

# **EXAMINING FACTORS INFLUENCING STUDENT SATISFACTION IN DISTANCE EDUCATION IN GHANA: A STUDY OF THE INSTITUTE FOR EDUCATIONAL DEVELOPMENT AND EXTENSION, UNIVERSITY OF EDUCATION, WINNEBA**

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## **ABSTRACT**

The purpose of this paper is to identify factors that influence students' satisfaction in distance education programmes in Ghana. The study used ordinal logistic regression based on a structured hardcopy questionnaire administered to 309 students of the Institute for Educational Development and Extension, University of Education, Winneba in the Volta Region campuses, Ghana. The dependent variable in the study is students' satisfaction while administrative support services, course evaluation by students, instructor performance and student instructor interaction constitute the independent variables. The logistic regression results revealed that administrative support services that focus on students, course evaluation by students, the instructor's performance and the student instructor interactions influence students' satisfaction. In addition, most of the students expressed their satisfaction in the distance education programme in the Institute for Educational Development and Extension, University of Education, Winneba.

**Keywords:** Distance Education, Students, satisfaction, logit model

## **Introduction**

It is a public knowledge in Ghana that universities especially the public ones are unable to admit all the eligible applicants to their main campuses. Every academic year, the public universities report their inability to admit qualified applicants. This is due to the limited infrastructure as well as the increase in demand for university education in Ghana (Business & Financial Times online, 2015). This, the researchers believe has led to the creation of distance education programmes by universities with satellite campuses dotted all over the country. The distance education programme in Ghana is unique in its own sense. Unlike the normal distance learning done purely via the internet mostly, that of Ghana has regional offices with centres headed by a coordinator and supported by administrative staff. Online supports are also given in some few instances but not extensive relative to developed countries. The study centres have classrooms where tutorials are conducted, thus, providing face-to-face interaction with students as well as some few support services from the administrative staff, an experience that may be lacking in the online system.

Ali & Ahmad (2011), reports that according to a study by Debourgh, (1999), the increasing demand and growing consumer experience with flexible education programmes that is aimed at supporting career development and lifelong learning have increased the expectations of people (students and parents) for quality instruction among other things and satisfaction for learning.

Satisfaction in any educational institution has been asserted to be from the level of pleasure and effective method of teaching and learning that students experience (Wang, 2003). Thus, the service quality provided by the academic institution would determine the satisfaction that students received and their persistence in the distance education programme.

Bolliger (2004) indicates strong positive correlation between instructor performance and student satisfaction. This assertion is confirmed by Jung (2005) who intimates that the role of instructors in open learning environment is important for success of the students.

Sekye (2013) noted the importance of communication in the distance learning process. Communication such as those between learner and content, learner and instructor and learner and learner can enhance students learning experience and satisfaction as a result, its absence may create isolation for students (Mood, 1995). It is said that students in distance learning should be motivated, organized, and committed. They must take responsibility for their own learning (Belanger and Jordan, 2000). It has been reported by Card and Horton (2000) that students enjoy the convenience of distance learning especially, online courses, and they see this as more important than the face-to-face interaction with instructors and course mates. Further, support services rendered to students at the centres has been proven to be instrumental for distance learning students (Jung, 2005; Moore & Kearsley, 1996).

Satisfaction has been asserted by Kuo, Walker, Belland & Schroder (2013) as an important indicator of the quality of learning experiences. According to Sekye (2013), the success of distance education depends on supportive efforts shared by the distance education institution, government, and in some cases private organizations. He intimated that the institutions are required to ensure efficiency in access, student support services, quality control and other vital functions. The quality of these support services would determine the level of satisfaction that a student gets from the programme. It has been reported that though successful completion and improvement of students' education are the compelling reasons for the existence of tertiary institutions, administrators tend rather to focus disproportionately more time on programmes aimed at attracting and admitting students rather than ensuring their satisfaction. Thus, the drive for more numbers is pursued at the expense of quality of services provided (Gruber, Reppel & Voss, 2010).

Limited literature exists even in the developed countries on student satisfaction (Bolliger, 2004). This assertion can safely be extended to Africa and even Ghana. In Ghana majority of the studies consider quality of education or satisfaction of education in the traditional campuses (see Tsedzah & Obuobisa-Darko, 2015; Fosu & Poku, 2014). Most studies also, used simple descriptive statistics with very limited sample sizes which may not be representative enough. This study therefore, uses logistic regression to determine factors that influence student satisfaction in distance learning. It is worthwhile investigating student satisfaction in distance education in order to provide the needed services that result in the desired outcome for students and retention. Furthermore, knowledge of factors that satisfy students may also help school administrators to tailor their services towards meeting such needs in order to increase enrolment that will inure to increase in revenue.

The rest of the paper is structured is as follows: review of related theoretical and empirical literature, materials and methods, discussion and concluding comments.

