S.W.O.T Analysis of E-Learning Platform, Sakai: Users' Perspective

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ABSTRACT

The interest in integrating eLearning platforms in teaching environments are on the increase in higher learning institutions. In view of this, the study focused on assessing the strengths, weaknesses, opportunities, and threats (SWOT) of using the eLearning Platform, SAKAI, in the School of Continuing and Distance Education (SCDE), University of Ghana, Legon. A survey was conducted and two hundred and seventy-four (274) distance learning students from the University of Ghana, Legon were selected by simple random sampling method to collect primary data using questionnaires. The Statistical Package for Social Science (SPSS) was then used to analyze the completed questionnaire and the statistical tools such as Pearson correlation matrix, mean and standard deviation were used.

The results of the findings revealed that the strengths, weaknesses, opportunities, and threats of SAKAI, have no significant relationship with distance learners' level of ICT skills. From the results, it was clear that for management to be able to capitalize on the strengths of SAKAI as an eLearning platform, much attention must be paid to the stability of internet connection, user interface for ease of use, accessibility to mobile technology and much user training. The study made a significant recommendation for adoption.

Keywords: ICT, learning management systems, e-learning platforms, distance education, SAKAI, Technology-Organization-Environment (TOE).

1.0   Background of the study

The interest in integrating eLearning platforms in teaching, learning, and research environments have increased substantially (Zhang and Goel, 2011). In view of this, different forms of eLearning channels, ranging from online content distribution and testing to synchronous instructor-led sessions, are being adopted in higher learning institutions, especially for distance learners. However, the increase in the adoption of e-learning strategies is fueled by a number of factors which include globalization, technological advancement and demographic forces (Harper, Chen, & Yen, 2004; Mupinga, 2005).

With respect to globalization, most organizations are moving towards a global business landscape where the phenomenon of e-learning platforms has correspondingly increased demand for distance education and virtual courses in higher educational institutions (Harper, Chen & Yen, 2004). This has overcome the geographic location and temporal boundaries associated with traditional education (Mupinga, 2005).

Moreover, technological advancement has contributed to the high adoption rate of eLearning management platforms. Information technologies, which has seen a rise in power and fall in cost, has in the past five years, seen exponential growth in the processing capacity of mobile devices such as laptops and handhelds. Besides the hardware and software improvement in recent years, support for connectivity to the web has also shot up causing an increasing number of 'hotspots' and higher signal strengths in public places.

That notwithstanding, demographic forces which are inherent in the nature of students and the workforce today, have caused the age at which individuals are exposed to technologies such as the Internet and social networking to decrease drastically. It is therefore not surprising that tertiary institutions are adopting eLearning platforms, especially for distance learners to enhance the learning and teaching process.

In the view of Zhang and Goel (2011), as the generation familiar with the use of technologies in gaining information gets assimilated into the future workforce, technologies for learning and communication will reflect their needs automatically. Therefore, in keeping with the demand generated from the forces above, many higher education institutions like the University of Ghana, Legon, have adopted e-learning platforms like SAKAI, as part of learning management systems. This is a clear indication that while the move towards eLearning is seen as relentless, it is necessary to examine the strengths, weaknesses, opportunities, and threats, capable of determining the success of the eLearning initiative.

At the University of Ghana, Legon, the eLearning platform, SAKAI, has been deployed as an additional facility for students' use. Each faculty and all the regional learning centres (distance learning) have been provided with a minimum of a fifty (50) seater computer laboratory, a video conference centre connected to the Data Centre at Legon Campus over the Vodafone National Fiber Backbone, and a Smart Classroom with additional equipment such as HP LaserJet printers, Scanners, LCD Projectors, Digital Visual Presenter and Photocopiers, UPS, Generator and a centre wide Wi-Fi network (University of Ghana, 2015).

