Undergraduate Students' Cognizance of Technologies for Self-Regulated Learning

Olumorin Charles Olubode[1], Onojah Adenike Aderogba[2], Onojah Amos Ochayi[3]* 🆔

[1,2,3] University of Ilorin, Ilorin, Nigeria
*Corresponding author: haymoresonojah@gmail.com

Abstrak

Bimbingan pribadi berpusat pada masalah kepribadian, perkembangan fisik dan emosional, hubungan interpersonal dan hal-hal serupa. Tapi bimbingan kejuruan yang diberikan kepada siswa mungkin atau mungkin tidak mempengaruhi karir mereka setelah lulus. Penelitian ini bertujuan untuk menguji sejauh mana bimbingan kejuruan mempengaruhi keputusan karir siswa kejuruan dan teknik. Penelitian ini merupakan penelitian deskriptif dengan tipe survey. Sampel 220 mahasiswa teknik semua mahasiswa pendidikan teknik. Instrumen yang digunakan untuk mengumpulkan data yaitu kuesioner. Data yang dikumpulkan menjadi sasaran statistik deskriptif dan inferensial. Frekuensi hitung dan mean digunakan untuk menjawab pertanyaan penelitian dan hipotesis diuji dengan uji-t pada taraf signifikansi 0,05. Temuan menetapkan bahwa bimbingan kejuruan telah mampu mempengaruhi pengambilan keputusan karir siswa pendidikan kejuruan dan teknik untuk tingkat yang tinggi. Juga, tidak ada perbedaan yang signifikan dalam dampak bimbingan kejuruan terhadap pilihan karir siswa sekolah menengah kejuruan dan pendidikan teknik. Oleh karena itu, direkomendasikan bahwa siswa Pendidikan Kejuruan dan Teknologi harus mengetahui pentingnya layanan bimbingan dan apa itu konseling agar mereka dapat membuat keputusan karir yang baik.

Kata kunci: Bimbingan Kejuruan, Keputusan Karir, Mahasiswa Kejuruan

Abstract

Self-regulated learning (SRL) is a learning strategy that is guided by metacognition, strategic action and motivation to learn. But its awareness is low. This study therefore investigate undergraduate students' awareness of technologies for Self Regulated Learning and the influence of gender, level and propreitorship on the cognizance. This study adopted the descriptive design of quantitative survey type. The sample comprised 389 respondents. Data collected were analyzed and tested using mean, t-test and ANOVA while Scheffe's post-hoc was used to indicate the direction of significant differences at 0.05significant level. The findings established that undergraduate students were aware that Blogs, Facebook, Bookmarks and Wikis are technologies for SRL. There was no difference in undergraduate students' awareness of technologies for SRL based on students' academic level. There was significant difference between undergraduate students' awareness of technologies for SRL based on gender(p=0.001), & school proprietorship(p=0.001). The study concluded that undergraduate students are aware of SRL. This implies that students could be encouraged to utilize technologies for SRL if they are aware of its' usefulness. It was recommended that Students in seminars should be organized to students on technologies for SRL in their learning process.

Keywords: Undergraduates, Cognizance, Technologies, Self-Regulated, Learning

1. INTRODUCTION

The advent of technologies has deeply impacted the educational scene by making learning easy and interesting. Technologies have revolutionized the field of education and the importance of technology in schools cannot be ignored (Cabaleiro-Cerviño & Vera, 2020; Elia, Elia, et al., 2021). With the onset of computers in education, it has become easier for teachers to impart knowledge and for students to acquire it (Elia, Giuffrida, et al., 2021; Khamparia & Pandey, 2017). The use of technologies has made the process of teaching and learning all the more enjoyable. Technologies are important in education in the sense that there is easy access to information, greater interest in learning, increased retention of information, robust information storage, better presentation of information, teaching made interactive, and knowledge sharing made easy (Gluzman et al., 2018; Hoareau et al., 2021).

The term, information and communication technologies (ICT) refers to forms of technology that are used to transmit, store, create, share or exchange information. This broad definition of ICT includes such technologies as: radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing and electronic mail. ICT in education means teaching and learning with ICT. Researches globally have proved that ICT can lead to improve students' learning and better teaching methods (Magen-Nagar & Firstater, 2019; Oye et al., 2012).

