STUDENTS' PERCEIVED ONLINE LEARNING QUALITY AND INTENTION TO ACCEPT ONLINE LEARNING MODEL IN GHANA: THE FLOW EXPERIENCE

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ABSTRACT

The upsurge of the COVID-19 pandemic compelled education institutions to start adopting online technologies available for teaching and learning. Based on the literature, we expect students' flow experience to influence students perceived service quality and intention to accept online learning. Therefore, the purpose of the current research was to investigate the dimensions of students' flow experience of online learning and how it affects their perception of service quality, and ultimately influence student's intention to accept online learning as alternative learning model. Research questionnaire instrument was distributed through an online survey (e.g., google form), to gather data from 362 respondents for the study. Data were collected and analysed using structural equation modelling (SEM) supported by AMOS 5.0 with maximum likelihood estimation in order to test the proposed hypotheses. The results showed that students' flow experience influence their perceived learning process quality and their intention to accept online learning model. The study further identified balance of challenge of task, immediate feedback on task and time distortions as the dimensions of online learning flow experience. Practical and policy implications of the effect of students' flow experience on their perceived service quality and intention to accept online learning were discussed.

Keywords: Flow Experience, Learning Outcome Quality, Learning Process Quality, Online Learning, Intention to Accept Online Learning.

INTRODUCTION

Fourteen days after the alert of the Covid-19 in China, several countries across the world closed schools impacting almost a billion students across the world (Azzi-Huck & Shmis 2020). At this time, education managers around the world were forced to close down schools and send students home as face-to-face teaching and learning became impossible and send students home. Left with no immediate option, the universities, in the covid-19 pandemic were expected to create learning environment to offer the student the opportunity to access education, independent of the traditional face-to-face model common to most institution. In view of this, education institutions started adopting online technologies available for teaching and learning, such as digital Video conferencing platforms, including Zoom, Microsoft platform, Moddle, Webex Blackboard and Google Classroom, to enhance online learning globally. These new computer-mediated teaching and learning strategy primarily shaped education delivery.

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In this connection the web-based technology and Electronic Learning become well-known alternative learning model of learning due to inability to continue with the usual face-to-face learning (Azhari & Ming, 2015). Like it happened in other countries, the emergence of the Covid-19 pandemic forced Ghana to adopt online learning (Paechter, et al. 2010).

The initial attempt to adopt online learning as alternative teaching and learning model was met with resistance, as many well-meaning people questioned not only the possibility of the online learning service but also its sustainability as an alternative learning platform that can be acceptable. The task of education administrators, then was how to ensure students, the main customers, are psychologically tuned up to find online learning more enjoyable and even see it as a better alternative education delivery mode. Such student's choice would depend on their involvement and experience of the online learning service quality. This article conceptualizes that flow theory is a fundamental concept upon which we can learn the state of student's involvement and enjoyment of online learning. Flow theory is a "*crucial component of enjoyment*" and is "*the holistic sensations that people feel when they act with total involvement*" (Csikszentmihalyi, 1975, 1988). The flow theory has been used to capture a learner's subjective enjoyment of the interaction with internet technology, and a means to increasing learners' online learning satisfaction (Dringus & Ellis 2010; Choi, et al. 2007). Based on the literature, we expect students' flow experience to influence their perceived service quality and intention to accept online learning. As a psychological construct (Csikszentmihalyi, 1975) flow researchers have used flow to study areas such as sports (Jackson & Marsh, 1996), reading (McCuillan & Conde, 1996), online consumer behaviour (Koufaris, 2002), and understanding consumer (Obada, 2013; Siekpe, 2005).

Over the last two decades, the use of flow theory has been applied to the online environment, and practitioners have suggested that the competitiveness of providing online service depends on an organization's ability to create opportunities for customers to experience flow (Hoffman & Novak, 1996). According to Csikszentmihalyi (1975), learners get so much involved in the learning activity in a flow in the online setting that it captures their attention. This indicates that the flow experience of students online learning can get students involved and enjoy the learning activity, and can influence their experience of service quality and service preference. Thus, in this research, we investigate the state of students' flow experience of online learning and how it affects their perception of service quality, and ultimately influence student's intention to accept online learning as alternative learning model. This study is significant because it has an important contribution to make regarding an understanding of the online flow experience and its marketing implications; and also, has a policy direction for education managers.