### **Theoretical Underpinnings and Review of Extant Literature**

Theoretically, distance education is defined as a learning environment in which 'students and teachers are separated by distance and sometimes by time' (Moore & Kearsley, 1996). Further, distance education is different from traditional education due to openness to adults who are gainfully employed, fully occupied with family life and does not depend on face-to-face meetings. It is characterized by mass-communication, student autonomy, individualization and independent of time, place and classes (Holmberg, 2008). The existence of this distance therefore implies students must be provided with the relevant teaching and learning experience that will academically integrate them into the learning environment. In line with this, Holmberg in 2008 prescribes a theory for teaching and learning in distance education that is highly encompassing. The theory considers empathy and personal relationship between the stakeholders (students, instructors, administrative staff and the institution) involved in the teaching-learning process as cardinal to distance education. It is believed that the empathy approach can lead to personal, friendly interaction between students, tutors and the supporting staff. This can make teaching in distance education conversation-like presentations of lessons. He asserts this will results in the feeling of a personal relation that may exist between the students and tutors, fostering well-developed self-instructional material and communication at a distance. In addition, it can result in intellectual pleasure and study motivation would lead to attainment of study goals and the use of proper study processes and methods.

Another theory is the stakeholder theory. Indeed, the competitive nature of higher education in Ghana requires universities to treat students as customers (Tsedzah & Obuobisa-Darko, 2015).

The stakeholder concept has been explained by Freeman (1984) as any person or group of persons whom a company impacts or is able to impact on the achievement of the company's objectives. According to Freeman & Mcvea (2001), stakeholder management suggests that managers must formulate and implement processes which satisfy all stakeholders in the business.

The overarching task in this process is to manage and integrate the relationships and interests of customers among others in a way that ensures the long-term success of the firm. A stakeholder approach emphasizes conscious management of the business environment, relationships and the promotion of shared interests. Evan & Freeman (1993) in developing a justification of a stakeholder approach argued that organizations are required to treat people "as ends unto themselves." This implies, managers should make corporate decisions by respecting stakeholders' well-being rather than treating them as means to a corporate end. Similarly in distance education, students as important stakeholders must be treated well if the educational institute is to achieve its core mandate.

Based on these two theories we developed the following hypothesis:

H<sub>0</sub>: The student-instructor interaction in distance education does not lead to any desired outcome that can bring about satisfaction to students.

H<sub>0</sub>: The Performance of the instructor in the delivery of prepared materials does not motivate students to attain desired study goals which will lead to their satisfaction.

H<sub>0</sub>: If administrative support services are not friendly, but discriminatory and information provisions are unsatisfactory, students will not be satisfied with the education provided in the distance education programme.

H<sub>0</sub>: The self-instructional materials and communications provided are not satisfactory to assist the students in their quest for knowledge in the chosen fields.

In reviewing empirical studies on satisfaction in distance education, we share the views of Yukselturk & Yildirim (2008) who define students' satisfaction as "learner-reported feelings about interaction with instructors and peers, course structure, institutional support, and flexibility". They assert that Swam, (2001) indicates that the use of communication tools (both charts and discussions) in interaction seems to be one of the most influential features of online courses. This claim is supported by Woods (2002) who suggests that both quality and frequency of interaction with the instructor and peers are much more important to the success of online courses and student satisfaction than that in traditional courses. Yukselturk & Yildirim (2008) in a mixed method approach using thirty respondents however report low level of interaction between learners. The result of the low social interaction during learning in online environment led to low levels of satisfaction. Furthermore, in using the Kano methodology which asserts that satisfaction is multidimensional to understand students' perspective of effective professors, Gruber & Voss (2010) identify five attributes as excitement factors. They include; fostering of team work, expertise in other subject areas, and variety of teaching methods, friendliness and humour. These factors they claim have the potential to satisfy students very much. The importance of these attributes gives support to previous findings of Faranda & Clarke in 2004 who posit that students value a "mixing up" of lectures that lighten up the presentation, interaction in class which allows them to know their peers and discussion of topics beyond course-related material. In studying 147 adults in distance learning through an online programme, it was posited that the learners in an online programme, easily lose motivation and feel less satisfaction if courses do not stimulate their active participation and interaction (Park & Choi, 2009). Thus motivation and satisfaction in distance education students may be anchored on motivation and interaction among learners and instructors. In a survey study involving 100 students in Chandigarh, India, Thapliyal (2014) claims Robinson (1995) argues that "the success of distance education programme depends on how well the course production, delivery and student support sub-systems function". The import of this statement therefore is distance education is expected to provide a 'balanced meal' to students if its full impact is to be achieved.

Thaplivaal (2014) posits assessment and evaluation in any educational programme is critical in measuring the quality of the programme. The study asserts fair and adequate assessment ensures that teachers give due recognition to the students efforts. This does not only promote the image of the institution, but motivates students to even do more since evaluations are made very objectively and they can easily analyze their performance on the basis of their internal assessment. The consequence of this fair assessment is students' satisfaction of the programme.

Inman et al. (1999), in a study indicates three things that students expect from an instructor in the distance learning programme that inures to their satisfaction. These are helpful instructional materials for interacting with the distance learning medium, some on-campus session and the availability of the instructor at the time when needed. In their

study Biner et al., (1994) report that students' satisfaction might also increase when supporting staff are attentive to their progress and challenges. Furthermore, factors that influence students' satisfaction include interaction with instructors, active discussion among learners and clarity of programme design and perceived learning (Swan, 2001). Besides, high quality instructional and other staff support services also result in higher student satisfaction with the educational environment (Yukselturk & Yildirim, 2008). This assertion by Yukselturk & Yildirim (2008) is a further confirmation of a previous study by Schwitzer et al., (2001) who intimate that interactive and effective student services are very important factors when one measures students' satisfaction. In a related study, Moore & Kearsley (2005) claim that students might interact with specialists in various forms of student support besides interacting with instructors who help students learn the course contents.

