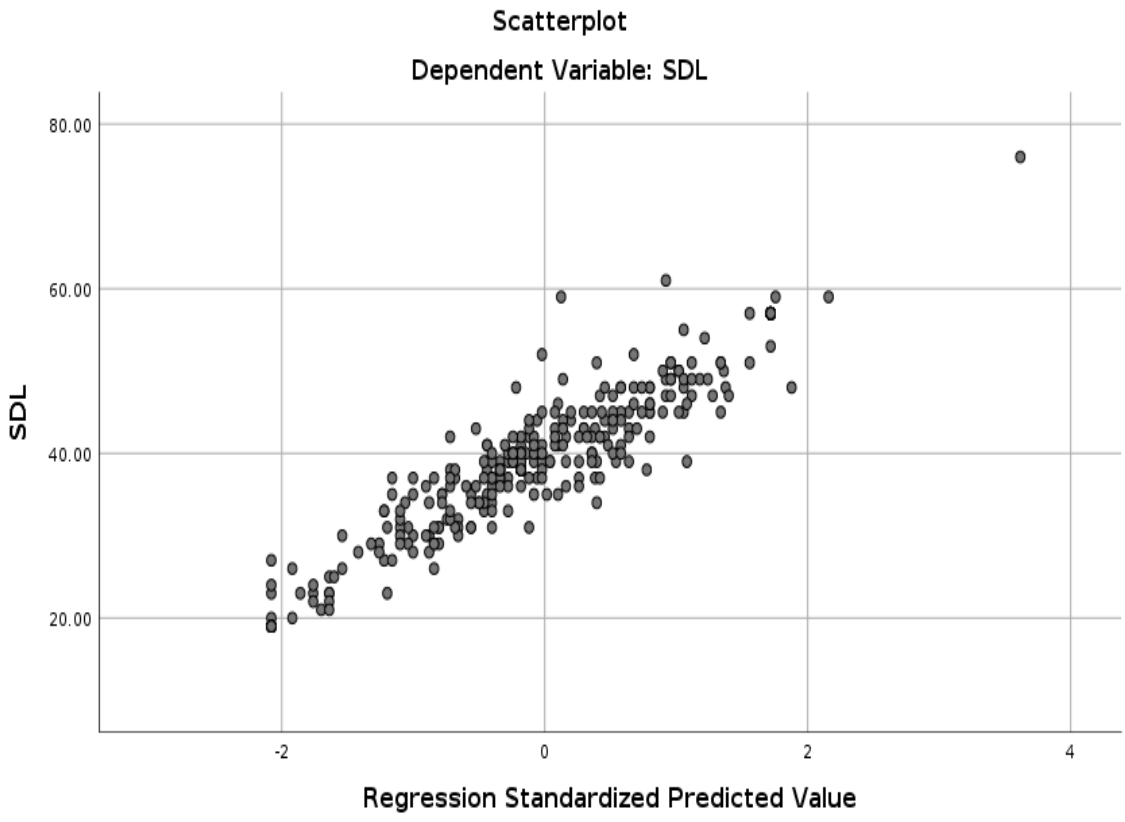
CHAPTER - 4

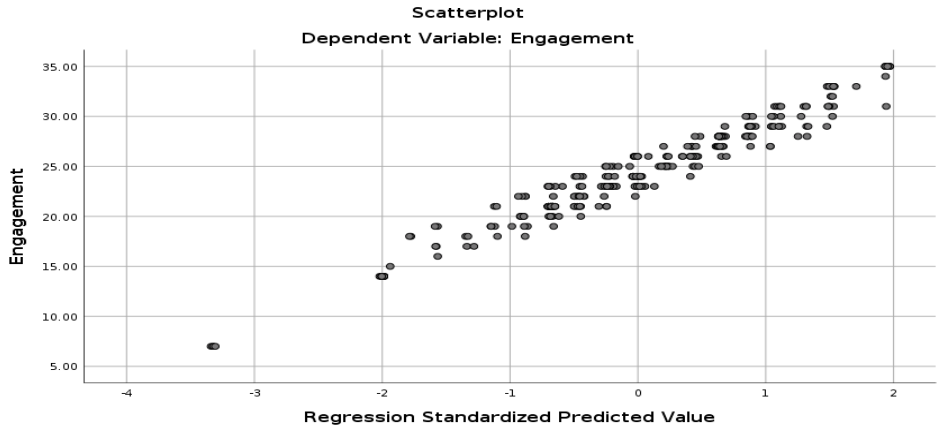
DATA ANALYSIS AND INTERPRETATION

The data analysis and interpretation are presented in this chapter. With IBM SPSS version 24, data analysis was carried out. Both descriptive and inferential statistics were used in the analysis. The hypothesis was put to the test using multiple linear regression analysis and Pearson correlation. The results indicate that a few presumptions must be verified prior to running the aforementioned statistical test, and the results indicate that these assumptions were satisfied.