This paper contains five major sections. Section 2 briefly described the related literature review of previous works on the flow theory with its dimensions, and its relationship with the online service quality and acceptance. In Section 3, a description of the research method and the overall process of data collection and analysis were discussed. Section 4 relates to the discussion and the interpretation of the results. Finally, Section 5 comprised conclusion and recommendations

LITERATURE REVIEW

Flow Theory

Mihaly developed the flow concept, also known as "*Optimal experience*", to refer to "*the holistic experience that people feel when they act with total involvement*" (Csikszentmihalyi,

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1975). He identified four flow components, comprising control, attention, curiosity, and intrinsic interest. According to Csikszentmihalyi (1975a) flow experience makes it possible for a beneficially to acquire adequate skills that enables him to cope with the challenges at hand in a goal-directed, rule-bound action system that provides obvious answers to how a person is performing. The person in a flow state so intensely concentrate on the learning activity that he pays little attention to any unrelated issues. The learner is no more self-conscious as he gets too much involved in the activity, which consequently distorts the sense of time. When learners experience flow, the learning activity becomes so enjoyable to concentrate on, no matter how challenging it is (Csikszentmihalyi, 1997). This suggests that flow can shape students' experiences and expectations so much so that it can influence their desire for, and perception of online learning service environment as a better alternative for learning, even though it might have its own challenges. Thus, flow is a better psychological construct to measure student's reaction to an online learning option. The original flow definition described components of a mental state (such as the perception of a situation) but some researchers have narrowed down the flow experience and rather conceptualise the other dimensions as some contextual variables. For instance, Novak, et al. (1997), defined flow as an intrinsic enjoyment, which can lead to a loss of self-consciousness, or a seamless sequence of responses facilitated by interactivity with the computer and self-reinforcement, and skill/challenge balance and focused attention. Thus, self-consciousness, sense of control and balance of skills and task are some identified dimensions of flow.

Hoffman & Novak (1996) first applied the flow theory to online environments and asserted that flow experience can be used by online service providers to create exciting experiences for consumers. Chen, et al. (1999) concurred, and averred that the Internet is an interactive environment that provides opportunities to customers to experience flow during their use. In the computer-centered environments, the concept of flow is used to predict several critical consumer behavior outcomes, such as increased exploratory behavior, communication, and positive affect satisfaction, acceptance of Information Technology (IT), and learning and preference of a learning environment or process (Guo & Poole 2009; Hoffman & Novak 1996; Kim, Park, Seo & Lee, 2010). With its marketing outcomes, we consider flow experience as a desirable construct to the consequence of online interaction between the institution and its learners. This means flow experience could be used to study learners' service preference of an alternative learning environment to face-to-face learning.

As a psychological construct (Csikszentmihalyi, 1975) flow researchers have used flow to study areas such as sports (Jackson & Marsh, 1996), reading (McCuillan & Conde, 1996), online consumer behavior (Koufaris, 2002), and understanding consumer (Obada, 2013; Siekpe, 2005). Over the last two decades, the use of flow theory has been applied to the online environment, and practitioners have suggested that the competitiveness of providing online service depends on an organization's ability to create opportunities for customers to experience flow (Hoffman & Novak, 1996). According to Csikszentmihalyi (1975), learners get so much involved in the learning activity in a flow in the online setting that it captures their attention. This indicates that the flow experience of student's online learning can get students involved and enjoy the learning activity, and can influence their service preference.

Online Learning

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Previous studies have averred that, in an online learning environment, the concept of flow predicts several known consumer behavior outcomes, such as learning outcome quality, learning process quality, increased exploratory behavior, communication, positive affect satisfaction, acceptance of Information Technology (IT), and learning and continuance intention (Kim, Park, Seo & Lee, 2010; Chen 2006). Even though studies on flow are many and varying (Obada, 2013; Park & Choi 2009; Siekpe, 2005; Koufaris, 2002; Jackson & Marsh, 1996), flow studies in marketing and online learning environment are under-researched (Kim, et al. 2010; Chiu, et al. 2007). Therefore, this article believes flow can be used to study the students' experiences and expectations, how it influences the perceived services quality, and ultimately affects their preference of online learning as an alternative to face-to-face learning.