Roberts & Styron (2009) in a study on students' satisfaction and persistence using multivariate analysis of variance indicate in literature review that the most crucial aspect of a student's interaction and engagement with an institution of higher learning is the relationship with the course advisor. They posit that academic advising should be a process in which faculty and staff interacts with students as they progress, allowing and helping them to achieve their educational and career goals. Pascarella & Terenzini, (2005) contend academic advice undoubtedly would result in students' satisfaction since they take their relationships with their academic advisors very seriously. Williams, et al., (2008) posit "This relationship can improve the student matriculation processes and provides students with a sense of security. The relationship also provides a sense of connectedness where students feel that they belong to the school and that the school belongs to them". Miller (2005) argues that students can expect colleges to provide services that will help them succeed. In a related study, Roberts and Styron (2009) emphasis the need for higher educational institutions to provide and maintain various academic resources that promote students' success in distance education. Kuh et al. (2005) suggest responsive, learner-centered support services, such as peer tutoring and special labs for writing and mathematics. These centres provide academic support services that may be confronting students. Pascarella & Terenzini (2005), intimate that the provision of academic resources to support students has shown statistically significant positive impacts on student persistence and satisfaction.

Most of the higher institutions of learning aim at providing meaningful learning experiences for their students. This aim is a collective responsibility of faculty, staff and students. However, students also have their own expectations of learning experiences. These expectations may impact students' response to their academic surroundings and affect their decisions of whether or not to remain in certain fields of study, or college in general (Pike, 2006). The absence of meaningful learning experiences from the curriculum makes students often become disengaged and dissatisfied because they see no relevance in what they are learning. The implication of this is dissatisfaction and likely withdrawal.

In situations where students have few chances to participate in meaningful learning experiences, they are denied the opportunity to integrate and apply the knowledge they have acquired in their school (Kuh et al., 2005; Moxley et al, 2001).

In a study assessing students' satisfaction in a private university in Ghana, Tsedzah & Obuobisa-Darko (2015) intimates that academic support services provide satisfaction to students although the result was weak. They report that in a study by Wiers-Jessen, et al. (2002) the quality of university support facilities is very important in achieving student's satisfaction. Gruber & Voss (2010), reports attributes of faculty such as friendliness, approachability, enthusiasm, being receptive to suggestions and humor as having the highest impacts on students' satisfaction.

### **Conceptual Framework**

According to Thomas & Galambos (2004), satisfaction of students is a complex construct and is influenced by various characteristics and institutions. Student satisfaction according to Wiers-Jenssen et al. (2002) is defined as the total response to the learning experience of a student and the assessment of the services provided by universities and colleges. In a related study, Elliot and Shin (2002) also define students' satisfaction as favorable subjective assessment of the various outcomes and experiences associated with education.

In a literature review, Tsedzah & Obuobisa-Darko (2015) posit that the concept of student satisfaction may be viewed as customer satisfaction due to the relationship that exists between the students and the institution of learning. Based on these assertions, empirical, theoretical and personal views we develop the construct to show how the student satisfaction relates to the independent variables.

**Insert figure 1**

Satisfaction in distance education for students is expected to meet most if not all of the expectations of students. While the expectations of the individuals may vary, flexibility and convenience in the programme, supporting staff's interest in students, interaction with the course instructor and feedback, the delivery of the course content and the quality of instructional materials and active discussion among students as well as other crucial factors may provide satisfaction (see Moore, 1989; Moore & Kearsley, 2005; Biner et al. 1994; Arbaugh, 2000; Maki et al. 2000). Furthermore, the following reports from participants also may indicate satisfaction of students in a distance education programme: Recommending the school to other people, taking future courses with the school, ability to apply lessons to solve problems and assessment procedures well communicated and results showing actual performance. From the aforementioned expectations, it can be deduced that administrative support services play a crucial role in the satisfaction of the students and may have positive impact. A very supportive staff may result in a satisfied student on a distance education programme (Tsedzah & Obuobisa-Darko, 2015). In the same vain, when students evaluate the course in general and rates it high, it may imply satisfaction on their part. Thus, students' satisfaction may be explained by course evaluation. Furthermore, it has been proven that faculty's performance can explain satisfaction of students (Williams, et al., 2008). The implication of this is that when the interaction with students and delivery of tutorials are apt, it may lead to a satisfied student body.

**Materials and Methods****Study Area and Source of Data**

The University of Education, Winneba (UEW) was established in September, 1992 as a University College under PNDC Law 322. The University College was upgraded to a full University status on 14<sup>th</sup> May, 2004. The Institute for Educational Development and Extension (IEDE) of the UEW, was established in 1996, to afford the continuing students and prospective applicants the opportunity to access university education conveniently at their doorsteps and at wieldy cost without forgoing quality. The IEDE is the extension wing of the UEW responsible for the distance education programmes of the University. It also has the mandate of providing opportunities for students and teachers to experience holistic and quality school based teaching experience as well as creating opportunities for continuing professional development of staff of UEW and professionals from other tertiary and non-tertiary institutions.