Educational technology is a systematic and organized process of applying modern technology to improve the quality of education (Cabaleiro-Cerviño & Vera, 2020; Stošić, 2015). It is a systematic way of conceptualizing the execution and evaluation of the process (that is learning and teaching) and helping with the application of modern educational teaching techniques. The application of educational technology requires knowledge from several areas: pedagogy, psychology, didactics, computer sciences, and informatics. Learning is an act of acquiring knowledge, skills, beliefs and attitude for relatively and permanent change in behaviour (Alshenqeeti, 2018; Durnali, 2020). Learning is a goal directed act, acquiring new, or modifying and reinforcing existing knowledge, behaviours, skills, values, preferences and may involve synthesizing different types of information (Afifah et al., 2019; Bradley, 2020). Learning may be viewed as a concept and like all other concepts; it lacks a generally accepted definition. Tertiary institution is the post-secondary section of the national education system which is given in universities, polytechnics and colleges of education, the advanced teacher training college, and correspondence colleges. Some of the goals of tertiary institutions as stated in National Policy on Education are providing accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interests of all Nigerians and providing high quality career counseling as well as lifelong learning programmes that prepare students with the knowledge and skills for self-reliance and the world of work.

The act of self-regulated learning makes learners take active control of learning activities. Self-regulated learning (SRL) is a process whereby learners personally activate and sustain cognitions, affects, and behaviors that are systematically oriented toward the attainment of personal goals (Retnawati, 2016; Van Alten et al., 2020). Control over cognition refers to metacognition, that is, student's ability to regulate thinking, which is by definition a central component of self-regulated learning. Control over affect refers to the ability to handle emotions (such as frustration, disappointment, and pride) that studying involves. Control over behavior is required to actually perform the required learning activities (Moning & Roelle, 2021; Vrieling et al., 2012). Also, goal-setting is a central aspect of self-regulated learning because students' goals are not always oriented towards learning but instead, students may be oriented towards avoiding work or other aspects such as competition among peers (Bahri et al., 2021; Istiningrum, 2017). Self-regulated learning is a process that assists students in managing their thoughts, behaviors, and emotions in order to successfully navigate their learning experiences (Kusuma, 2020; Zetriuslita et al., 2020). This process occurs when a student's purposeful actions and processes are directed towards the acquisition of information or skills. Regulating as the fine-tuning and continuous adjustment of one's cognitive activities. The activities could enhance learning by employing a feedback loop during learning (Orimogunje, 2014). Self-regulation is an integrated learning process consisting of a set of constructive behaviour that affects one's learning. These processes are planned, controlled, and adapted to support the pursuit of personal goals in changing learning environment.

It is therefore necessary to introduce students to learning style that is student-centered. Learner is able to monitor and regulate his cognitive activities, as well as other processes and

functions associated with metacognition (Calafato, 2020; Sart, 2014; Tsai et al., 2018). In order to monitor and regulate ones' cognitive activities, certain strategies like; self-instruction, self-monitoring, are necessary. Hence, self-regulation strategies like self-instruction, self-questioning, self-evaluation, self-monitoring and self-reinforcement, help learners in gaining access to cognitive processes that facilitate learning, guide learners as they apply the processes within and across domains, and regulate their application and overall performance task (Fathi et al., 2018; Shea & Bidjerano, 2010; Tongchai, 2016). Self-regulated learning dictates that students are in control of their own learning by setting goals for their learning, monitoring their own learning, and motivating themselves to learn (Moning & Roelle, 2021; Retnawati, 2016; Van Alten et al., 2020). Self-regulated learning facilitates innovation, critical thinking, problem solving, and communication skills. Self-regulated learning is a learning style which became popular in the 1980's and involves students' responsibility by encouraging them to learn by themselves.