Online learning, though not a common feature in the Ghanaian education environment; and even some higher education regulatory bodies in Ghana have questioned online certificates, the practice has been a known and acceptable global phenomenon (Chiu, et al. 2007; Kim, et al. 2010). Online learning refers to the use of the internet to facilitate teaching and learning between the teacher and the learner, where the interaction takes the form of an online experience (Schell 2004). We cannot overemphasize the growth of online learning in the computer-based economy. However, researchers have found that engaging learners online and sustaining their engagement throughout the online course and trying to minimize their concentration rate has not been without a challenge (Park & Choi 2009; Shin 2006). Researchers have tried to investigate the factors that attract and influence learners' preference for online learning as an acceptable option (Choi, 2007). These studies have confirmed a direct positive relationship between learners' perceived service quality and the success of online learning.

As the Covid pandemic rage on into the new academic year, we cannot ignore the use of the internet to deliver learning. This requires that institutions assess the online learning environment to examine how the flow experience can influence students' perception about the service quality of the online service quality, and learner's preference to the online platform.

Perceived Online Service Quality

In evaluating the quality of online learning, Ternus, et al. (2007) identified some primary features of a quality online education service delivery. They include the quality of the context, organization of the online program, and the online learning environment. Others are content of the material and how it is communicated; the kind of relationships and interactions between education providers and students; and the extent to which students gain mastery over the content of the course. In other studies, quality online learning characteristics include flexibility, responsiveness, student support, self-reported, interaction, perceived usefulness and ease of use of technology, technical support, and student satisfaction (McGorry, 2003). Means, Toyama, Murphy, et al. (2010) found student reflection as a critical success factor in an online learning environment. Herrington, et al. (2001) identified pedagogies, resources, and delivery strategies as crucial for quality in online education. The studies concluded that there is a relationship between students' reflection and the success of their online learning. This means the flow which is a psychological construct to shape experience and reflection is significant to determine students' perceived service quality and service preference of online learning.

Frydenberg (2002) found that among other variables, the standard for quality in online learning was an executive committee, technological infrastructure, student services, and instructor services. Phipps & Merisotis (2000) highlighted institutional support, course

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development, teaching and learning, course structure, student support, faculty support, and evaluation and assessment as essential quality online education dimensions. Deubel (2003, p.5) concluded that "*instructor's attitude, motivation, and genuine commitment toward instruction delivery via online education course influence much of the quality of instruction*". In suggesting what contribute to online education to provide service quality, Bickle & Carroll (2003) identified timely feedback, consistency in the delivery of information, relevancy, learning objectives, and technical support. Wiesenberg & Stacey (2005) collaborated on this assertion by indicating that online learning quality can be measured by teaching support, learning support, and administrative support. The related literature reveals that to enhance the quality of online learning service delivery the flow experience and expectation of students' needs to be enhanced, to make it more student-centered (Stodnick & Rogers, 2008). In this way, the institutions need to consider students as customers and must try their best to provide the best online educational services for them that meet their flow experiences and expectations to make students satisfied with the online learning environment (Martinez-Arguelles & Batalla-Busquets, 2016). In other words, online learning service quality may refer to the difference between the student's service expectation and his flow experience (Rogers & Stodnick, 2008).

As students become more complex, and online learning becomes part of the university education system, school managers may need constructs for the implementation of customer services strategies that provide the best e-service quality to students (Martinez-Arguelles & Batalla-Busquets, 2016). Flow is one such concept that can provide the answer to understanding and implementing those strategies. Therefore, the study aims at investigating how the flow experience of students affect their perceived online learning quality and the intention to accept online learning model.

