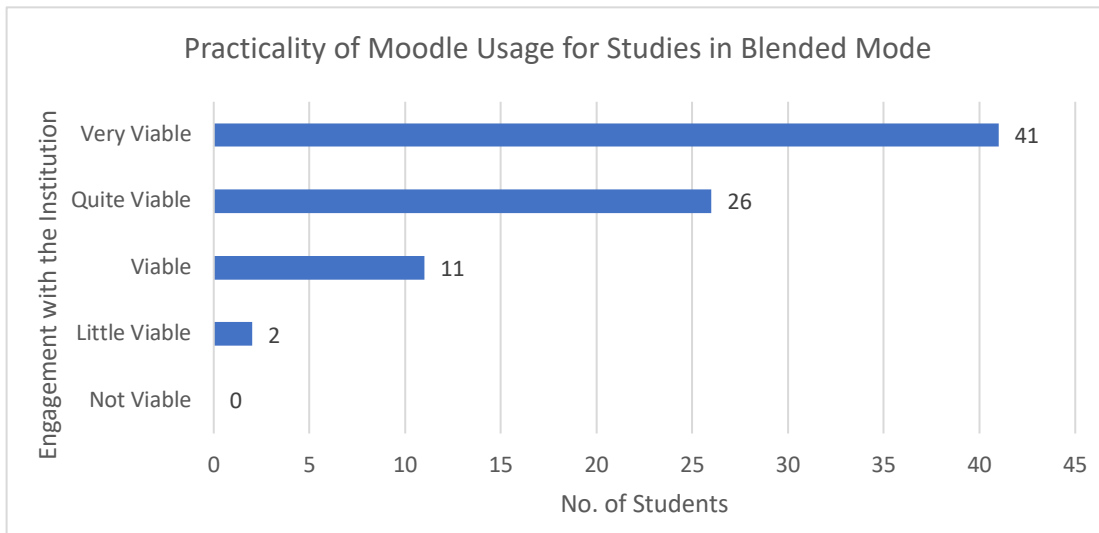

Figure 3. Practicality of Moodle Usage for Studies in Blended Mode

Figure 3 shows students' perception of the practicality of Moodle usage for their studies in the Blended mode. 41 students thought that Moodle usage was very viable for their studies, 26 students found it to be quite viable, while 11 students found it to be viable. Only 2 students believed that Moodle usage was little viable for their studies. In total, 78 students had a positive perception of the practicality of Moodle usage for their studies in Blended mode. Only 2 students had a negative perception of the practicality of Moodle usage for their studies in Blended mode.
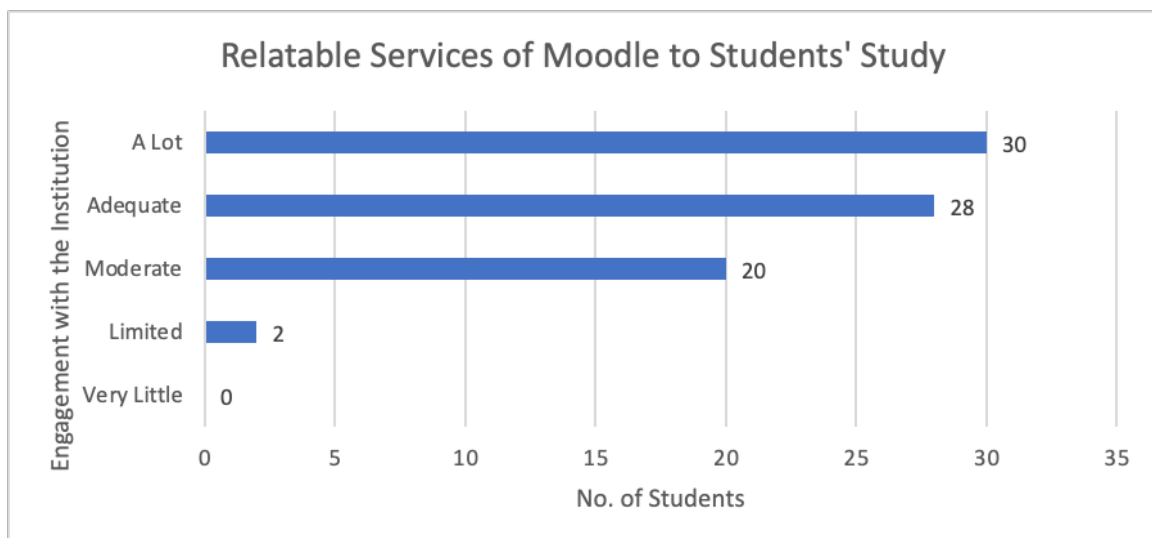

Figure 4. Relatable services of Moodle to students' study

Figure 4 shows how relatable the services of Moodle were to their study. 30 students perceived Moodle services were a lot related to their studies, 28 students thought Moodle services were adequately related to their studies. Another 20 students found Moodle services were moderately related to their studies, while 2 students found the services of Moodle to be related to their studies in a limited quantity. Most of the students (78 students) found the services of Moodle to be related to their studies.