4.1 Assumptions of Multiple linear regressions



4.1.1 Assumption 1 – Linear Relationship between the variables



4.1.2 Assumption 2- Independence of error / Lack of auto correlation

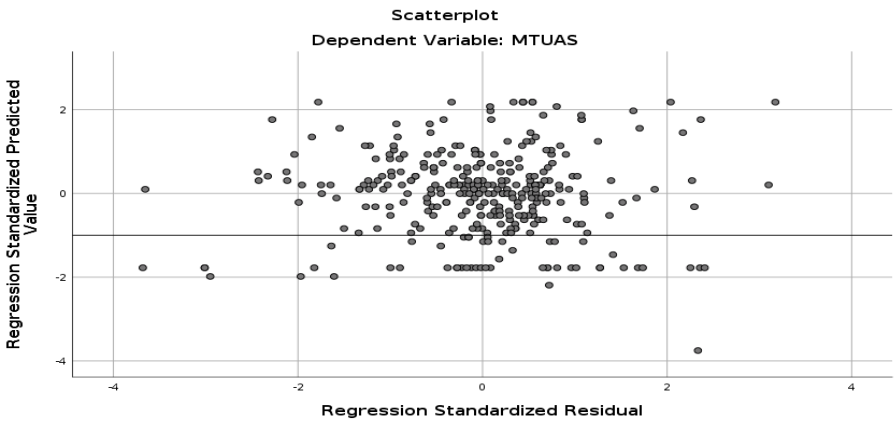
Test results from the Durbin-Watson should range from 1.5 to 2.5

Model Summary[b]

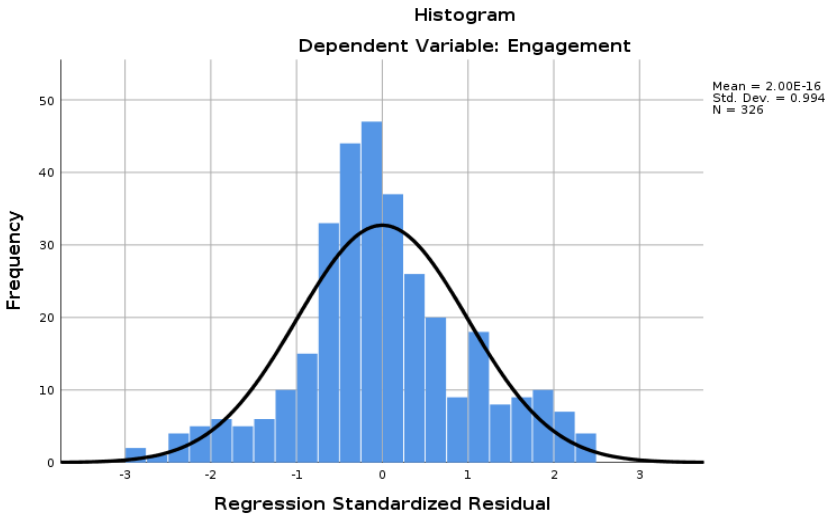
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.041[a]	.002	-.001	19.38021	1.655

a. Predictors: (Constant), SDL

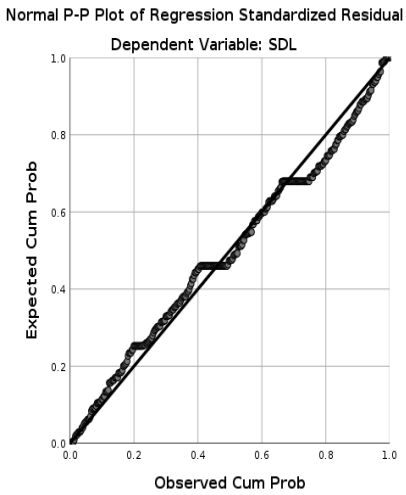
4.1.3 Assumption 3: In the case of homoscedastic variances, the variances are uniform along the line of best fit.