Flow Dimensions and Online Learning

Different flow dimensions have been used in flow studies. We discuss some of the known and used dimensions which the article also uses to measure flow experience of online learners of Technical Universities. First, the clear goals on task, which relate to the student's interaction with the task. In online learning environments, goals to complete a task must be perceived by the learner to be clearly understandable (Csikszentmihalyi, 1990). Clear goals on task contribute to state of flow because it enables the learner to have a full concentration on the important aspect of the learning activity (Guo & Poole 2009), which provides motivation for doing the activity (Moneta, 2004). The second flow dimension is immediate feedback on tasks, which come from either other instructors and peers, or technology. According to Finneran & Zhang (2005), in this dimension, the person gets feedback on how well he is doing in achieving performance targets. Such feedback has a positive influence to determine flow (Weibel, Wissmath, Habegger, Steiner & Groner, 2008). According to Zaman, et al. (2010), when learners receive prompt, clear and unambiguous feedback from instructors and peers in the online learning environment, they are able to avoid distractions and concentrate fully on the learning activity (Zaman, et al. 2010). The third flow dimension is balance between challenges and skills of the task. Research has found an optimal balance between challenges and skills that can induce flow and emphasized how challenge-skill balance, influence the learner's subsequent work output (Csikszentmihalyi, 1975). Tasks that offer students with challenges that is consistent with their skills has the possibility of providing higher flow experience, else learners are likely to experience either anxiety or boredom (Csikszentmihalyi, 1990). Thus, for a higher flow experience, perceived

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challenges and skills of the task must be well-balanced and fall within flow channel. The fourth flow dimension to consider is perceived ease of use. A lack of skills that the student needs to solve a challenge can cause anxiety, and therefore requires that an easy-to-use interface be necessary to minimize the time a student would need to allocate to learn the technology (Choi, et al. 2007). Researchers have defined perceived ease of use as the extent to which the user expects a particular system or software for providing a service to be easy-to-learn and use (Davis & Wang, 2007). It represents self-efficacy which has a significant impact on one's attitude toward using the technology that further shows behavioral intention (Davis 1989). If a student perceives that using the online learning system is effortless and the interface is easy-to-use, it has a positive influence on the student's and develops in him the desire to prefer the online learning platform as alternative to other learning platforms.

Other flow experience dimensions may include: a) Concentration on the task at hand. According to Csikszentmihalyi (1990), when a student is able to concentrate on the task at hand, it captures the student's attention to the task so that distraction is almost zero. Concentration as a flow dimension is referred to by others as 'focused attention' (Siekpe, 2005). When used in online learning, concentration on the task at hand refers to the extent to which a student's attention focuses on an involving activity (Trevino & Webster 1992). Research has found a positive relationship between flow and concentration on the task at hand in an online learning environment. ii) The next flow experience dimension is the loss of self-consciousness, which refers to the art of losing a sense of self and of separating from the world around you (Csikszentmihalyi 1990). This means in the state of loss of self-consciousness, a learner may pay no attention to happenings in his service environment, except for the task he is performing. Thus, in a flow state, when a student engages in online learning, he/she may no longer care how others can view their writing or contribution. iii) The other flow dimension is the 'sense of control', which defines a person's perception of being in charge of an activity and the environment (Agarwal & Karahanna 2000). Since the student cannot control or adjust the online learning management system, he/she does not have any authority to change the system. Therefore, a sense of control in the online learning environment may refer to the student's perception of how much control he/she feels over completing the task (Finneran and Zhang 2005). iv) Time distortion is the other flow dimension construct in an online learning environment to consider (Hoffman & Novak 2009). Agarwal & Karahanna, (2000) premised this construct on the fact that a learner cannot keep track of passaging time in the human-computer interactive experience. Different flow variables have been used to study the theory's relationship with online services. However, we consider the syntheses of the many variables reviewed in the literature. This is to find out the extent to which flow contribute to service quality and preference of online le.

Although the online learning method is mainly shaped by managers of education institutions, the student is the important stakeholder of this process. Previous studies averred that the success of online learning environment is dependent on the student's ability to learn new strategies. (Adam et al. 2017; Şahin, et al. 2017), online readiness (Ramli, Muljono, & Afendi, 2018; Yurdugül & Demir, 2017) and motivation (Najafi, et al. 2018). The levels of these characteristic, which are part of dimensions of flow, affect the learning process and learning outcomes. While there are several studies to evaluate the relationship between flow experience and students' perceived learning process and learning outcomes (Kim, Park & Lee, 2010; Obada, 2013), the same cannot be said of studies available on students' flow experience and online learning preference (Yang & Theo, 2008). This study seeks to investigate the individual dimensions of flow that affect students' system of online learning delivery preference.