Table 1. Mean and Standard Deviation of Students' Perceptions

Perceptions	μ	Σ
Practicality	4.31	0.805
Relatable	4.08	0.808
ICT in USP	3.8	0.848
ICT- Digital Knowledge	3.85	0.887
ICT – Interaction	4.01	0.879

Table 1 shows the μ (σ) of the perceptions of students. The practicality of Moodle usage for studies in Blended mode had a μ of 4.31 and σ of 0.805. The relatable services of Moodle to students' study μ = 4.08 (0.808). The impact of ICT at USP on the results μ = 3.8 (0.848). The impact of digital knowledge on the results μ = 3.85 (0.887). The interaction on the LLFXX Moodle page and its effect on the results μ = 4.01 (0.879).

Cron Bach Alpha Test

Cron Bach Alpha Test shows the internal consistency (reliability) of the data. The table below shows how the result from the Cron Bach Alpha test will be interpreted.

Table 2. Analysis of Cron Bach Alpha Result

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

If α is more than 0.9 then the internal consistency (reliability) is excellent. If α is more than 0.8 and less than 0.9 then the internal consistency is good. If α is more than 0.7 and less than 0.8 then the internal consistency is acceptable. If α is more than 0.6 and less than 0.7 then the internal consistency is questionable. If α is more than 0.5 and less than 0.6 then the internal consistency is poor. If α is less than 0.5 then the internal consistency is unacceptable.

Table 3. Cron Bach Alpha Test Result

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.867	.868	5

Table 3 shows the result of Cron Bach Alpha Test to verify the reliability (internal consistency) of the Likert Scale data. The test shows $\alpha = 0.867$. The reliability (internal consistency) of this data is good. Therefore, the data from this test is reliable (consistent internally).

Spearman's Rank Correlation Coefficient Test

Spearman's rank correlation coefficient test from the SPSS software shows the correlation between two ordinal variables (quantitative data). This was used to analyse if there was a correlation between students' perceptions and Moodle logs on the LLFXX Moodle page or their academic achievement (total marks).

It looks at two things. Firstly, it shows Spearman's rank correlation coefficient, which shows the association the two variables have with each other. If the variable on the y axis increases, so should the variable on the x axis. This correlation is signified by the use of r.

The r in linear relationship shows the following:

If r is:

+ value	then there is a positive relation,
0	then there is no relation, and
- value	then there is a negative relation

+/- 0.5 - +/- 1	then there is a strong correlation (High degree),
+/- 0.3 - +/- 0.49	then there is a medium correlation (Moderate degree),
+/- 0.29	then there is a weak correlation (Low degree)

Secondly, it looks at the alpha value. The alpha value used for this research was 0.05. Before using SPSS to carry out the test, it was formulated that:

Ho: there is no correlation between students' perception and their Moodle logs or their academic achievement (total marks).
H1: there is a correlation between students' perception and their Moodle logs or their academic achievement (total marks).

Using a two-tailed test, the test variable (p) was calculated.
If
p < alpha – result is statistically significant, shows there is a correlation (alternative hypothesis);
However, if
p > alpha – result is statistically insignificant, showing there is no correlation (null hypothesis).

Students' Perceptions Analysed with Spearman's Rank Correlation Coefficient

Table 4. Students' Perception and Moodle Logs

Students' Perceptions and their Moodle Logs

Perceptions	p value (α)	Correlation coefficient (r)
Practicality	0.046	0.224
Relatable	0.065	0.208
ICT in USP	0.264	0.126
ICT- Digital Knowledge	0.021	0.259
ICT – Interaction	0.121	0.287

Table 4 shows the students' perceptions and their Moodle logs. The practicality of Moodle usage for studies in Blended mode and their Moodle logs had a weak positive statistically significant correlation (α = 0.046 and r = 0.224). The relatable services of Moodle to students' study and their Moodle logs had a statistically insignificant correlation (α = 0.065 and r = 0.208). The impact of ICT at USP on the results and students' Moodle logs had a statistically insignificant correlation (α = 0.264 and r = 0.126). The impact of digital knowledge on the results and students' Moodle logs had a weak positive statistically significant correlation (α = 0.021 and r = 0.259). The interaction on the LLFXX Moodle page and its effect on the results had a statistically insignificant correlation (α = 0.121 and r = 0.287).