However, recent studies in Ghana and Africa at large have described poor ICT infrastructure, low Internet bandwidth, lack of access to computers, and poor support services as the main causes that

hinder users of eLearning platforms like SAKAI in tertiary institutions, adding that these challenges account for the current low usage (Lwoga, 2012; Ssekakubo et al., 2011; Tedre, Ngumbuke, & Kemppainen, 2010; Unwin et al., 2010). A scan through the literature revealed that there are relatively few studies that have focused on the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of the use of eLearning platforms. In Hightower, et al. (2011), a SWOT analysis involved an in-depth, simultaneous study of both the internal strengths, weaknesses and the external opportunities, threats that may impact positively or negatively the success of a system.

The few studies on SWOT analysis regarding eLearning by a number of researchers, was used to evaluate software tools for the e-learning systems (Hightower, et al., 2011; Bilalis et al., 2002), distance learning opportunities (Tait & Mills, 1999), broad university strategies (Cardosa, Trigueriros & Narciso , 2005), student perceptions (Jackson & Helms, 2008), and digital library implementations (Wang, 2003). Furthermore, Engelbrecht (2003), employed SWOT analysis in assessing e-learning success outcomes. Against this backdrop, the study focuses on identifying the SWOT of using the eLearning Platform, SAKAI, at the University of Ghana, Legon.

1.2   Significance of the study
The purpose of the study was to assess the SWOT analysis of the use of the eLearning platform, SAKAI in University of Ghana, Legon. The investigator is confident that this study will draw the attention of tertiary institutions to the use of the eLearning platform, SAKAI.

Moreover, the results added to knowledge and literature in the subject area under study as well as subsequent studies in related fields. This means that the findings of the study added to studies that have been done so that researchers and stakeholders in tertiary institutions could appreciate the problem.

The final report is a useful source of reference to other researchers to come, academia and policy makers since it serves as the basis for policy formulation to regulate them on the SWOT analysis of the use of the eLearning platform, SAKAI.


1.3   Theoretical framework
In this analysis, the Technology-Organization-Environment (TOE) framework is used to help analyze the adoption of SAKAI by undergraduate students. The TOE framework was developed by Tornatzky and Fleisher (1990). TOE describes the process by which a firm (distance learning) adopts and implements technological innovations. As postulated by this theory, adopting and implementing technological innovations is influenced by technological context, organizational context and the environmental context of the institution (Tornatzky and Fleisher, 1990).

The technological context includes the internal and external technologies that are relevant to the firm. Technologies may include both types of equipment as well as processes. The organizational context refers to the characteristics and resources of the firm, including the firm's size, the degree of centralization, the degree of formalization, managerial structure, human resources, amount of slack resources, and linkages among employees. The environmental context includes the size and structure of the industry, the firm's competitors, the macroeconomic context, and the regulatory

environment (Tornatzky and Fleisher, 1990). These three factors present both constraints and opportunities for technological innovation for distance learners in UG, Legon. Thus, these three elements influence the way a firm sees the need for and adopts new technology. See Fig. 1.