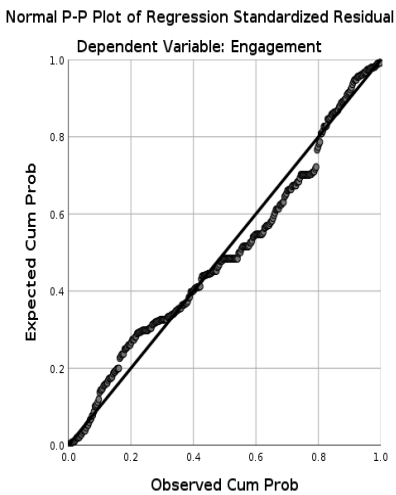


4.1.4 Assumption 4: Finally, the regression line's residuals (errors) are about regularly distributed. A normal P-P plot or a histogram with a normal curve overlay is two basic ways to test this assumption.



The cumulative distribution function (CDF) of the standardised residual is observed and compared to the expected CDF of the normal distribution using a P-P plot. We should anticipate that the points will cluster around the horizontal line if the distribution is normal.





4.2 CONTRIBUTORS OF THE STUDY

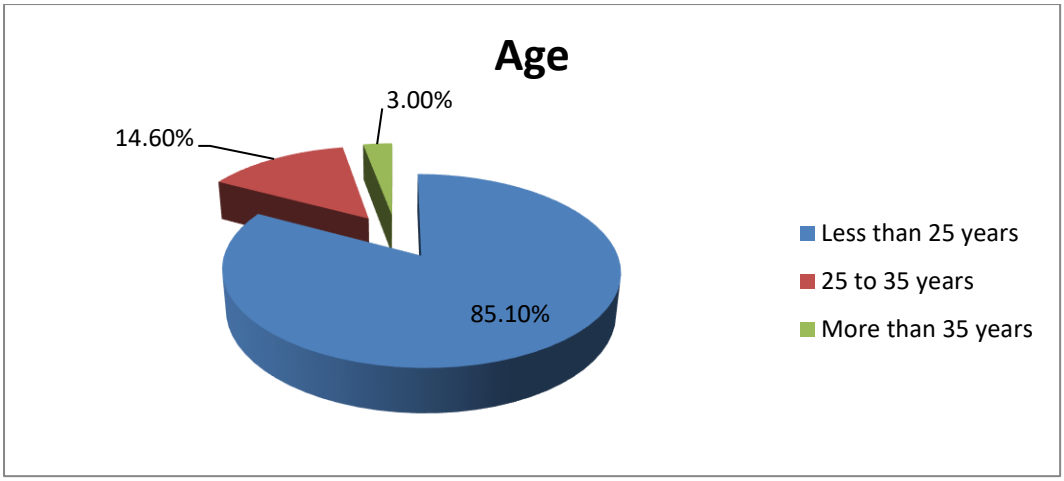
The sample for a study was created using a simple random sampling procedure. Participants were studying an MBA or another type of professional degree in management at business schools in Jaipur, India. During the autumn semester of