New methods of effective teaching and learning, which meet the expectations of the diverse student body and which engage students, should be explored and implemented (Durnali, 2020; Olibie et al., 2014; Shafie et al., 2010). Students need to be challenged to become engaged in the 21st century way. For any learning technologies to be effectively utilized, students must be aware of what it entails, be motivated and competent to use it. There is need for students to use self-regulated learning to complement the efforts of the lecturers and classroom lectures. When students are motivated to use technology to engage in self-regulated learning, learning interests such students more because they see how acquiring practical skills and learning to solve problems contribute to future success (Istiningrum, 2017; Vrieling et al., 2012). School proprietorship determines to a large extent the provision of an enabling environment for the adoption and integration of technologies in education. The environmental conditions that necessitate the utilization of technologies however differ from school to school. It is an institutional factor which could motivate learners towards the utilization of technologies for learners (Mashud, 2020; Yefanov et al., 2020). In recent years, exploration and understanding of their own learning processes by the students as well as the support given by trainers in learning teaching environments has gained importance with respect to achieving effective learning (Bozpolat, 2016).

Students make use of technology for various things and the use of technology interests many students (Aini et al., 2020; Razak et al., 2018; Ying et al., 2021). Technology is mostly used for social activities among students (Jihad Mohaidat, 2013; Weng & Chen, 2020). Naturally, students do not like learning until there is a need for it or they are forced to do so. For effective learning to actually take place, it is essential to shift from teacher-centered method to learner-centered method. One of the methods of learning which allows students to take full control of their learning to bring about success in their performance is self-regulated learning. Self-regulated learning is made possible by the utilization of technologies. The use of technologies in higher education has also necessitated the concern with development of lifelong learning skills and increased use of technology in learning (Cabaleiro-Cerviño & Vera, 2020; Zabolotniaia et al., 2020). As the move towards the use of technologies in Higher Education (HE) continues to grow unabated, the more important it becomes to examine the awareness of self-regulated learning among students. However, most of the studies on the status of self-regulated learning in universities were confined to developed countries like the United States of America, United Kingdom and Australia with very few studies in developing countries like Nigeria. This study therefore aimed to raise awareness of undergraduate students about self-learning technology in Kwara State, Nigeria. The influence of gender, academic and school ownership on awareness level is also.

2. METHODS

This study employed a descriptive survey of the quantitative method. This is because it involves the systematic collection and analysis of data collected from a large population in order to describe the characteristics of members of the population based on the phenomenon under consideration for the study without involving any external manipulations. This enabled the researcher to collect large number of information from the respondents on the awareness of attitude towards and utilization of technologies for SRL in Kwara State. The population for the study consist of all undergraduate students in Kwara State. The target population consist of undergraduate students across all faculties in Kwara State. Multi Stage sampling technique was used to select respondents across the institutions. Three universities which include a federal university, a state university and a private university in Kwara State were selected purposively based on school proprietorship. 200 level and 300 level students were purposively selected in these universities because 100 level students are freshers who are still new in the system, and 400, 500 or 600 level students are rounding off their programmes in school therefore these students may not be around at the time of visit. The proportional sampling strategy is as shown in table 2. Three hundred and ninety-eight (398) respondents comprising 348 from a federal university, 27 from a state university and 23 from a private university form the three universities. Data would be collected on variables of gender and academic level by ensuring that the questionnaire would be distributed to all students. The total number of students in the three universities was 59,514 and this falls within 50,000 and 100,000 on the Isreals' model (2013) for determining size. Based on this, 398 respondents can be acquired from a population of fifty thousand at 95% confidence levels and 5% margin error. Thus, the sample for each university was calculated and the figures arrived at is presented.

A researcher designed questionnaire was used to elicit information from the respondents. It consisted of two sections. Section A required demography of the respondents' personal information to know if gender and students' academic levels have influence on their awareness and attitude towards utilization of technologies for SRL, Section B consisted the list of ten technologies for SRL to elicit information on the respondents' awareness of technologies for SRL. Response mode of Aware (A) and Not Aware (NA) were used for Section B. The instrument was validated for face and content validity by the researcher's supervisor and two other lecturers in the Department of Educational Technology in University of Ilorin. The various suggestions after the scrutiny were used to modify the instrument. In order to ascertain the consistency of the instrument, the instrument was pilot tested on twenty-five undergraduate students of Ladoke Akintola University of Technology in Ogbomoso, Oyo State which was not part of the study sample. The data collected were subjected to reliability analysis and cronbach alpha statistical tool were used to ascertain the reliability result at 0.05 level of significance. The result was 0.91 on undergraduate Students' Awareness of Technologies for Self-Regulated Learning. This shows that the instrument is highly reliable and can thus be reused by other researchers.

