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Factors affecting the study time of first and final year students of a world class university

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Abstract. Many activities compete for the time students spent on academic activities, but few works have been done on the factors affecting the study times of first and final year students. Questionnaires were given to 150 first and final year students from four colleges of a world-class university located in Ogun State, Nigeria and the aim is to investigate the factors affecting their study time. Ninety-eight representing 65.3% of the students study between 1 and 4 hours per day. Gender, age, level and college affiliation are not associated with their perceived desired results. In the same vein, it was observed that gender and age are not associated with hours of study. However, there are significant associations between the duo of level and college and study hours. Also, there is no significant association (i) Between the number of hours spent on sleeping and the number of hours spent on studying and (ii). The hours spent on study and the desired result. In conclusion, strategies are needed to be crafted and deployed to increase the hours spent on studying by the first and final year students which are likely to give them their desired results and improve the art of learning. Logistic regression on the desired results was predicted by the 3 moderation variables, namely; the gender and level, age and college, and level and college. Intervention programmes are to be incorporated into the curriculum to motivate students in achieving their desired results. Tutorial classes, investment in learning tools, promotion of discussion groups, counselling are recommended for first and final year students to stimulate their interests in their chosen course of study and to prepare them for successful careers.

Keywords: Sleep, study time, expectation, Chi-square, learning, first year, final year, moderation, logistic regression, statistics.

1. Introduction

Study time is the quantity of time and attention devoted to learning new skills, gaining knowledge and insights in a given physical or virtual location (schools, universities, distance learning, blended learning) through different ways such as reading alone, in peers or discussion. Different media can be used; they include listening to recorded lectures, eLearning platforms, reading using mobile applications, reading books, lecture notes and practical manuals. First and final year classes are very critical in the academic development and career prospects of students. Students in those classes are given special attention to guiding them study effectively. The study time of students generally is often contended with other non-academic and leisure activities, which can take the form of reading for

leisure [1]. The onset of adolescence [2], language barrier [3] and multitasking [4] has also been attributed to the reduction of study time of students. The inability of the students to adequately cover the mandated course content is usually the consequence of scarce time devoted to study [5]. Poor academic performance follows thereafter.

Time spent on studying or reading [6] and long hours of self-study largely determine the academic performance of students [7]. Performance on cognitive tests is correlated with reading or study time [8]. The advent of the internet has altered the reading pattern of students as more online learning resources are available [9], but this is yet to be proven to increase the study time of students despite the quantum of online learning resources available online [10-12]. There appears to be a paradigm shift from printed texts to digital texts. Students' preference for digital texts to print text was reported by [13]. The preference is most likely to encourage the students to spend more hours on study since the digital texts are portable and can be assessed using digital and mobile devices.

The time spent on study often determines the duration of sleep, especially those using mobile or electronic devices [14]. Apart from time spent studying or reading, meeting up with project deadlines, time bound research and onset of examinations can adversely affect sleep duration leading to sleep deprivation [15]. Migraine, headaches, fatigue, reduced cognitive abilities and reduction of student engagement and creativity are some of the manifestations of sleep deprivation [16-17]. Research findings remain split on the link between sleep duration and academic performance [18-22]. Researchers have argued that sleep duration cannot predict academic performance in solitude. Other variables such as age, gender, diurnal and nocturnal environmental factors, health, use of mobile or electronic devices and psychosocial factors [23-24] can equally predicts academic performance.

The paper aims to investigate the factors affecting the study time of first and final year students of a world-class university. The findings will be crucial in discerning the pattern of study time. The study time is a function of the goal of the students [25]. Time spent on study is most likely to differ for students studying for learning sake, performance or those studying to avoid negative judgement [26].