The IEDE of the UEW has over the years increased its distance learning education centers across the country to 37 as the end of 2016. The distance learning centers can be found in all the 10 regions of Ghana of which Volta Region is one. Volta Region has 5 study centers located in Ho the regional capital, Sogakope, Denu, Hohoe and Dambai. The study centers in the Volta Region have been identified as one of the fasters growing distance education study centers of UEW in Ghana over the past 3 years. The centers have a student population of 3092 who are offering various diplomas, degree and post graduate programmes.

**Data Collection and Data Management**

In order to meet the objectives of this study, a sample size of 309 respondents were chosen from a population of 3092 students of the IEDE of the UEW. Stratified random sampling technique was employed to select the respondents from the five study centers in the Volta Region. The sample size was selected based on Kothari (2004) recommendation for sample size which states that 10 to 20 percent of the accessible population is adequate enough for sample size. The study therefore, selected 10 percent of total population of students in each of the five study centers to sum up to 309 sample size. The students that took part in the study were chosen using simple random technique using the lottery method based on the list of students offering various courses in the five centers the Volta Region.

The institute runs business and education programmes in the Ho centre and only education programmes in Sogakope, Denu, Hohoe and Dambai centres. The education programmes include diploma, bachelor and post graduate diploma, whiles diploma and bachelor programmes are offered for the businesses.

Self-administered questionnaire were used in collecting data from the respondents in this study because this method on a large scale helps avoid as much as possible loss of questionnaires albeit its own weaknesses. Nevertheless, nine (9) questionnaires could not be accounted for during the process of administration. It has been observed that



respondents still were communicating with one another while responding to the questionnaire, a weakness we identified may influence results though adequate explanations were given to respondents.

### Research Instrument and Variable Measurement

The structured questionnaire used for this study was adopted partially from the study of Ali and Ahmad (2011). It has a five point Likert-scale that ranges from 1 to 5; 1-Strongly disagree, 2-disagree, 3-not considered 4-agree, 5-strongly agree. The structured questionnaire is in two sections. The first section has the demographic data of the respondents: gender, age, marital and employment status while the second section has in total thirty four questions relating to distance education and satisfaction. The main questions were divided among four independent variables and one dependent variable. The independent variables with sub-components forming each construct include Administrative support services, Course Evaluation, Instructor's Performance and Student-Instructor Interaction, while the dependent variable is Students' Satisfaction. The sub-questions in each component of the independent variables seek to find out factors that indicate student's satisfaction in distance education programme.

To measure administrative support services, seven questions ranging from availability of staff to how students were treated in the support office were measured using the Likert scale. The sub components in this measurement are: Staff was always available to provide needed services; The staff answers all relevant questions I asked; Information from main campus is always made available to me any time I need it or on notice board ; Results were duly pasted on notice board on time; When I had issue with my results staff quickly provided help; Overall staff is helpful in assisting me with issues and I always feel welcome to the office anytime I go there.

The course evaluation measurement which comprised of six sub constructs measured on the five Likert scale include: Overall, I have valuable learning experiences from my courses; The assignments were relevant and useful; Course materials were relevant and useful; Expectations were clearly stated either verbally or in the syllabus; The testing and evaluation procedures were fair; The workload was appropriate for the hours of credit.

In order to measure instructors' performance nine questions constitute this construct. They include: Overall these instructors were effective; the instructors stimulated students learning; the instructors treated all students fairly; the instructor treated all students with respect; the instructor welcomed and encouraged questions and comments; the instructor presented the information clearly; the instructor emphasized the major points and concepts; the instructor demonstrated knowledge of the subject.

Further, Student-Instructor Interaction was measured using five sub constructs which include; The instructors encouraged me to become actively involved in the course discussions; The instructors provided me feedback on my work through comments; I was able to interact with the instructors during the course discussions; The instructors treated me individually well and The instructors informed me about my progress periodically.

The dependent variable which is students' satisfaction was measured using seven sub constructs which include, The programme is convenient for me and I am able to combine it with my work and other responsibilities; I will recommend the school to my family, friends and other people; I will like to take future courses with the school; the quality of teaching and delivery is good and meet my expectation; the general attitude of office staff satisfy my expectations and I feel good at their treatment; The lessons thought me can be applied to solve problems and The assessment procedures are always communicated and results show my actual performance.

After coding and entering the responses into the Statistical Package for Social Sciences (SPSS), the five-point likert scale responses were transformed into two-point likert scale (Agree =1, Disagree=0). The data transformation was done using recoded into different variable function of SPSS.