The appropriate authorities' permission was sought before the instruments were administered with the help of a research assistant from each of the institutions of the study. Data were collected through the questionnaire that was distributed to the respondents' schools. The questionnaire was collected immediately from the students after filling them. In order to ensure ethical issues, no information which is not relevant to the purpose of this study was collected from the respondents in the study. The respondents were not coerced in filling the questionnaire as they were given the opportunity to fill it at their convenience. Also, all authors cited in this work were properly referenced. Data collected through the questionnaire were subjected to descriptive and inferential statistics, Descriptive statistics (percentage, count and mean) were used to answer research questions, Inferential statistics of

t-test was used to test hypotheses 1, 2, While Analysis of Variance (ANOVA) was used to test hypotheses 3. All hypotheses were tested at 0.05 level of significance.

3. RESULTS AND DISCUSSION

Results

Out of the 398 copies of questionnaires that were administered, 389 were properly filled and returned amounting to 97.7% return rate. This was thus used for the analysis. The results of data analysis regarding undergraduate students aware of technology for independent learning are presented in Table 1.

Table 1. Awareness of Technologies for Self-Regulated Learning

S/N	Technologies for SRL	A		NA		Total
		N	%	N	%	
1)	Blogs	335	86.1%	54	13.9%	389 (100%)
2)	Podcasts	184	47.3%	205	52.7%	389 (100%)
3)	E-Portfolio	168	43.2%	221	56.8%	389 (100%)
4)	Facebook	374	96.1%	14	3.6%	389 (100%)
5)	Bookmarks	342	87.9%	47	12.1%	389 (100%)
6)	Collect or Compile Features	144	37.0%	245	63.0%	389 (100%)
7)	Google Calendar	107	27.5%	282	72.5%	389 (100%)
8)	Online Grade Book (LMS)	175	45.0%	214	55.0%	389 (100%)
9)	Wikis	287	73.8%	102	26.2%	389 (100%)
10)	Virtual World	175	45.0%	214	55.0%	389 (100%)

Undergraduate students' awareness of technologies for self-regulated learning was investigated and the results were presented in Table 1. Out of the 389 respondents, 335 (86.1%) were aware of Blogs as technologies for self-regulated learning while 54 (13.9%) were not aware. 184 (47.3%) respondents were aware of Podcasts as technologies for self-regulated learning while 205 (52.7%) were not aware. Also, 168 (43.2%) respondents were aware of E-Portfolio as technologies for self-regulated learning while 221 (56.8%) were unaware. 374 (96.1%) respondents were aware of Facebook as technologies for self-regulated learning while 14 (3.6%) were unaware. 342 (87.9%) respondents were aware of Bookmarks as technologies for self-regulated learning while 47 (12.1%) were not aware.

Furthermore, out of the 389 respondents, 144 (37.0%) respondents were aware of Collector Compile Features as technologies for self-regulated learning while 245 (63.0%) were not unaware. 107 (27.5%) respondents were aware of Google Calendar as technologies for self-regulated learning while 282 (27.5%) were unaware. 175 (45.0%) respondents were aware of Online Grade Book (LMS) as technologies for self-regulated learning while 214 (55.0%) were not aware. Also, 287 (73.8%) respondents were aware of Wikis as technologies for self-regulated learning while 102 (26.2%) were not aware. Lastly, 175 (45.0%) respondents were aware of Virtual World as technologies for self-regulated learning while 214 55.0% were not aware. On the whole, it was inferred that from the findings that majority of the respondents are aware that Blogs, Facebook, Bookmarks and Wikis are technologies for self-regulated learning. The results of data analysis regarding differences in awareness of male and female SRL students about technology for SRL are presented in Table 2.