Table 5. Students' Perception and Marks

Students' Perception and their Marks

Perceptions	p value (α)	Correlation coefficient (r)
Practicality	0.069	0.205
Relatable	0.303	0.117
ICT in USP	0.428	0.09
ICT- Digital Knowledge	0.012	0.279
ICT – Interaction	0.014	0.273

Table 5 shows students' perceptions and their marks (academic achievement). The practicality of Moodle usage for studies in Blended mode and their marks had a statistically insignificant correlation (α = 0.069 and r = 0.205). The relatable services of Moodle to students' study and their marks had a statistically insignificant correlation (α = 0.303 and r = 0.117). The impact of ICT at USP on the results and students' Moodle logs had a statistically insignificant correlation (α = 0.428 and r = 0.09). The impact of digital knowledge on the results and their marks had a weak positive statistically significant correlation (α = 0.012 and r = 0.279). The interaction on the LLFXX Moodle page and its effect on their marks had a weak positive statistically significant correlation (α = 0.014 and r = 0.273).

Table 6. Correlations between Students' Perceptions

Perceptions	p-value (α)	Correlation coefficient (r)
Correlation between Practicality and Relatable	<0.001	0.647
Correlation between ICT in USP and ICT- Digital Knowledge	<0.001	0.387
Correlation between ICT- Digital Knowledge and ICT – Interaction	<0.001	0.786

Table 6 shows the correlation between the students' perceptions. The perceptions of students' practicality of Moodle usage for studies in Blended mode and the relatable services of Moodle to students' studies had a strong positive statistically significant correlation (α = <0.001 and r = 0.647). The impact of ICT at USP on the results and the impact of digital knowledge on the results had a medium positive statistically significant correlation (α = <0.001 and r = 0.387). The impact of digital knowledge on the results and the interaction on the LLFXX Moodle page had a strong positive statistically significant correlation (α = <0.001 and r = 0.786).
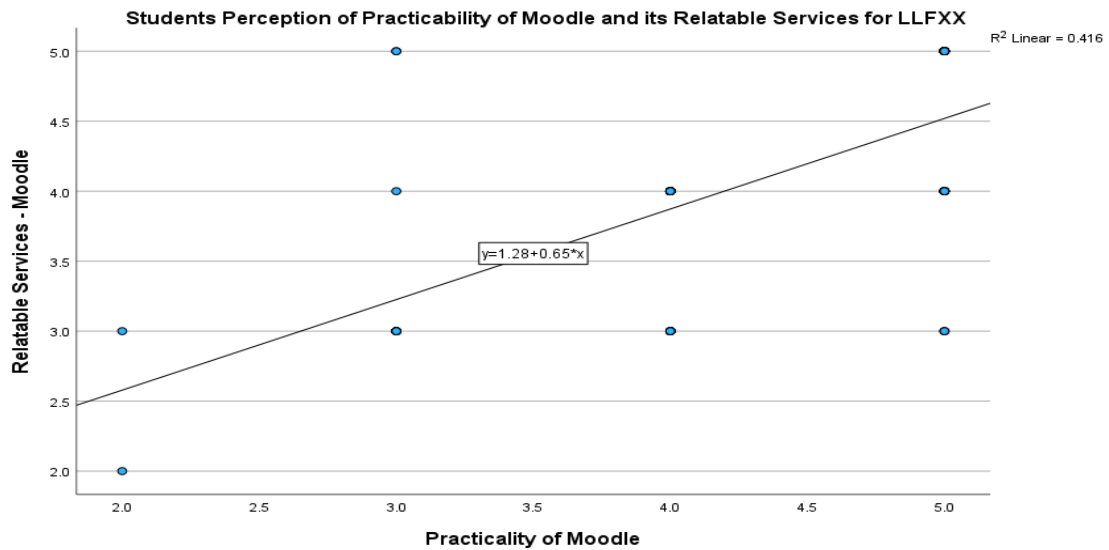

Figure 5. Students' Perception of the Practicability of Moodle and its Relatable Services