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The purpose of this paper is to investigate how the flow experience of students affects their perceived online learning quality and the intention to accept online learning model. Specifically, this study aims at: 1) determining the contribution of flow to perceived service quality of online learning of students. 2) examining the link between perceived learning service quality and a student's intention to accept online learning 3) evaluating the overall effect of flow experience on learner's intention to accept online learning model 4) The degree of students online learning flow experience by gender.

Conceptual Development and Hypotheses

Contribution of Flow to Perceived Service Quality In Online Learning of Technical University Students

Online learning quality can measure teaching support, learning support, and administrative support. It is revealed by the related literature that an enhanced flow experience promotes the quality of online learning, to make it more student-centered (Stodnick & Rogers, 2008). Therefore, for students to satisfy with the online learning environment, online education service must meet students' flow experience and expectations (Martinez-Arguelles & Batalla-Busquets, 2016). In other words, the online learning service quality is determined by the difference between the student's service expectation and his flow experience (Rogers & Stodnick, 2008) Based on the literature, we proposed the following hypotheses for testing.

H_1: Flow experience of a student contributes directly to his perceived learning outcome quality

H_2: Flow experience of a student contribute directly to his perceived learning process quality

The Link between Perceived Learning Quality and Students' Intention to Accept Online Learning Model

Research emphasizes delivery strategies as crucial for quality in online education, and averred that there is a relationship between students' reflection and the success of their online learning (Herrington, et al., 2001). This means the flow which is a psychological construct to shape experience and expectation is significant to determine students' perception of service quality and consequently determine the service preference. Thus, we believe that perceived service quality can predict learner's service preference of online learning. Based on the related literature, the study postulates the following hypotheses.

H_3: The degree of perceived learning outcome quality is linked with a learner's intention to accept online learning

H_4: The degree of perceived learning process quality is linked with a learner's intention to accept online learning

Overall Effect of Flow Experience on Student's Intention to Accept Online Learning Model

Research has shown that the concept of flow is a determinant of some important consumer behavior outcomes like positive affect satisfaction, acceptance of Information Technology (IT), and learning and continuance intention to accept the process (Kim, Park, Seo & Lee, 2010; Guo

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& Poole 2009; Hoffman & Novak 1996). Thus, we consider flow experience as a desirable predictor of learners' preference and continuance intention to prefer online learning. Because of the literature we propose the following hypothesis:

H_5: A student's overall flow experience has a significant influence on his intention to accept online learning model

The Link between Learners's Gender and the Degree of Flow Experience In Online Learning Environment

For use of the internet, the online experience may vary by demographic factors, including gender. Previous studies show males make up 67% of internet users (Lohr, 1995). In another study, Tsai and Lin (2004) suggested that males highlight the value of using the Internet and to display their ability to use it. In a study of online game users in Taiwan, internet usage of male to female was 80% and 20%. The literature suggests the state of flow of a student may depend on the gender of the person. Thus, we expected that in the online learning delivery, males should react more positively to the learning environment than their female counterparts. Referring to the literature and the above conceptualization, we propose the hypotheses below:

H_6: The flow experience varies with gender in an online learning environment

Materials and Methods

Sampling Technique

In this study, seven out of the ten Technical University we sampled for the study for further analysis on the data. Convenience sampling technique was used as a tool for the sampling. The sample used in this study is sufficient for reliable estimations and model assessment in factor analysis and confirmatory factor analysis. It is more than the minimum ratio of five times observations to the number of variables to be analysed (Hair et al., 2018). The instrument was distributed through an online survey (e.g., google form), which took approximately three weeks to complete. The technique does have limitations, however, as the sample is not representative of the total population. Consequently, there is a constant difference between the results from the sample and the theoretical results from the entire population.

Scales of Measurement

The constructs for the measurement scales was adapted from the Martinez-Arguelles and Batalla-Busquets (2016); Obada, (2013); Kim, Park, Seo and Lee (2010); Rogers and Stodnick (2008) on flow dimensions and perceived online learning quality. The questionnaires were designed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Participants and Procedure

Data were collected through an online survey from 362 students of the seven universities, as this study focused on examining the role of students flow experience on online learning quality and intention to accept online learning model.