### Model Specification, Estimation and Tests

The dependent variable in logistic is usually dichotomous, that is, the dependent variable can take the value **1** with a probability of success  $p$ , or the value **0** with probability of failure,  $(1 - p)$ . To explain the logistic regression, we show here the logistic function  $f(z)$ , which designates the mathematical form on which the logistic model is based

$$f(z) = \frac{1}{1+e^{-z}} \quad (1)$$

where  $z$  represents the values of the function, such that  $-\infty \leq z \leq \infty$ . The relationship between the predictor and response variables is not a linear function in logistic regression, instead, the logistic regression function is used, which is the logit transformation of  $p$ . To obtain the logistic model from the logistic function, we write  $z$  as the linear sum.

$$Z = \alpha + \sum_{i=1}^k \beta_i x_i \quad (2)$$

where  $x_i$  are explanatory variables of interest,  $\alpha$  and  $\beta_i$  are constant terms signifying unknown parameters and  $k$  is the last term. Combining (1) and (2) gives:

$$f(Z) = \frac{1}{1+e^{-(\alpha+\beta_1x_{1,i}+\beta_2x_{2,i}+\dots+\beta_kx_{k,i})}} \quad (3)$$

For notational convenience, we will denote the probability statement as simply  $p(X)$  where  $x$  is a notation for the collection of variables  $x_1$  through  $x_k$ . Hence, the logic model may be written as

$$f(X) = \frac{1}{1+e^{-(\alpha+\beta_1x_{1,i}+\beta_2x_{2,i}+\dots+\beta_kx_{k,i})}} \quad (4)$$

The logic model is then transformed into linear function using logit transformation as follows:

$$\text{Logit}(X) = \ln_e \left( \frac{P(X)}{1-P(X)} \right) \quad (5)$$

Where, 
$$P(X) = \frac{1}{1+e^{-(\alpha+\beta_1x_{1,i}+\beta_2x_{2,i}+\dots+\beta_kx_{k,i})}}$$

The transformation allows us to compute a number, **logit  $p(X)$** , for an individual with explanatory variable given by  $X$ .

$$\text{Logit } P(X) = \alpha + \beta_1x_{1,i} + \beta_2x_{2,i} + \dots + \beta_kx_{k,i} \quad (6)$$

Hence, the logit of  $P(X)$  simplifies to linear sum. The quantity  $P(X)$  divided by  $1 - P(X)$ , whose log value gives the logit, describes the odds for student not been satisfied, with independent variables specified by  $x$ .

$$\frac{P(X)}{1-P(X)} = \text{Odds for individual } X$$

The aim of logistic regression is to correctly predict the category of outcomes for individual cases using the most parsimonious model. As a result, a model is formulated that contains all explanatory variables that are essential in predicting the response variable (Kleinbaum and Klein, 1994). For this study, distance education students' satisfaction are influenced by explanatory variables such as Administrative support services (ASS), Course Evaluation (CE), Instructor's Performance (IP) and Student-Instructor Interaction (SII). The logistic regression model is fitted to the data as follows:

$$\text{Logit } (P(y = 1)) = \alpha + \beta_1ASS + \beta_2CE + \beta_3IP + \beta_4SII + \varepsilon \quad (7)$$

Where  $p$  is the probability of students being satisfied in distance education, the  $x_i$ 's are explanatory variables of interest,  $\alpha$  and  $\beta_i$  are constant term and coefficients respectively signifying unknown parameters and  $\varepsilon$  being the residual term. The coefficients of the model predictors are tested through the following hypothesis:

$$H_0: \beta_j = 0$$

$$H_i: \beta_j \neq 0 \quad j = 1,2,3,4$$

After fitting a logistic regression model to a given set of data, the adequacy of the model is scrutinised by overall goodness-of-fit test and examination of influential observations. One concludes a model fit if the difference between the observed and fitted values is small and if there is no orderly contribution of the difference to the error structure of the model. Hosmer-Lemeshow test is usually employed in accessing the fitness of logistic regression. Though, appropriate estimation methods which consider the sampling design in estimating logistic regression model parameters are present in various statistical packages, there is a corresponding absence of design-based goodness-of-fit testing procedures. As a result of this absence, it has been proposed that goodness-of-fit be examined by first fitting the design-based model, then estimating the probabilities, and subsequently using iid-based test for goodness-of-fit and applying any results to the design-based-model (Hosmer & Lemeshow, 2000). The hypothesis for model fitness can be measured by the Homer-Lemeshow test as follows:

$H_0$ : The model fits the data

$H_i$ : The model does not fit the data

### Empirical Results

Table 1 presents demographic information of the distance education students that took part in the study. More than 50% of the students sampled were females (55.3%) and the rest (44.7%) were males. The results shows that majority of the respondents (39.7%) are in the age group of 26-30years, followed by the age group 31-35years (25.0%). The rest are in age groups of 20-25years and 36 years and above (21.3% and 14.0% respectively). This indicates that majority of the respondents are in the active age groups. Regarding the levels at which respondents are in the university, 45.0% are level 100 students, 23.3% at level 400, 22.3% are level 200 students and 9.3% at level 300 students. This shows that majority of the respondents constitute students who spend more than 1 year in the university and therefore, in position provide relevant answers to the questions. Majority of the respondents are single (63.7%) while the rest 36.7 are married. In relation to the employment status of respondents, 67.7% are employed and schooling as well. It is revealed that 32.3% of the respondents do not have any form of employment.