Figure 5 shows a scatter graph with a correlation between students' perception of the practicality of Moodle and its relatable services for LLFXX. The graph shows a strong positive correlation between students' perception of the practicality of Moodle and its relatable services for LLFXX.
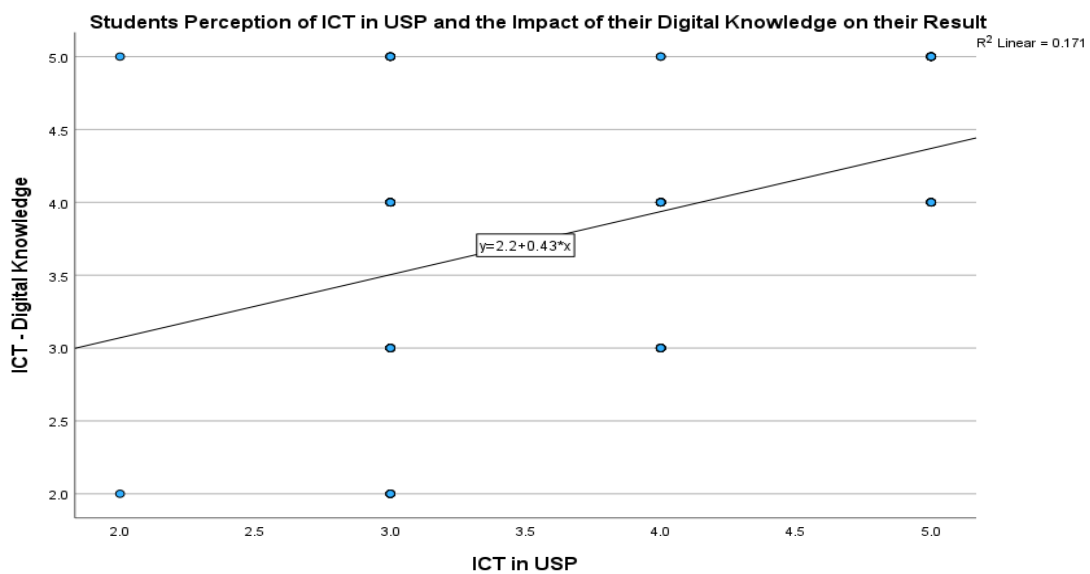

Figure 6. Students' Perception of ICT in USP and the Impact of their Digital Knowledge

Figure 6 shows a scatter graph with a correlation between students' perception of ICT in USP and the impact of their digital knowledge on their results (academic achievement). The graph shows a medium positive correlation between students' perception of ICT in USP and the impact of their digital knowledge on their results (academic achievement).

Students Perception of the Impact of their Digital Knowledge and their Interaction on their Result
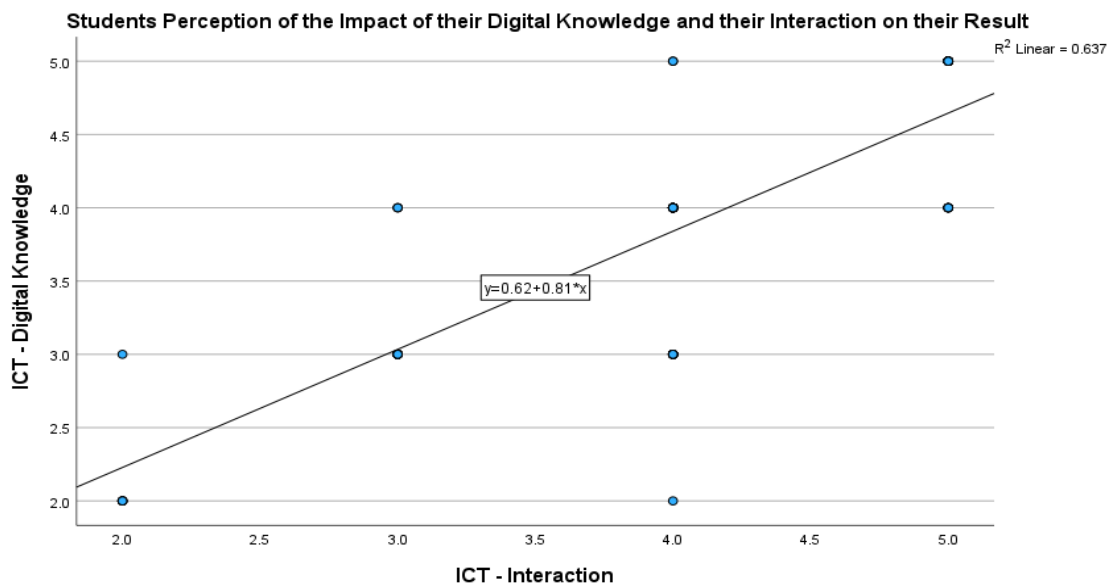