The perceived desired result of students is skewed towards achieving academic excellence [27-29]. High academic performance correlates with high graduation and attrition rate, which are one of the yardsticks of assessing the world-class status of universities [30-32]. To improve the academic performance of students, world-class universities monitor their students right from selection to graduation. Robust selection process measured by entry cognitive tests [33-35] and effective first year academic advising are predictors of excellent academic performance [36-37]. Other predictors of academic performance are learning type [38], learning strategy [39], health [40-41], mind wandering [42], self-efficacy [43], stress [44] and pedagogy [45].

2. Materials and Methods

The university has four colleges and 22 academic departments. The colleges are business and social sciences, engineering, science and technology, and leadership development studies. The meaning of study time was defined to the students as the amount of time spent on reading alone, reading in pairs and reading in groups at hostels, common rooms, library, lecture halls and laboratories. The desired result was defined as having good grades and making satisfactory academic progress.

The study sample consists of all first and final year students. The choice of the participants is because of the following. Firstly, these groups of students are in the critical stage of career development and cultivating interest in their chosen field of study. Lastly, the first year students study more often to build comfortable grades while the final year students study to enjoy that they made grades that will define their career paths. The choice of the sample size restricted necessitated the adoption of purposive sampling. Questionnaires were given to students during the first and final year classes and carry over students were not allowed to respond. The final year included both 4-year and 5-year courses. In the case of first year, students on probation were excluded because they will introduce bias since they are repeating the class. The students responded voluntarily.

3. Result

3.1 Descriptive Statistics for the Gender, Age, Level and College of the Respondents
Out of the 150 students that responded to the questionnaire, 74 (49.3%) were male and 76 (50.7%) were female. 30 (20%) were between the ages of 15 and 17, 52 (34.7%) were between the ages of 18 and 20, and 68 (45.3%) were aged 21 and above.

The first and final students are equally represented with 75 respondents each; although 165 questionnaires were administered, only 150 (90.9%) were returned and analyzed. The composition of the respondents from the four colleges is as follows: College A, B, C and D are 52 (34.7%), 24 (16.0%), 46 (30.6%) and 28 (18.7%) respectively.

3.2 Hours of Study
The students were asked how long they study in a day. 4 (2.7%) responded that they study less than 30 minutes on a daily basis, 19 (12.7%) study between 30 minutes and 1 hour, 33 (22%) studied between 1 and 2 hours, 34 (22.6%) studied between 2 and 3 hours, 31 (20.7%) studied between 3 and 4 hours, and 29 (19.3%) studied between 1 and 2 hours. The gender, age, level and college crosstabulation on the hours of study are shown in Tables 1 to 4.

Table 1: Gender and Hours of Study

Hours of Study	Gender		Total
	Male	Female	
Less than 30 minutes	1	3	4
Between 30 mins and 1 hour	6	13	19
Between 1 and 2 hours	20	13	33
Between 2 and 3 hours	18	16	34
Between 3 and 4 hours	17	14	31
4 hours and above	12	17	29
Total	74	76	150

Table 2: Age and Hours of Study

Hours of Study	Age			Total
	Between 15 to 17	Between 18 to 20	21 and above	
Less than 30 minutes	0	4	0	4
Between 30 mins and 1 hour	5	5	9	19
Between 1 and 2 hours	7	15	11	33
Between 2 and 3 hours	7	14	13	34
Between 3 and 4 hours	7	8	16	31
4 hours and above	4	6	19	29
Total	30	52	68	150

Table 3: Level and Hours of Study

Hours of Study	Level		Total
	First year	Final year	
Less than 30 minutes	0	4	4
Between 30 mins and 1 hour	11	8	19
Between 1 and 2 hours	20	13	33
Between 2 and 3 hours	13	21	34
Between 3 and 4 hours	20	11	31
4 hours and above	11	18	29
Total	75	75	150

Table 4: College and Hours of Study

Hours of Study	College				Total
	A	B	C	D	
Less than 30 minutes	4	0	0	0	4
Between 30 mins and 1 hour	5	2	6	6	19
Between 1 and 2 hours	14	2	10	7	33
Between 2 and 3 hours	16	9	7	2	34
Between 3 and 4 hours	7	5	13	6	31
4 hours and above	6	6	10	7	29
Total	52	24	46	28	150

Pearson Chi-square (PCS) tests showed that gender and age are not associated with hours of study (PCS = 6.308, p = 0.277; PCS = 17.17, p = 0.071). However, there are significant associations between the duo of level and college and study hours (PCS = 12.143, p = 0.033; PCS = 25.878, p = 0.039).