The differences in male and female undergraduate students' awareness of technologies for SRL was investigated and the results were presented in table 2. It revealed that male respondents had a mean score of 0.68 while their female counterparts had a mean of 0.61. The mean difference of 0.07 deduced that there is difference in male and female

undergraduate students' awareness of technologies for SRL in favour of the male respondents. The results of the analysis regarding the differences in the awareness of undergraduate students about the use of technology for student-level SRL are presented in Table 3.

Table 2. Differences in Male and Female Undergraduate Students' Awareness

Gender	N	% of Total N	Mean	Mean Difference
Male	198	50.9%	0.68	0.07
Female	191	49.1%	0.61	
Total	389	100.0%	0.65	

Table 3. Difference in Awareness of Technologies for SRL Based on Students' Academic Level

Level	N	% of Total N	Mean	Mean Difference
200Level	154	39.6%	0.64	0.0
300Level	235	60.4%	0.64	
Total	389	100.0%	0.64	

Table 3 presents the results on the difference in undergraduate students' awareness of utilization of technologies for SRL based on level of study. It indicated that the 200 level respondents had a mean value of 0.64 which is the same as their 300 level counterparts. The mean difference of 0.00 proved that there is no difference in undergraduate students' awareness of utilization of technologies for SRL based on level. The results of data analysis regarding differences in the awareness of undergraduate students about the use of technology for school ownership-based SRL are presented in Table 4.

Table 4. Difference in Awareness based on school proprietorship

School Proprietorship	N	% of Total N	Mean	Mean Difference
Federal	342	87.9%	0.65	
State	26	6.7%	0.63	0.09
Private	21	5.4%	0.47	
Total	389	100.0%	0.64	

The difference in undergraduate students' awareness of utilization of technologies for SRL based on school proprietorship was investigated and the results were presented in table 4. It indicated that federal school respondents had a mean of 0.65, 0.63 for state owned institutions and 0.47 for private owned institutions. The mean difference of 0.009 proved that there is difference in undergraduate students' awareness of utilization of technologies for SRL based on school proprietorship in favour of Federal institutions. The results of data analysis regarding the significant differences between male and female SRL students' awareness of technology for SRL are presented in Table 5.

Table 5. t-test of Male and Female Students' Awareness of Technologies for SRL

Gender	N	Mean	Std. Deviation	Df	T	Sig (2-tailed)	Decision
Male	198	.6717	.20627				
				387	3.24	0.001	Rejected
Female	191	.6068	.18836				
Total	389						

From Table 5, it can be deduced that there was significant difference between male and female undergraduate students' awareness of technologies for SRL. This is reflected in the result: t (387) = 3.24, p < .05. That is, the result of t-value of 3.24 resulting in 0.001 significance value was less than 0.05 alpha value. Thus, the hypothesis is rejected. This implies that there was significant difference between male and female undergraduate students' awareness of technologies for SRL. There is no significant difference in undergraduate students' awareness of technologies for SRL based on students' academic level.

Table 6. t-test of Students' Awareness of Technologies for SRL based on Level

Level	N	Mean	Std. Dev.	Df	t	Sig (2-tailed)	Decision
200Level	154	.6357	.20378				
				387	-0.329	0.742	Not Rejected
300Level	235	.6426	.19801				
Total	389						

From Table 6, it can be deduced that there was no significant difference in undergraduate students' awareness of technologies for SRL based on level. This is reflected in the results of the hypotheses tested; df (387) t= -0.329, p> 0.05. Thus, the hypothesis was accepted. This means that the hypothesis which states that there was no significant difference in undergraduate students' awareness of technologies for SRL based on level is accepted. This therefore mean that, undergraduate students' awareness of technologies for SRL does not differ significantly based on students' academic level. There is no significant difference in undergraduate students' awareness of technologies for SRL based on school proprietorship.