#### Insert table 1

### Logistic regression analysis of factors influencing student satisfaction

This section analyses the factors that influence students satisfaction in distance education from the data collected. This was done by examining the relationship between some variables by employing binary logistic regression analysis with the aid of SPSS. Students' satisfaction in distance education was regressed on factors predicting students' satisfaction in distance education. Students' satisfaction is a categorical variable. Hence, the ordinary regression approach is not suitable. Due to this, the study resort to binary regression technique. Student satisfaction is categorical since it comprises Yes/No (Agree/Disagree), thus, whether students were satisfied or not satisfied in distance education. As such, the response variable is appropriate for not just any logistic regression but a binary logistic regression. The results of student satisfaction in distance education, administrative support services, course evaluation, instructor's performance and student-instructor interaction are discussed below.

#### Insert table 2

#### Insert table 3

As shown in table 2, the Omnibus test of model coefficient gives us the overall indication of how well the model performs in predicting student satisfaction in distance education based on the availability of predictive variables. A



p-value of  $0.000 < 0.05$  indicates that the model is significant and can well forecast student satisfaction in distance education using the various explanatory variables included in the equation. This is supported by Nagelkerke R Square value of 0.646. This value indicates the amount of variability that is explained by the predictors. A value of 0.646 specifies that the predictors are able to explain approximately 65% of variability in student satisfaction in distance education. Additionally, the Hosmer & Lemeshow test for goodness-of-fit test of the model shows a p-value of 0.240 which is greater than 0.05. This indicates that the model is a good predictor of the dependent variable. The scores test indicates that all the explanatory variables included in the model would be significant ( $0.000 < 0.05$ ). Table 3, shows how well the model predicts the correct category (student satisfaction/no student satisfaction) for each case. Thus the model correctly classified 88.7% of cases overall, showing that the model correctly classified 88.7% of the students who are satisfied with distance education. The overall model evaluation and the goodness-of-fit tests revealed that the model is good in predicting satisfaction of students with UEW distance education programmes in Ghana. Thus, it can be concluded that the hypothesized model fits the data well.

The calculation of the crude odds ratio of student satisfaction factors,  $x_i$ , is given by the estimates  $Exp(\beta)$ . The odds ratio of student satisfaction factors ascertains the influence it has on satisfaction of students in distance education. The Wald's and log likelihood ratio test were also performed to examine the significant effect of the factors influencing student satisfaction in distance education. A probability value of  $0.000 < 0.05$  was considered to be statistically significant. Therefore, the insertion of that factor determining student satisfaction is pertinent in ascertaining student satisfaction in distance education  $Y = 0 \text{ or } 1$

The maximum likelihood approach was employed in estimating the model parameters. The estimates for each explanatory variable are interpreted relative to the reference category. As presented in table 2, availability of administrative support services at the study centre for distance education students is 13.013 more likely to influence student satisfaction compared to non-availability of administrative support services at the study centre with 95% confidence interval (p-value = 0.000) is statistically significant. The odds ratio of 5.883 and confidence interval of 95% (p-value = 0.000) indicates that course evaluation by students which they rate high are likely to give them satisfaction than a low rated course. In relation to instructor's performance and student satisfaction, the study findings revealed that faculty's performance has statistically significant influence on student satisfaction with odds ratio of 4.157. Thus, instructors seen to be performing well in facilitation of courses are likely to influence student satisfaction than those considered not to be performing well on the job. Student-instructor interaction is statistically significant (p-value = 0.000) at 95% confidence interval. When the interaction between students and lectures during delivery of tutorials is considered by students to be apt it is likely to influence satisfaction of students in distance education compared to where there is no proper interaction between lecturers and students.

The logistic regression can be written as: (see table 2)

$$\text{Logit}(P(y = 1)) = -1.968 + 2.566ASS + 1.772CE + 1.425IP + 1.034SII \quad (8)$$

### Discussion

The purpose of the researchers in this paper is to identify factors influencing students' satisfaction in distance education programmes in UEW. Literature in distance education even in the developed countries on student satisfaction (Bolliger, 2004) is limited. This assertion can safely be extended to Africa and even Ghana. In Ghana majority of the studies consider quality of education or satisfaction of education in the traditional campuses (see Tsedzah & Obuobisa-Darko, 2015; Fosu & Poku 2014). In addition, most studies used simple descriptive statistics with very limited sample sizes which may not be representative enough. This study therefore, fills the gap in literature on satisfaction in distance education by using logistic regression involving large sample categorical data. Students' satisfaction in distance education is expected to meet most if not all of the expectations of students. While the expectations of the individual may vary, flexibility and convenience in the programme, supporting staff's interest in students, interaction with the course instructor and feedback, the delivery of the course content and the quality of instructional materials and active discussion among students as well as other crucial factors may provide satisfaction (Moore & Kearsley, 2005).

The study found that all factors predicting student satisfaction in distance education were significantly contributing to student satisfaction in Institute of Extension and Distance Education of University of Education in Ghana. The study found that provision of administrative support services at the distance education for students influence their

satisfaction in the distance education programmes. The study confirmed that making information from the main campus of the University always available to students have positive effect on their satisfaction in the distance education programme. Besides, pasting of results on notice board on time, assistance of staff with issues concerning students, good customer service enjoyed in the office and answering all relevant questions translated into student satisfaction in distance education. This is in line with the findings of Tsedzah & Obuobisa-dark, (2015).