3.3 Desired Results

The students were asked if the number of study hours spent leads to their desired results. 4 (2.7%) responded 'yes' and 19 (12.7%) responded 'no'.

The gender, age, level and college crosstabulation on the desired results are shown in Tables 5 to 8.

Table 5: Gender and Desired Results

Desired Results	Gender		Total
	Male	Female	
Yes	34	39	73
No	40	37	77
Total	74	76	150

Table 6: Age and Desired Results

Desired Results	Age			Total
	Between 15 to 17	Between 18 to 20	21 and above	
Yes	17	27	29	73
No	13	25	39	77
Total	30	52	68	150

Table 7: Level and Desired Results

Desired Results	Level		Total
	First year	Final year	
Yes	37	36	73
No	38	39	77
Total	75	75	150

Table 8: College and Desired Results

Desired Results	College				Total
	A	B	C	D	
Yes	23	13	27	10	73
No	29	11	19	18	77
Total	52	24	46	28	150

Pearson Chi-square (PCS) tests showed that gender, age, level and college affiliation are not associated with their perceived desired results (PCS = 0.433, p = 0.511; PCS = 1.976, p = 0.372; PCS = 0.027, p = 0.870; PCS = 4.432, p = 0.218).

3.4 Analysis on the Hours Spent on Sleeping

The number of hours spent by the students on sleeping is shown in Figure 1. The descriptive statistics are presented in Table 9.

It can be observed from Table 9, that the student sleeps at an average of 6.56 hours per day.
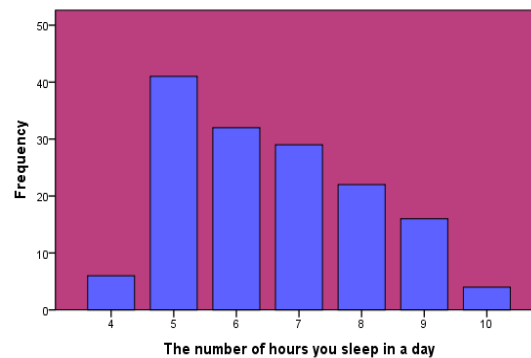

Figure 1: Number of hours spent on sleeping

Table 9: Summary Statistics on the number of Hours Spent on Sleeping

Statistic	Value	Statistic	Value
Mean	6.56	St. Dev	1.517
Median	6.00	Skewness	0.392
Mode	5.00	Kurtosis	-0.784

The relationship between the number of hours spent on sleeping and the number of hours spent on studying is obtained using the correlation coefficient. No significant correlation was observed using Pearson correlation rho (rho = 0.027, p = 0.740).

3.5 Relationship Between Hours Spent on Study and the Desired Result

Using correlation coefficient, no significant correlation (rho = -0.066, p = 0.366) was observed between the hours spent on study and the desired result.

3.6 Test of Goodness of Fit of the Variables

The Chi-square test of goodness of fit was done to determine if the observations are different from the expected value. The null hypothesis assumes that there is no significant difference between the observed and expected value. The alternate hypothesis is the complement of the null. This is presented in Table 10.

It can be seen from Table 10, that the students' responses from the hours they spent on study and hours spent on sleeping are significantly different from each other. However, the pattern of the desired result is the same, age, gender, level and college notwithstanding.