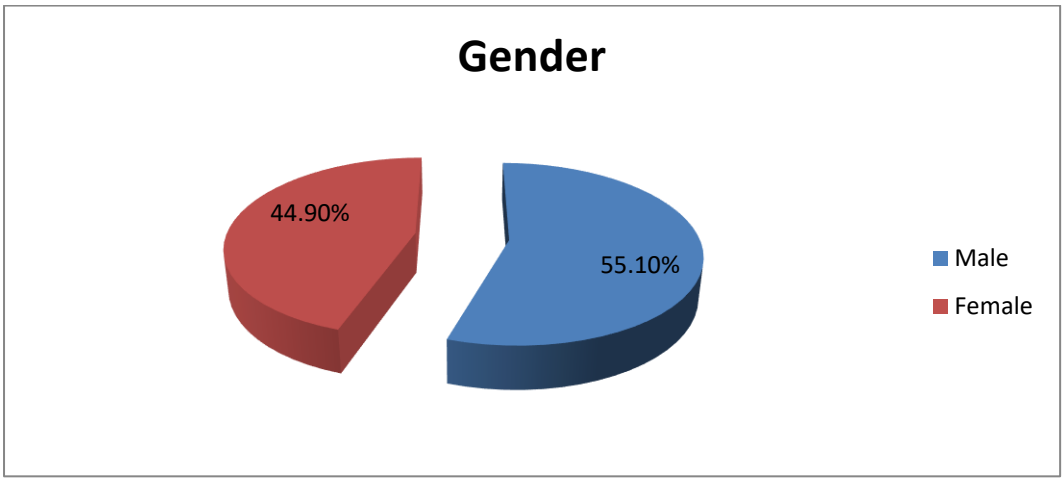
2019–2020, data were collected using both a paper-based approach and a Google Form. 363 responses were initially collected during the data gathering process, but 20 instances were subsequently ignored because of missing cases and dropouts. 343 management students make up the total sample size of the current study. Information on the participants' demographics may be found in Table 4.2. Male students made up the bulk of survey respondents (n = 189, 55.1%), while female students made up the remaining participants (n = 154, 44.9%). Students under the age of 25 make up the bulk of the student body (n = 292, or 85.1%), followed by those between the ages of 25 and 35 (n = 50, or 14.6%). The bulk of students (n = 136, or 39.7%), followed by the third semester (n = 107, or 31.2%), come from the second semester. The remaining students are from the first and fourth semesters, respectively (n = 28, 8.2 percent, and n = 72, 21.0 percent).

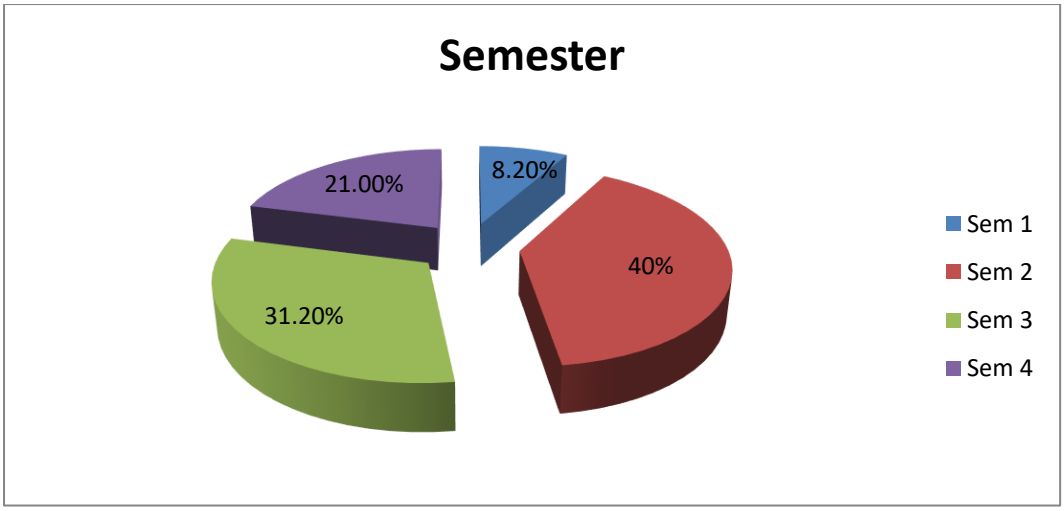
Table 4.1 : **Distribution of participants by gender, age and semester of study**

Variable	**Frequency**	**Percentage**
Gender		
Male	189	55.1
Female	154	44.9
Age Range		
25 years or less	292	85.1
Age range between 25 to 35 years	50	14.6
35 years or more	1	.3
Semester		
I	28	8.2
II	136	39.7
III	107	31.2
IV	72	21.0
Total	343	100.0

Graphical Representation of Distribution of participant by gender, age and semester of study.