Table 7. ANOVA on Awareness of Technologies for SRL based on School Proprietorship

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	.636[a]	2	.318	8.237	.000	
Intercept	34.670	1	34.670	898.356	.000	
School Proprietorship	.636	2	.318	8.237	.000	Rejected
Error	14.897	386	.039			
Total	174.790	389				
Corrected Total	15.532	388				

a. R Squared = .041 (Adjusted R Squared = .036)

Table 7 shows the results on significant difference in undergraduate students' awareness of technologies for SRL based on school proprietorship. It indicated that F (2, 386) = 8.24, p<0.05, which means there was no significant difference in undergraduate students' awareness of technologies for SRL based on school proprietorship. Hence, the null hypothesis is hereby rejected. The direction of the differences in the awareness of technologies for SRL based on school proprietorship is presented with Scheffe' post-hoc analysis in Table 8.

Table 8. Scheffe' Post-hoc Analysis on Awareness of Technologies for SRL based on School Proprietorship

(I) School Proprietorship	(J) School Proprietorship	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Federal	State	0.0160	0.03996	0.923	-0.0822	0.1142
	Private	0.1792	0.04417	0.000	0.0706	0.2877
State	Federal	-0.0160	0.03996	0.923	-0.1142	0.0822
	Private	0.1632	0.05764	0.019	0.0216	0.3048
Private	Federal	-0.1792	0.04417	0.000	-0.2877	-0.0706
	State	-0.1632	0.05764	0.019	-0.3048	-0.0216

The post-hoc analysis is presented on Table 8. It shows that there was significant difference between federal owned institutions and private owned institutions undergraduate students' awareness of technologies for SRL. Also, a significant difference existed between state owned institutions and private owned institutions undergraduate students' awareness of technologies for SRL. The estimated marginal means on the undergraduate students' awareness of technologies for SRL based on school proprietorship. It revealed that federal undergraduate students are aware the most, next to it is the state-owned institutions undergraduate students and the least are the private owned institutions students.

Discussions

The findings showed that majority of the respondents were aware that Blogs, Facebook, Bookmarks and Wikis are technologies for self-regulated learning. This finding supports who posited that all the 224 respondents were aware of technologies for learning (Amaoge & Ejike, 2016). New methods of effective teaching and learning, which meet the expectations of the diverse student body and which engage students, should be explored and implemented (Olibie et al., 2014; Rhim & Han, 2020; Syafrijal & Desyandri, 2019). This implies that students' awareness of these technologies for SRL could enhance their utilization of such technologies.

However, Male respondents are aware of technologies for SRL more than their female counterparts. Most students from university were familiar with the term web 2.0. Although, this does not affect their use of web 2.0 notwithstanding, they were not just familiar with the term as a general name for all the various available communication tools (Diyaolu & Rifqah, 2015). The implication of these is that male respondents could utilize technologies for SRL more than their female counterparts. There was no difference in undergraduate students' awareness of utilization of technologies for SRL based on level. University students in developing countries have varying attitudes towards e-learning but generally their attitudes are positive (Maulana & Padang, 2021; Rhema & Miliszewska, 2014; Wu & Plakhtii, 2021). There was difference in undergraduate students' awareness of utilization of technologies for SRL based on school proprietorship in favour of Federal institutions. The extent to which students engage in self-regulating activities has been shown to correlate with academic achievement (Gray et al., 2012; Tongchai, 2016; Van Alten et al., 2020).

There was significant difference between male and female undergraduate students' awareness of technologies for SRL. There was no significant difference in undergraduate students' awareness of technologies for SRL based on level. Second year students showed a moderate use of the self-regulated strategies and e-learning resource management strategies was high (Alharbi et al., 2011). There was significant difference in undergraduate students' awareness of technologies for SRL based on school proprietorship with p=0.000. On the

bases of the findings, the following recommendations were made: School administrators in Nigeria should ensure that the technologies for SRL are made available to all undergraduate students. Government should, as a matter of necessity, provide adequate technologies that will sustain effective teaching and learning in all schools. Students in Nigerian universities should be encouraged to always integrate appropriate technologies for SRL in their learning process.

4. CONCLUSION

This study concluded that undergraduate students acquire good cognizance of technology for self-regulated learning in Kwara State, Nigeria. However, the gender and school proprietorship of the students have influence of on the cognizance of technology for self-regulated learning. But the academic level of the students had no influence on the cognizance of technology for self-regulated learning. Technologies are now an indispensable component of the academic world and much more vital with regard to the higher education.

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