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Data Analysis and Techniques

Data were collected and analysed using structural equation modelling (SEM) supported by AMOS 5.0 with maximum likelihood estimation in order to test the proposed hypotheses. SEM is a second-generation multivariate technique that combines multiple regressions with confirmatory factor analysis to estimate simultaneously a series of interrelated dependence relationships. SEM is a widespread technique in several fields including marketing, psychology, social sciences and information systems (Hull et al. 1991; Methlie & Nysveen, 1999; Seibert et al. 2001).

RESULTS AND DISCUSSIONS

Demographic Characteristics of Respondents

The results in Table 1 display the demographic characteristics of the respondents. Out of the total of three-hundred and sixty-two (362) students used for the study, 50.8% (184) were males, 49.2% (178) were females. The result suggests that 6.9% (25) were in level 100, 40.9% (148) level 200, 41.2% (149) level 300 and the remaining 11% (40) level 400. Also, from the results, 46.4% (168) indicated that their internet experience is a challenge, 15.5% (56) indicated interest whilst 38.15(138) indicated normal. The results suggest that 32.6% (118) indicated their initial reaction to the use of the virtual platform was negative, 48.9% (177) indicated neutral whilst the remaining 18.5% (67) indicated positive in Table 1.

Table 1
DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Variable	N=362	Percent(%)
Gender		
Male	184	50.8
Female	178	49.2
Class		
Level 100	25	6.9
Level 200	148	40.9
Level 300	149	41.2
Level 400	40	11.0
Internet experience		
Challenge	168	46.4
Interest	56	15.5
Normal	138	38.1
Initial reaction to the use of the virtual platform		
Negative	118	32.6
Neutral	177	48.9
Positive	67	18.5

Descriptive Statistics and the Assessment of Normality of the Items

The results in Table 2 display the descriptive and normality statistics of the study items. Based on the 5-point scale, estimated mean above 3.0 indicates agreement, below 3.0 suggests

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disagreement. Based on the results, the items mean, and standard deviation ranged from (M=3.01 to 4.12; SD=0.84 to 1.18). This result suggests that respondents agreed to the items in this study. Also, the normality of the items was measured using the skewness and kurtosis. According to (Awang, 2015; Hair et al.,2018), normality is accessed when the skewness and kurtosis estimates fall within -2.00 to 2.00. Based on the result obtained, normality is achieved since the estimated skewness and kurtosis for all items ranged from (skewness=-0.97 to 0.41; kurtosis=-1.12 to 1.19). Hence normality is achieved in Table 2.

Table 2
DESCRIPTIVE STATISTICS AND NORMALITY ANALYSIS

Variable	Min	Max	Mean	SD	Skew	C.R.	Kurtosis	C.R.
BCS1	1	4	3.49	1.01	-0.79	-6.17	-0.55	-2.13
BCS2	1	4	3.41	0.98	-0.62	-4.78	-0.71	-2.76
BCS3	1	4	3.45	1.00	-0.66	-5.13	-0.76	-2.97
IFB1	1	4	3.15	1.08	-0.26	-2.05	-1.23	-4.77
IFB2	1	4	3.01	1.08	-0.08	-2.59	-1.29	-4.99
LI1	1	5	3.88	0.92	-0.40	-3.07	-0.23	-2.88
LI2	1	5	3.89	0.94	-0.45	-3.51	-0.23	-2.89
LI3	1	5	3.94	0.91	-0.59	-4.57	0.16	2.60
LI4	1	5	4.12	0.84	-0.97	-7.56	1.19	4.62
LI5	1	5	3.78	0.96	-0.31	-2.37	-0.44	-2.72
LI6	1	5	4.06	0.86	-0.69	-5.35	0.41	2.58
PLOQ1	1	5	3.17	1.15	0.30	2.30	-0.77	-2.98
PLOQ2	1	5	3.15	1.17	0.21	2.61	-0.91	-3.54
PLOQ3	1	5	3.05	1.18	0.41	3.19	-0.79	-3.07
PLOQ4	1	5	3.17	1.18	0.13	2.99	-1.05	-4.08
PLPQ1	1	4	3.24	1.04	-0.43	-3.34	-1.01	-3.92
PLPQ2	1	4	3.12	1.01	-0.28	-2.14	-1.02	-3.96
PLPQ3	1	4	3.21	1.02	-0.37	-2.85	-1.02	-3.95
PLPQ4	1	4	3.35	1.03	-0.59	-4.61	-0.84	-3.25
TD2	1	4	3.06	0.99	-0.12	-2.95	-1.03	-4.01
TD3	1	4	3.42	1.01	-0.63	-4.89	-0.81	-3.14

Note: c.r represents critical ratio estimate.