Fig. 1: Schematic of Technology-Organization-Environment (TOE)
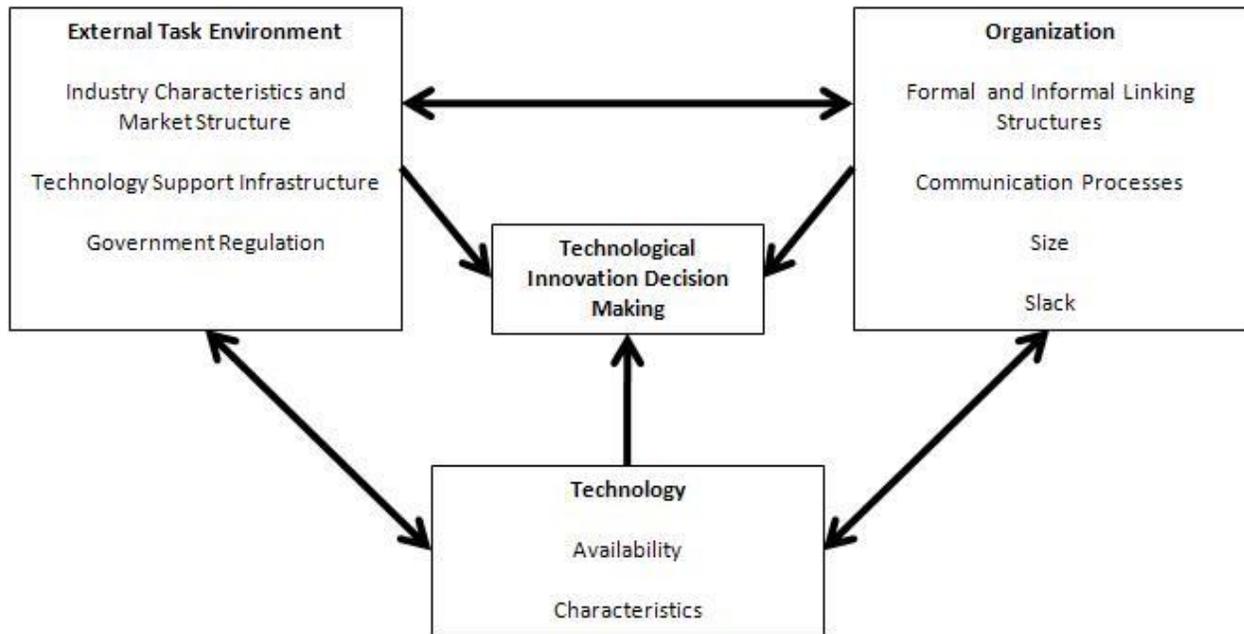
Source: Tornatzky and Fleisher (1990)

2.0 Research methodology

The quantitative method of research was adopted for this study. A sample size of 100 distance learning students from the University of Ghana, Legon was used. Also, the study adopted the proportionate stratified random sampling to select the respondents from all levels of study. The study was conducted after 2 years following the implementation of SAKAI in order to allow adequate time for users to interact with the system in-depth in order to provide valuable feedback. Moreover, primary data was collected through the administration of questionnaires using the SWOT analysis approach in an effort to obtain data that could guide future system implementation efforts.

The SWOT (strengths, weaknesses, opportunities, and threats) analysis is an extremely useful tool for understanding and reviewing the SAKAI system in making decisions about future directions or the implementation of a new idea. It involves specifying the internal and external factors that are favourable and unfavorable to achieve the usage of the learning platform. The degree to which

the internal environment of SAKAI matches with the external environment is expressed by the concept of strategic fit. In this study,

- Strengths mean the characteristics of the SAKAI platform that gives it an advantage over other learning management platforms.
- Weaknesses imply the characteristics of the SAKAI platform that place SAKAI disadvantage relative to other learning management platforms.
- Opportunities refer to the elements in the SAKAI environment that UG users could exploit to its advantage.
- Threats deal with elements in SAKAI that could cause trouble for UG users.

Secondary data was collected from research reports, annual reports, textbooks, statistical data and electronic resources from emerald, SAGE publications, Science Direct and many more. As already stated in the background, the study aim at identifying strengths, weaknesses, opportunities, and threats associated with the use of SAKAI as an educational tool from the users' point of view. This was in an effort to identify the elements impacting the adoption of SAKAI. The Statistical Package for Social Scientist (SPSS) software was used to analyze and interpret the collected data. Limitations included were the difficulty in attaining a complete list and access to the population due to privacy policies and lengthy process in gaining permission. It was also time-consuming and cost-intensive.

3.0 Analysis and discussion of findings

To understand the position of respondents who were distance learners of the University of Ghana, some biographical information was collected in assessing the Strengths, Weaknesses, Opportunities, and Threats of using the eLearning Platform, SAKAI, in the School of Continuing and Distance Education (SCDE), University of Ghana, Legon.