Tables 4.1 and 4.2 contain information on the respondent's average daily time spent using a computer and the Internet. Table 3 shows that students spend a variety of amounts of time online and using computers on a daily basis. The majority of participants (n = 108, 31.5%) claimed to use computers on average for 5.0 to 6.0 hours each day. The following group of students uses computers between 0.5 and 1.5

hours per day (n = 74, 21.6%), 2.0 to 3.0 hours per day (n = 65, 19.0%), 6.5 hours or more per day (n = 43, 12.5%), and 3.5 to 4.5 hours per day (n = 31, 9.0%). Only 22 out of the total participants, or 6.4%, do not use computers.

Table 4.2 : Average Daily Usage of Computers

Variable	Time Interval	Frequency	Percentage
Average time per day spent on a computer	0.5 – 1.5	74	21.6
	2.0 – 3.0	65	19.0
	3.5 – 4.5	31	9.0
	5.0 – 6.0	108	31.5
	6.5 and above	43	12.5
	NA or Other	22	6.4
	Total	**343**	**100**

Graphical Representation of table 3

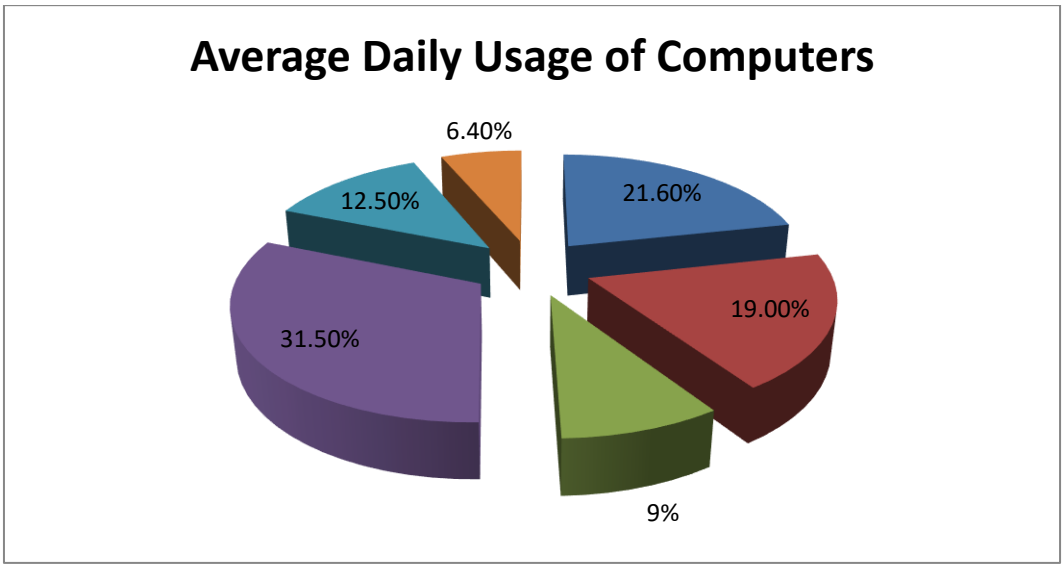
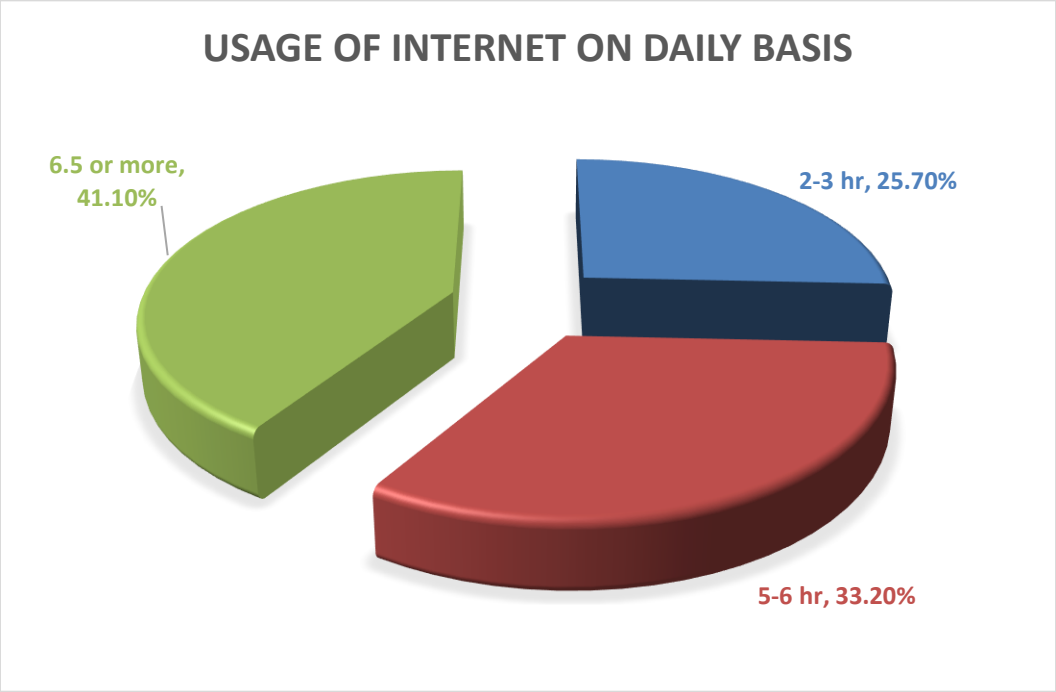