Construct Reliability and Validity Analysis

The reliability of the items in the model was accessed using the composite reliability (CR) and Cronbach alpha (CA). The reliability measures the internal consistency in the responses provided by the respondents based on the constructs. It also indicates the strength of items holding together in measuring specific constructs. To achieve high internal consistency, Cronbach alpha or composite reliability must obtain an estimated value of 0.70 as suggested by previous studies (Awang, 2012; Hair et al. 2018). Table 3 displays the internal reliability for all the constructs. Based on Table 3, all four constructs have both composite reliability (CR) and Cronbach alpha (CA) above 0.70 suggesting that there is adequate and high internal consistency level.

Also, validity is accessed in two dimensions, convergent and discriminant validity. The convergent validity accesses the degree to which two measures of the same concepts are correlated (Lopez, Ahmad, & Zarim, 2021). This is achieved when the standardized regression

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loadings of each item in the proposed model loads at least 0.50 (Awang, 2015). As display in the Table 3, all the items have loadings above the recommended value of 0.50 as they take values ranged from 0.598 to 0.949. Hence convergent validity is achieved (Ghazali et al. 2021).

The discriminant validity was used to examine the independency of the model constructs. To ensure the items only measured their respective construct, the discriminant validity needs to be assessed. According to Awang (2015), discriminant validity only can be achieved if the correlation between constructs less than 0.85 and or the square root of the Average variance extracted (AVE) were more than any pair of correlation in the model as demonstrated in the Tables 3& 4, all the square root of the AVEs were higher than the correlation, hence discriminant validity is achieved.

Table 3
ITEMS STANDARDIZED LOADINGS AND RELIABILITY ANALYSIS

	Standardised loadings	**CR**	**CA**	**AVE**
Intention to Accept		0.928	0.927	0.684
LI1	0.756			
LI2	0.876			
LI3	0.848			
LI4	0.892			
LI5	0.801			
LI6	0.781			
Perceived learning Outcome Quality		0.933	0.926	0.780
PLOQ1	0.873			
PLOQ2	0.905			
PLOQ3	0.883			
PLOQ4	0.864			
Perceived learning Process Quality		0.891	0.889	0.670
PLPQ1	0.845			
PLPQ2	0.860			
PLPQ3	0.793			
PLPQ4	0.764			
Flow Experience		0.894	0.715	0.566
BCS1	0.773			
BCS2	0.762			
BCS3	0.768			
IFB1	0.949			
IFB2	0.698			
TD2	0.870			
TD3	0.589			

Note: Composite Reliability (CR); Cronbach Alpha (CA).

Table 4
CORRELATION ANALYSIS

		1	***2***	***3***	***4***
1	Flow Experience	*0.752*			
2	Perceived learning Outcome Quality	-0.025(0.714)	*0.883*		
3	Perceived learning Process Quality	0.364(0.000)	-0.063(0.276)	*0.819*	

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4	Intention Accept	0.026(0.694)	0.119(0.037)	0.017(0.774)	*0.827*

Note: values in brackets are significant values; values in leading diagonal represents square roots of AVE.

Structural Modelling

The structural equation model was performed to access the adequacy of the model and as a result several fit indices were used to examine the adequacy of the formulated model such as Chi-square/df=1.46; CFI = 0.98, TLI = 0.98, and RMSEA = 0.04, GFI = 0.96, AGFI = 0.95, NFI = 0.95 as display in the Table 5. This is an indication that all model fit indices met the required threshold as proposed by previous studies suggesting adequacy of the model. Hence the test of the hypotheses could be evaluated as shown in Table 5 Figure 1.