Table 1: Biographical information of respondents

Gender of respondents

Responses	Frequency	Percent
Male	200	73.0
Female	74	27.0
Total	274	100.0

Age of respondents

Responses	Frequency	Percent
18 – 22 years	204	74.5
23 – 27 years	66	24.1
28 – 32 years	2	0.7
33 – 37 years	2	0.7
Total	274	100.0

Level of the study of respondents		
Responses	**Frequency**	**Percent**
Level 200	96	35.0
Level 300	124	45.3
Level 400	54	19.7
Total	274	100.0

Source: Field data, September 2016.

The males constituting (73.0%) outnumbered the females in this study (27.0%). Also, the majority of the respondents (74.5%) were within the age group of 18 – 22 years while a few of them, (0.7%) were within the ages of 28 – 32 years and 33 – 37 years. In addition, most of them (45.3%) were level 300 students while the least of them (19.7%) were in the final year thus, level 400. This means that most of the respondents were males in level 300 between the ages of 18-22 years.

Table 2: Knowledge of learning management platforms

Responses	**Frequency**	**Percent**
Yes	206	75.2
No	36	13.1
Not sure	32	11.7
Total	274	100.0

Source: Field data, September 2016.

From the results, most of the respondents (75.2%) indicated that they had heard of learning management platforms while (13.1%) stated otherwise. However, (11.7%) were not sure.

Following this, the researcher gathered information regarding the level of ICT skills of respondents, its significant effect on their usage of SAKAI and the frequency of use (Table 3).

Table 3: Level of ICT skills, the effect on SAKAI usage and frequency of use

Level of Information and Communication Technology (ICT) skills		
Responses	**Frequency**	**Percent**
Novice	8	2.9
Beginner	46	16.8
Intermediate	194	70.8
Advanced	26	9.5
Total	274	100.0
Significant effect on SAKAI usage		

Responses	Frequency	Percent
Positive effect	154	56.2
Negative effect	32	11.7
No effect	88	32.1
Total	274	100.0
Frequency of access to SAKAI		
Responses	**Frequency**	**Percent**
Daily	30	10.9
Weekly	116	42.3
Bi-weekly	38	13.9
Monthly	22	8.0
Never	68	24.8
Total	274	100.0

From the data collected, it was obvious that a greater proportion of the respondents (70.8%) were at the intermediate while a few of them (2.9%) were novices. This means that most of the distance learners were technologically inclined.

The findings went on to show that the respondents' level of ICT skills significantly affected their usage of the learning management system or platform, SAKAI. From the results, the majority of the subjects (56.2%) indicated clearly that, their level of ICT skills had a positive effect on their usage of SAKAI while (11.7%) indicated a negative effect. That notwithstanding, (32.1%) stated that it had no effect on them. Therefore, on the whole, it can be said that the respondents' level of ICT skills had a positive effect on their usage of SAKAI.

Having revealed that, the majority of the respondents (42.3%) stated clearly that they accessed the SAKAI learning platform on a weekly basis while a few of them (8.0%) accessed the system on a monthly basis. This is a clear indication that distance learners accessed SAKAI on a weekly basis rather than daily.

Furthermore, the Cronbach's alpha analysis was used to determine the reliabilities of the variables used in the study. The mean statistics analysis was used to determine the strengths, weaknesses, opportunities, and threats of using Sakai as an eLearning platform. In addition, in order to establish the relationship between distance learning students' level of ICT skills and SWOT dimensions of SAKAI, Pearson's product-moment correlation analysis was used.