Table 4.3 provides details on typical daily Internet usage. Table 4.3 shows that the majority of respondents (n = 141, 41.1%) use the internet for 6.5 hours or more every day, with the next-highest percentage (n = 114, 33.2%) using it for 5 to 6 hours every day. The remaining students (n = 88, 25.7%) spend two to three hours every day online on average.

Table 4.3 : Average Daily usage of the Internet

Factors	Duration	Repetition or Frequency	% age
Usage of the Internet on a daily basis	2-3 hour	88	25.7
	5 – 6 hour	114	33.2
	6.5 or more	141	41.1
	Total	**343**	**100**

Graphical Representation of table 4



4.3 RESULTS & DISCUSSION

The current study looked at the connections between undergraduate university students' use of technology, student involvement, self-directed learning (SDL), and academic accomplishment. The results showed that although there is a weak overall association between technology use and academic performance, it does predict student involvement and self-directed learning. However, a review of the technology

use sub-sets reveals that while Facebook friends, social media use, and media sharing were all favourable predictors of academic success, making phone calls and watching TV were bad predictors. Surprisingly, the use of social media was found to be a reliable predictor of all the factors, including academic performance, self-directed learning, and student engagement. These results are consistent with studies showing a beneficial correlation between technology use and student engagement. The results indicate a bi-directional relationship between technology use and academic performance. While overall technology use has a negative but insignificant relationship with academic performance, significant positive correlations have emerged between some specific types of technology, such as social media use. Table 4.4, which is displayed below, offers descriptive information on the students' involvement and self-directed learning, as well as their usage of various media and technology.

Table 4.4: Levels of media and technology use, student involvement, self-directed learning, and academic success among students-descriptive statistics

Variable	M	S. D
Academic achievement	1.76	.492
MTUAS	6.32	1.07
Surfing of Internet	6.57	1.45
Sharing Media files	5.72	2.09
Usage of Smartphone	6.95	1.50
Messaging through text	6.49	1.38
Messaging through Mail	6.69	1.29
Playing video games	5.10	2.43
Social media usage	5.98	1.87
SELF-DIRECTED LEARNING	2.10	.50
Perception	10.39	2.88
Acquiring tactics	10.56	2.99
Activities for Learning	8.4	2.42
Assessment	10.52	3.22
STUDENT ENGAGEMENT	3.46	.70

Ability Or Vigor	10.11	2.39
Engrossment	10.90	2.61
Commitment	9.8	3.34

Table 4.5: Result of Pearson correlation

	1	2	3	4
Academic Achievement (1)				
Student Engagement (2)	-.014			
Self-directed Learning (3)	.132*	-.264**		
Media and technology Usage (4)	-.030	-.146**	-.045	

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Table 4.6: Pearson correlation result of academic performance and media and technology usage sub factors, student engagement, self- directed learning.