Figure 7. Students' Perception of the Impact of their Digital Knowledge and their Interaction/ Engagement with their Result

Figure 7 shows a scatter graph with a correlation between students' perception of the impact of their digital knowledge and their interaction on their results (academic achievement). The graph shows a strong positive correlation between students' perception of the impact of their digital knowledge and their interaction on their results (academic achievement).

Discussion

This study explored students' perceptions about ICT's role in their engagement with the institution (USP). A Cron Bach Alpha Test value of 0.867 shows that the data is good and reliable (internal consistency). Spearmen's Rank Correlation Coefficient Test shows how closely the students' perceptions are related to the Moodle logs and marks (academic achievement).

The first question explored if there is a correlation between students' perception of Moodle and ICT at the USP and their Moodle log on the LLFXX Moodle page. Two (Moodle Practicality and ICT-Digital knowledge) of the five perceptions had a statistically significant correlation (Table 4). Both perceptions had a weak positive association with the Moodle Logs. Moodle Practicality had a r value of 0.224 and ICT-Digital knowledge had a r value of 0.259. This shows that learners perceive Moodle to be practical in their studies. Therefore, they log onto it. Learners also perceive their digital knowledge to be useful in their studies and due to it they log onto Moodle. The remaining three (Relatable Moodle, ICT in USP, and ICT – Interaction) perceptions (Table 4) had a statistically insignificant correlation.

The second question investigated if there is a correlation between students' Perceptions of Moodle and ICT at the USP and their academic achievement (total marks) in LLFXX (Goyal & Purohit 2011; Noor-Ul-Amin 2013). Two (ICT-Digital Knowledge and Interaction) of the five perceptions had a statistically significant correlation (Table 5) (Goyal & Purohit 2011; Noor-Ul-Amin 2013). ICT plays a crucial role in students'

perception of their digital knowledge and interaction and their academic achievements (total marks). Both perceptions showed a weak positive association with the student's academic achievements (total marks). Though the association is weak, most importantly it has an impact on students' academic achievements (Goyal & Purohit 2011; Noor-Ul-Amin 2013). Students' digital knowledge had a r value of 0.279 and ICT interaction had a r value of 0.273. The other three perceptions (Moodle practicability, Moodle relatability, and ICT in USP) had a statistically insignificant correlation (Table 5).

Students' perception of their digital knowledge has a statistically significant correlation with the Moodle Logs (Table 4) and their academic achievements; that is their marks (Table 5). Therefore, since students' perception of their digital knowledge has a statistically significant correlation with their Moodle Logs and marks, it can be implied that learners gain confidence and use Moodle a lot and thus excel academically. Even though their association is weak, it is positive. So, students' perception of their digital knowledge is positively associated with their Moodle Logs and marks (Table 4 and Table 5). Table 6 shows that students' perceptions of Moodle Practicality and Relatability are statistically significant (α = <0.001) and show a strong positive association with each other (Figure 5). This shows that students' perceptions surrounding Moodle are very reliable. Similarly, there is a strong positive statistical correlation between students' perception of ICT–digital knowledge and ICT interaction (Figure 7). Therefore, students' perceptions of their digital knowledge and interaction with ICT are very reliable. A medium positive statistically significant correlation between students' perception of ICT in USP and their digital knowledge also is reliable. These results show that students have a very healthy positive view of USP's ICT and Moodle presence.

Such reflections are a reflection for the institution on their investments in ICT and Moodle. These assist in future planning and implementation of upgrades and new technologies. These show that even at the pre-degree level, the learners have positive perceptions of ICT and Moodle at the USP. These positive perceptions are also influencing their Moodle Logs and academic achievements (marks). This is the most desirable attitude of students for any institution for their prosperity and success.

Conclusions

This study has shown that some perceptions of students about ICT and Moodle at the USP have a correlation with their Moodle Logs and academic achievements (marks). These perceptions have a weak positive association with the Moodle Logs and academic achievements (marks). This suggests that a positive perception of ICT and Moodle at the pre-degree level promises more impactful perceptions at degree levels.

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