Table 4: Descriptive statistics of study variables

Study Variables	N	Mean	Std. Deviation	Cronbach's Alpha	No. of items	Mean Ranking
SWOT	274	3.094	0.540	.89	36	-
Strengths	274	3.202	0.694	.83	13	2nd
Weaknesses	274	3.023	0.680	.70	8	3rd
Opportunities	274	3.332	0.769	.84	7	1st
Threats	274	2.780	0.778	.81	8	4th

The means, standard deviations, and reliabilities of all variables from the responses of 274 distance learners of the University of Ghana, Legon, are reported in Table 4. The respondents rated the strengths, weaknesses, opportunities, and threats of using Sakai as average (M=3.094, SD=.540). A mean ranking of the various dimensions of strengths, weaknesses, opportunities and threats of using Sakai as an eLearning platform showed that distance learners strongly agreed with the opportunities at the disposal of management to be taken advantage of (M=3.33, SD= .769) followed by strengths (M=3.20, SD= .694), weaknesses (M=3.02, SD= .680) and threats (M=2.78, SD= .778) in that order.

Cronbach's alpha analyses of all the variables employed in the study revealed that they were reliable since they were found to be above the .6 threshold prescribed by Sekaran (2005). In Table 4, all the variables of the dimensions of SWOT recorded Cronbach's alpha reliabilities (α=) of .89. Thus, Strengths recorded .83, Weaknesses recorded .70, Opportunities had .84 and Threats recorded .81 which indicates that all variables were internally consistent, hence appropriate for the study.

Table 5: Relationship between Students' level of ICT skills and SWOT dimensions of SAKAI

		1	2	3	4	5
Level of ICT skills (1)	Pearson Correlation	-				
	Sig. (2-tailed)					
Strengths (2)	Pearson Correlation	.002	-			
	Sig. (2-tailed)	.970				
Weaknesses (3)	Pearson Correlation	.037	.348**	-		
	Sig. (2-tailed)	.539	.000			
Opportunities (4)	Pearson Correlation	.019	.549**	.348**	-	
	Sig. (2-tailed)	.758	.000	.000		
Threats (5)	Pearson Correlation	.026	.193**	.495**	.239**	-
	Sig. (2-tailed)	.664	.001	.000	.000	

Notes: p < 0.05; * *p < 0.01.

The relationship between distance learning students' level of ICT skills and SWOT dimensions of SAKAI were determined using and Pearson's product-moment correlation analyses as displayed in table 5 above. The study revealed no significant relationship between distance learning students' level of ICT skills and the SWOT dimensions of SAKAI. Thus, the Strengths, Weaknesses, Opportunities, and Threats of using the eLearning Platform, SAKAI, in the SCDE, University of Ghana, Legon, is not dependent on whether or not students are technologically inclined. These are represented by (r=.002, p> 0.01), (r=.037, p> 0.01), (r=.019, p> 0.01) and (r=.026, p> 0.01) respectively.

From the results, it is clear that for management to capitalize on the strengths of SAKAI as an eLearning platform, in the SCDE, University of Ghana, Legon, much attention must be paid to the stability of internet connection, user interface for ease of use, accessibility to mobile technology and safety of information delivery rather than the ICT skills of students since it is easy to use without much user training. That notwithstanding, management must pay attention to the organization of the content of SAKAI while allowing real-time learning improvements based on demand from distance learners, since these are great opportunities for enhancing the use of SAKAI.

It can, therefore, be concluded from the findings that, the Strengths, Weaknesses, Opportunities, and Threats of using the eLearning Platform, SAKAI, in the SCDE, University of Ghana, Legon have no significant relationship with distance learners' level of ICT skills. Lastly, owing to some of the challenges faced by users which includes power outages, inconsistent power supply and lack of awareness to mention but a few, respondents were asked to give recommendations to management to improve the SAKAI learning management system.

In response to the question, respondents indicated measures such as consistent update of various course outlines and course materials/slides uploaded; ensuring creativity, an interactive and user friendly interface even at the departmental level; extensive and massive awareness creation to the general public, entire student body and all University of Ghana campuses; organizing training sessions or orientation for students as well as tutorials in the form of jingle pop-ups to educate users briefly within the shortest possible time to facilitate easy access; ensuring consistent internet connectivity and access; compatibility with mobile devices; recommendation and encouragement of SAKAI usage from lecturers; ensuring the availability of a skip button to help skip questions that have already been answered; attaching course titles to course codes; improving security measures; the provision of educational games to refresh the minds of users or distance learners when they are exhausted; and revision of software on a regular basis.