With regard to course evaluation, the study found that student satisfaction in distance education is influenced by students' assessment of the courses run in the university. The relevance and usefulness of course materials, structure of the syllabus, the fairness of testing and evaluation procedures of students and the appropriateness of workload for hours of credit contributed to student satisfaction in distance education programmes.

Relationship between instructor's performance and student satisfaction has been found to be significantly positive. In measuring the instructor's performance, overall effectiveness of instructor, the ability of the instructor to stimulate students learning, clear presentation of information clearly by the instructor during lectures and the demonstration of knowledge of the subject determines instructors' performance which have influence on satisfaction of students with distance education programmes in IEDE of UEW. This finding supports the assertion of Yukselturk & Yildirim (2008) who intimate that high quality instructional and other staff support services also result in higher student satisfaction with the educational environment.

Finally, association between student-instructor interaction and student satisfaction in distance education revealed significant positive relationship. It was found that encouragement of students to participate actively in the course discussion by instructors, instructor providing feedback on students work through comments, students being able to interact with instructors during course discussions and informing students about their progress periodically as metric for student-instructor interaction positively influence students' satisfaction. No doubt Thaplivaal (2014) posits assessment and evaluation in any educational programme is critical in measuring the quality of the programme. The study asserts fair and adequate assessment ensures that teachers give due recognition to the students efforts. This does not only promote the image of the institution, but motivates students to even do more since evaluations are made very objectively and they can easily analyze their performance on the basis of their internal assessment, the result is student satisfaction in the programme.

### **Concluding comments**

In this paper, we demonstrated that student satisfaction in distance education programmes are significantly influenced by administrative support services, course evaluation, instructors' performance and student-instructor interaction. The study recommends that provision of administrative support services should be improved upon through creation of spacious and well equipped office. Besides, adequate staff should be employed to man the various offices to promote efficient delivery of services to students. Qualified and experienced facilitators should be recruited to handle courses in the various centres. The university should put in more effort in the development of course materials for distance programmes and make it more user friendly for the students. Facilitators should be trained periodically and encouraged to continually relate with students in a cordial and professional manner, response to needs promptly and constantly encourage in issues relating to their education. When all this are done, students will be adequately satisfied with distance education programmes thereby, increasing student population and persistence in distance education programmes in Ghana.

### **Disclosure statement**

No conflict of interest was reported by the researchers

## References

- Afzaal, A., Muhammad, I. R., & Shahzad, M. (2010). Key factors for determining student satisfaction in distance Learning courses: A Study of Allama Iqbal Open University (AIU) Islamabad, Pakistan. *Malaysian Journal of Distance Education*, 12(2), 33-51.
- Arbaugh, J. B. (2000). Virtual classroom characteristics and student satisfaction with internet-based MBA courses. *Journal of Management Education*, 24(1), 32-54.
- Belanger F., & Jordan, D. H. (2004). Evaluation and implementation of distance learning: Technologies, tools and techniques. *Turkish Online Journal of Distance Education*, 5(2).
- Benson Afful. (2015, November 6). Budget watch: Education: Expectation of stakeholders. *B&FT Online* [Accra].
- Benson Afful. (2015, November 6). Budget watch: Education: Expectation of stakeholders. *B&FT Online* [Accra].
- Biner, P. M., Dean, R. S., & Mellinger, A. E. (1994). Factors underlying distance learner satisfaction with televised college-level courses. *American Journal of Distance Education*, 8(1), 60-71.
- Bolliger, D. U., & Martindale, T. (2004). Key factors for determining student satisfaction in online courses. *International Journal on E-Learning*, 14(10).
- Card, K. A., & Horton L. (2000). Providing access to graduate education using computer-mediated communication. *International Journal of Instructional Media*, 27(235).
- Debourgh, G. (1999). *Technology is the tool, teaching is the task: Student satisfaction in distance learning*. Paper presented at Society for Information and Technology & Teacher Education International Conference, San Antonio, TX.
- Elliott, K. M., & Shin, D. (2002). Student Satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*, 24(2), 197-209.
- Evan, W., & Freeman, E. (1993). *A stakeholder theory of the modern corporation: Kantian capitalism* (4th ed.).
- Faranda, W. T., & Clarke, I. (2004). Student observations of outstanding teaching: Implications for marketing educators. *Journal of Marketing Education*, 26(3), 271-281.
- Fosu, F. F., & Poku, K. (2014). Exploring the factors that influence students' choice of higher education in Ghana.
- Freeman, R. E. (1984). The stakeholder approach. *Strategic Management*, 1-2.
- Freeman, R., & McVea, J. A. (2001). *Stakeholder approach to strategic management* (01-02). Darden Business School Working Paper.
- Gruber, T., Reppel, A., & Voss, R. (2010). Understanding the characteristics of effective professors: The student's perspective. *Journal of Marketing for Higher Education*, 20(2), 175-190.
- Inman, E., Kerwin, M., & Larry, M. (1999). Instructor and student attitudes toward distance learning. *Community College Journal of Research and Practice*, 23(6), 581-591.
- Insung Jung. (2005). *Innovative and good Practices of open and distance learning in Asia and the Pacific* (3). APEID, UNESCO Bangkok Occasional Paper Series.
- Johnson, S. D., Aragon, S. R., Shaik, N., & Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, 11(1), 29-49.
- Jung, I. (2001). Building a theoretical framework of web-based instruction in the context of distance education. *British Journal of Educational Technology*, 32(5), 525-534.
- Jung I. (2005). *Innovative and good practices of open and distance learning in Asia and the Pacific* (3). APEID, UNESCO Bangkok Occasional Paper Series Paper.
- Kothari, C. R. (2004). *Research methodology: Methods & techniques* (3rd ed.).
- Kuh, G. D., Gonyea, R. M., & Williams, J. M. (2005). What students expect from college and what they get. In *Promoting reasonable expectations: Aligning student and institutional views of the college experience* (pp. 34-64). San Francisco: T. Miller, B. Bender, J. Schuh, and Associates (Eds.).
- Kuh, G. H., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2008). Student success in college: Creating conditions that matter. *Journal of Teaching Theology & Religion*, 11(2), 103-104.
- Kuo, Y., Walker, A. E., Belland, B. R., & Schroder, K. E. (2013). A predictive study of student satisfaction in online education programs. *The International Review of Research in Open and Distributed Learning*, 14(1), 16.
- Maki, R. H., Maki, W. S., Patterson, M., & Whittaker, P. D. (2000). Evaluation of a Web-based introductory psychology course: I. learning and satisfaction in on-line versus lecture courses. *Journal of Behavior Research Methods, Instruments, & Computers*, 32(2), 230-239.