Table 10: Summary of the Chi-square goodness of fit tests

Statistic	Hours spent on study	Desired Result	Hours spent on sleeping
Chi-Square	26.960	0.107	52.440
Degrees of freedom	5	1	6
P value	0.000	0.744	0.000

3.7 Predictors of the Desired Results

The contingency test has that the four variables (gender, age, level and college) are not associated with the perceived desired result. Logistic regression corroborated the findings. However, there was a significant result when some interaction variables were introduced into the logistic model. Details on moderation can be found in [46-47]. The moderating variables are gender and age, gender and level, gender and college, age and level, age and college and level and college. As expected, Hosmer and Lemeshow Test (Chi-square = 3.249, degrees of freedom = 8, p = -0.918) showed that the logistic model is not significant and the independent variables (age, gender, level, college and the 6 moderators) was able to explain 16.4 of variance of the dependent variable (the perceived desired result). The model correctly classified 58.7% of the dependent variable. The variables in the equation are presented in Table 11.

Table 11: Variables in the Equation

Variables	B	S.E.	Wald	D.F.	Sig.	Exp(B)
Gender(1)	0.509	0.373	1.862	1	0.172	1.664
Age	0.487	0.334	2.131	1	0.144	1.628
Level	-0.428	0.548	0.875	1	0.350	0.652
College	-0.076	0.183	0.173	1	0.678	0.927
Gender*Age	-0.706	0.622	1.291	1	0.256	0.493
Gender*Level	1.833	0.924	3.938	1	0.047	6.251
Gender*College	0.224	0.355	0.398	1	0.528	1.251
Age*Level	0.724	0.737	0.965	1	0.326	2.063
Age*College	1.153	0.350	10.874	1	0.001	3.167
Level*College	-1.223	0.506	5.840	1	0.016	0.294
Constant	-0.990	0.525	3.560	1	0.059	0.372

All the low level variables (gender, age, level and college) are not significant and hence contribute nothing to the model. Nevertheless, they are needed because of the significant nature of the three higher level interactions. The moderation variables that are significant are gender and level (p = 0.047), age and college (p = 0.001) and level and college (p = 0.016). The rest does not contribute significantly to the model, their odds ratios and coefficients notwithstanding.

The research was limited by the heterogeneous nature of lecture classes, which makes sampling tedious. In addition, the timing of the study limited the sample size as the students responded only during the break time.

4. Discussion and Conclusion

Ninety-eight representing 65.3% of the students study between 1 and 4 hours per day. This is likely to differ on Saturdays and Sundays when the students are not having lectures or practical classes. Gender and age are not associated with hours of study. The first and final year students spent a similar amount of time studying which is independent of their age and gender. Any attempt to encourage the students to increase the hours of study is likely to have an effect on all the students irrespective of their gender and age. On the other hand, level and college are associated with hours of study. Final year students seem to spend more hours studying compared with the first year. Again, in the context of college affiliation, the first and final year students spent different hours on studying.

Gender, age, level, and college affiliation are not associated with their perceived desired results. The perceived desired results for the first and final year students are the same irrespective of their gender, age, level and college affiliations.

On average, the students spent just over a quarter of a day sleeping. No significant association exists between the number of hours spent on sleeping and the number of hours spent on studying. Hence, the number of hours spent on studying does not determine the number of hours spent on sleeping.

There is no correlation between the hours spent on study and the desired result. This is expected, as the actual students' results were not used. The students just air their views, which may be subject to bias.

The research has shown that are latent variables that may be behavioural, psychological, sociodemographic or psychosocial responsible for the perceived desired result which cannot be explained by the number of hours spent on studies.

The interaction between gender and level has the highest odds of the perceived desired result of students. This is an example where moderation variables are significant while the independent variables that birth them are not. Other significant moderation variables are the interaction between age and college, and the interaction between level and college. The probability of students having their desired results reduces the interaction of level and college. On the other hand, the probability increases by the interaction between age and college. Further studies are needed to fully understand the impact of the interactions.

Intervention programmes are to be incorporated into the curriculum to motivate students in achieving their desired results [48]. Tutorial classes, investment in learning tools and counselling are recommended for first and final year students to adequately stimulate their interests in their chosen fields and to prepare them for a successful career [49-51].

Acknowledgement

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