4.0 Discussion of results
The purpose of the study was to assess the Strengths, Weaknesses, Opportunities, and Threats of using the eLearning Platform, SAKAI, in the School of Continuing and Distance Education (SCDE), University of Ghana, Legon. The study revealed that the Strengths, Weaknesses, Opportunities, and Threats of using the eLearning Platform, SAKAI, in the SCDE, University of Ghana, Legon have no significant relationship with distance learners' level of ICT skills. From the results, it is clear that for management to be able to capitalize on the strengths of SAKAI as an eLearning platform, in the SCDE, University of Ghana, Legon, much attention must be paid to the stability of internet connection, user interface for ease of use, accessibility to mobile technology and safety of information delivery rather than the ICT skills of students since it is easy to use

without much user training. That notwithstanding, management must pay attention to the organization of the content of SAKAI while allowing real-time learning improvements based on demand from distance learners, since these are great opportunities for enhancing the use of SAKAI. These findings are consistent with that of (Rogers, 2003) which revealed that there are several positive elements affecting the adoption and use of eLearning platforms like SAKAI which includes access to technical support, ease of use, favourable attitude toward eLearning and recognition of use and application. However, he added that there are negative elements that affect the adoption and use of eLearning platforms. These are the need for continuous technology training, inherent changing of technology, lack of marketing exposure and lack of scholarly recognition for eLearning efforts to mention but a few.

5.0 Implications for the study
Implications for Management
It is important to note that eLearning is becoming rapidly adopted across the globe and is very much likely to emerge as one of the most effective and efficient ways of delivering instructions at the tertiary level of education in the near future. This has made it very necessary to examine its implications for management with regards to the design of teaching and learning in its adoption and use. In recent times, learning has become more distributed with students using mobile devices to access information and learning materials from anywhere and at any time. This has resulted in a shift to learner-centered education in which mobile devices play a significant role, leaving no doubt that the development, adoption, and use of mobile technology continually impact our society and educational system. Therefore, regardless of the challenges faced by users which includes power outages, inconsistent power supply and lack of awareness to mention but a few, measures must be put in place by management to improve eLearning systems such as SAKAI.

Management must ensure consistent update of various course outlines and course materials/slides uploaded; creativity, an interactive and user-friendly interface even at the departmental level; extensive and massive awareness creation to the general public, and in the case of this study, the entire student body and all University of Ghana campuses. Other recommendations include organizing training sessions or orientation for students as well as tutorials in the form of jingle pop-ups to educate users briefly within the shortest possible time to facilitate easy access; ensuring consistent internet connectivity and access; compatibility with mobile devices; recommendation and encouragement of SAKAI usage from lecturers; ensuring the availability of a skip button to help skip questions that have already been answered; attaching course titles to course codes; improving security measures; the provision of educational games to refresh the minds of users or distance learners when they are exhausted; and revision of software on a regular basis.

Implications for Future Research
The study showed that, the SWOT of using the eLearning Platform, SAKAI, in the SCDE, University of Ghana, Legon, is not dependent on whether or not students are technologically inclined but rather, the stability of internet connection, user interface for ease of use, accessibility to mobile technology and safety of information delivery. It is therefore imperative on future researchers to consider the PEST components of using SAKAI for distance learners as well thus, assessing the Political, Economic, Social and Technological factors which delve deeply into the opportunities and threats of adopting and using eLearning platforms.

Moreover, other eLearning platforms such as Moodle and dotLRN should be explored to establish their influence on learning and teaching in higher institutions, with particular attention paid to distance learners.

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