- Miller, T. E. (2005). Student persistence and degree attainment. In *Promoting reasonable expectations: Aligning student and institutional views of the college experience* (pp. 122-139). San Francisco: T. Miller, B. Bender, J. Schuh, and Associates (Eds.).
- Mood, T. A. (1996). Distance Education: An Annotated Bibliography. Terry Ann Mood. *The Library Quarterly*, 66(3), 316-319.
- Moore, M. G. (1989). Editorial: Three types of interaction. *American Journal of Distance Education*, 3(2), 1-7.
- Moore, M. G., & Kearsley G. (2005). *Distance education: A system review* (2nd ed.).
- Park, J. H., & Choi, H. J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Journal Educational Technology & Society*, 12(4), 207-217.
- Pascarella, E. T., & Terenzini, P. (2005). *How college affects students* (2nd ed.). San Francisco: John Wiley & Sons, Inc.
- Pike, G. R. (2006). Students' personality types, intended majors, and college expectations: Further evidence concerning psychological and sociological interpretations of Holland's Theory. *Journal of Research in Higher Education*, 47(7), 801-822.
- Roberts, J & R. Styron, Jr. (2009).. , pp. 1-18 (<http://www.aabri.co>, J., & Styron, Jr, R. (2009). Student satisfaction and persistence: Factors vital to student retention. *Academic and Business Research Institute*, 1-18.
- Schwitzer, A., Ancis, J., & Brown, N. (2001). *Promoting student learning and student development at a distance: Student affairs principles and practices for televised instruction and other forms of distance learning* (2nd ed.).
- Sekyi, E. D. (2013). *Appraisal of students support services in distance education*, UCC(Master's thesis, University of Ghana, Accra, Ghana).
- Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Journal of Distance Education*, 22(2), 306-331.
- Tallent-Runnels, M. K., Lan, W. Y., Fryer, W., Thomas, J. A., Cooper, S., & Wang, K. (2005). The relationship between problems with technology and graduate students' evaluations of online teaching. *The Internet and Higher Education*, 8(2), 167-174.
- Thapliyal, U. (2014). Perceived quality dimensions in distance education: Excerpts from student experiences. *Turkish Online Journal of Distance Education*, 15(3), 6.
- Thomas, E. H., & Galambos, N. (2004). What satisfies students? Mining student-opinion data with regression and Decision Tree Analysis. *Research in Higher Education*, 45(3), 251-269.
- Tsedzah, V. A., & Obuobisa-Darko, T. (2015). Assessing students' satisfaction: An approach to help improve services rendered to university students. *European Journal of Business and Management*, 7(5), 115-120.
- Wiers-Jenssen, J., Stensaker, B., & GrØgaard, J. B. (2002). Student Satisfaction: Towards an empirical deconstruction of the concept. *Quality in Higher Education*, 8(2), 183-195.
- Williams, I. L., Glenn, P. W., & Wider, F. (2008). Nurtured advising: An essential approach to advising students at historically black colleges and universities. *Academic Advising Today*, 31(1).
- Wisniewski, M. (2001). Using SERVQUAL to assess customer satisfaction with public sector services. *Managing Service Quality: An International Journal*, 11(6), 380-388.
- Woods, W. H. (2002). How much communication is enough in online courses? Exploring the relationship between frequency of instructor-initiated personal email and learners's perceptions of and participation in online learning. *International Journal of Instructional Media*, 29(4), 377-394.
- Yukselturk, E., & Yildirim, Z. (2008). Investigation of interaction, online support, course structure and flexibility as the contributing factors to students' satisfaction in an online certificate program. *Educational Technology & Society*, 11(4), 51-65.