	1	2	3	4	5	6	7	8	9
Academic Achievement (1)									
Messaging through Mail (2)	.006								
Messaging through text (3)	-.080	.229**							
Usage of smartphone(4)	-.049	.316**	.325**						
Sharing of Media(5)	-.038	.241**	.290**	.239**					
Surfing of Internet (6)	-.018	.372**	.334**	.559**	.462**				
Playing video games (7)	-.007	.177**	.232**	.089	.566**	.341**			
Social media usage (8)	-.062	.223**	.214**	.231**	.477**	.419**	.501**		
Perception (11)	-.014	-.010	-.064	.145**	-.259**	-.002	-.305**	-.159**	.601**
Acquiring tactics (12)	-.132*	-.119*	-.025	-.221**	-.101	-.145**	.131*	.070	-.264**
Activities of Learning (13)	-.062	.223**	.214**	.231**	.477**	.419**	.501**	-.305**	-.159**
Assessment (14)	-.064	.477**	.419**	.501**	-.002	-.305**	-.159**	-.159**	.601**
Ability (15)	-.129*	.437	.032	.616**	.349**	.372**	.334**	-.030	-.146**
Engrossment (16)	-.014	-.010	-.064	.145**	-.259**	-.002	-.305**	-.159**	.601**
Commitment (17)	-.049	.316**	.032	.616**	.477**	.419**	-.002	-.305**	.070

	10	11	12	13	14	15	16	17
Academic Achievement (1)								
Messaging through Mail (2)								
Messaging through text (3)								
Usage of smartphone(4)								
Sharing of Media(5)								
Surfing of Internet (6)								
Playing video games (7)								
Social media usage (8)								
Perception (11)	-.042							
Acquiring tactics (12)	-.242**	-.040						
Activities of Learning (13)	.601**	-.042	.259*					
Assessment (14)	-.042	-.242**	.501*	.47				
Ability (15)	-.045	.145**	.259*	.002	-.186**			
Engrossment (16)	-.042	-.305**	-.159**	-.159**	.601**	-.305**		
Commitment (17)	-.264**	-.242**	.501*	.47	.341**	-.010	-.064	

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Two Pearson correlation tests were run to assess the hypotheses from 1 to 5. Tables 4.5 and 4.6 show the results of the hypothesis, respectively. A slight inverse relationship between the usage of technology and academic achievement was found, as illustrated in Table 4.5.

The results show that students' proficiency in using various media and technology has a mean score of 6.32 and a standard deviation of 1.07. The mean score for smartphones was the highest (M = 6.95, SD = 1.5), and it was followed by emailing (M = 6.69, SD = 1.29), internet searching (M = 6.57, SD = 1.45), and text messaging (M = 6.49, SD = 1.38), as well as general social media (M = 5.98, SD = 1.87) and media sharing (M = 5.72, SD = 2.09). The lowest mean scores were for student involvement (M = 3.46, SD =.70) and self-directed learning (M = 2.10, SD =.50).

However, there was no significant correlation between student engagement and academic success (GPA) (r = 0.132, p.05), despite a weak but significant positive association between the two.

Table 4.8 displays the outcomes of The evidence suggests that there is no meaningful correlation between academic achievement and the subscales of technology. Video

gaming and SDL were found to have a weakly positive correlation (r =.131, p 0.05), as were smartphone use and student engagement (r =.145, p 0.01). The results also showed a statistically significant substantial correlation between using a smartphone and surfing the internet (r = 0.559, p.01), sharing media files and playing video games (r = 0.566, p.01), and also between using a smartphone and general social media (r = 0.477, p.01). General social media and video gaming also showed a strong, significant positive connection (r =.501, p.01).

The hypothesis was tested using three different multiple regression techniques. Based on seven media and technology variables (MTUAS)—email, text messaging, smartphone use, media sharing, internet searching, video gaming, and general social media—they were used to forecast student involvement, autonomy, and academic success. Technology use significantly predicted engagement (F (7, 335) = 8.431, P 0.001, = 0.15, adjusted = 0.13), self-directed learning (F (7, 335) = 5.384, P 0.001, = 0.10, adjusted = 0.08), and academic performance (F (7, 335) =.895, P 0.001, =.018, adjusted =.002). The summary regression analysis is presented in Table 10.

Table 4.7: Linear model predictors and 95% confidence intervals of student engagement, self- directed learning and achievement.

Engagement					**Self- directed Learning**				**Academic Performance**			
Technology use	B	SE B	β	95% CI for B	B	SE B	B	95% CI for B	B	SE B	B	95% CI for B
Constant	3.48	0.24	-	[3.00 , 3.96}	2.602	0.18	-	[2.24 , 2.95]	1.87	0.18	-	[1.509, 2.233]
E-mail	0.00	0.03	0.00	[-0.05 , 0.06]	-0.03	0.02	-0.07	[-0.07 , 0.01]	0.01	0.02	0.02	[-0.03, 0.05]
Text messaging	-0.02	0.02	-0.03	[-0.07, 0.03]	0.00	0.02	0.02	[-0.03 , 0.04]	-0.02	0.02	-0.07	[-0.06 , 0.01]
Smartphone Usage	0.08	0.03	0.18	[0.02 , 0.14]	-0.05	0.02	-0.17	[-0.10, -0.01]	-0.01	0.02	-0.05	[-0.06 , 0.02]
Media Sharing	-0.06	0.02	-0.19	[-0.11 , -0.02]	0.03	0.17	0.13	[0.00 , 0.06]	-0.01	0.17	-0.06	[-0.04 , 0.01]
Internet Searching	0.04	0.03	0.08	[-0.02 , 0.10]	-0.05	0.02	-0.15	[-0.10, -0.00]	0.003	0.02	0.10	[-0.04, 0.05]
Video	-	0.01	-	[-0.10,	0.06	0.01	0.09	[-0.00,	-0.003	0.01	-0.01	[-0.03,

Gaming	0.06		0.21	-0.02]				0.04]				0.02]
General Social media	-0.01	0.02	-0.02	[-0.05 , 0.03]	0.02	0.01	0.07	[-0.01, 0.05]	0.03	0.01	0.11	[-0.004, 0.06]

Table 4.8: List of positive and negative predictors of engagement, self-directed learning and achievement (highest standardized β are reported in parentheses)

Engagement	Self-directed learning	Achievement
Positive		
Email (0.19)	Email (0.18)	General Social media (0.11)
Internet searching (0.14)	Smartphone Usage (0.17)	
General social media (0.14)	Internet Searching (0.15)	
	General Social media (0.07)	
Negative		
Video Gaming (-0.13)		Text messaging (-0.07)

4.4 RESEARCH FINDINGS

In order to evaluate the significance of correlations between the variables as they were represented in the conceptual framework for the purposes of the current study, the stated hypotheses were constructed in accordance with the described research objectives. Therefore, these assumptions were examined using the proper statistical techniques. The research's conclusions after data analysis and hypothesis testing are summarised as follows:

1. Hypothesis 1: H1-There is significant relationship between ICT use and student engagement.

   Test results revealed a marginally significant negative link between student engagement and technology use. (r= -.146**, p < .01)

2. Hypothesis 2: H1- There is significant relationship between ICT use and SDL.

   The utilisation of technology and SDL were found to have a negative, negligible association. (-.045)

3. Hypothesis 3: H1-There is significant relationship between ICT use and academic performance.

   Test results revealed a weak negative correlation between technology use and academic achievement.

4. Hypothesis 4: H1-There is significant relationship between student engagement and SDL.

   Test results revealed a negative, statistically significant link between SDL and engagement. (r= -.264**, p < .01)

5. Hypothesis 5: H1- There is significant relationship between SDL and academic performance.

   Results of the test revealed a significant positive correlation between SDL and academic achievement. (r= .132*, p <.05)

6. Hypothesis 6: H1-There is significant relationship between ICT use and SDL via Student engagement.

Hypothesis 7: H1-There is significant relationship between ICT use and academic performance via SDL.

Test results: According to Table 8, there is no significant correlation between student academic performance and any of the technological variables. Although a strong connection between SDL's learning methodologies and (r=.132, p<.05) and vigor of engagement (r=.129, p<.05).

- Additional research revealed a statistically significant link between smartphone use and online browsing. (r=.559, p <.01).
- Additionally, a clear substantial correlation between video gaming and media sharing was discovered (r=.566, p<.01) additionally, with normal social media usage and media sharing (r=.477, p< .01)
- Additionally, a strong, significant relationship between video games and social media in general was discovered. (r=.501, p<.01)