Table 5
MODEL FIT INDICES

Measure	Estimate	Threshold	Interpretation
χ^2	264.82	--	--
df	181.00	--	--
χ^2/df	1.46	Between 1 and 3	Excellent
CFI (*Comparative Fit Index*)	0.98	>0.95	Excellent
SRMR (*Standardized Root Mean Squared Residual*)	0.04	<0.08	Excellent
RMSEA (*Root Mean Square Error of Approximation*)	0.04	<0.06	Excellent
Pclose(*p of Close Fit*)	1.00	>0.05	Excellent
GFI (*Goodness of Fit Index*)	0.96	>0.95	Excellent
AGFI (*Adjusted Goodness of Fit Index*)	0.95	>0.95	Excellent
NFI (*Normed Fit Index*)	0.95	>0.95	Excellent
RFI (*Relative Fit Index*)	0.96	>0.95	Excellent
IFI (*Incremental Fit Index*)	0.98	>0.95	Excellent
TLI(*Tucker-Lewis Index*)	0.98	>0.95	Excellent

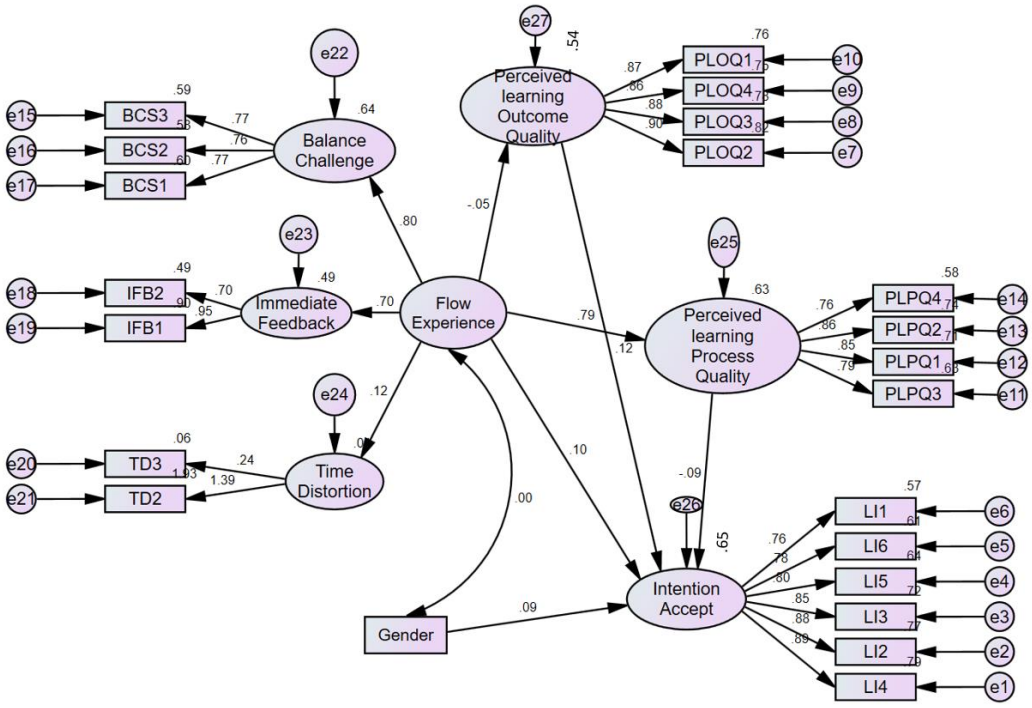

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Figure 1
THE CFA RESULT OF THE PROPOSED RESEARCH MODEL (STANDARDIZED PATH COEFFICIENTS)

Summary of Formulated Hypotheses

Hypotheses 1 and 2 postulate the associations between flow experiences with constructs: Perceived learning Outcome Quality and Perceived learning Process Quality. Hypotheses 3 and 4 propose the relationships that exist between intentions to accept online learning with three constructs: Perceived learning Outcome Quality, Perceived learning Process Quality and Flow Experience whilst hypothesis 6 examines the flow experience and how gender effect the intention to accept the online learning. As evident in Table 6, flow experience had no influence on perceived learning outcome quality (β=-0.047; p>0.454) but shown positive and significant relationship with perceived learning process quality (β=0.791; p<0.000). The results shown that there was relationship between intention to accept online learning and perceived learning outcome quality (β=0.118; p<0.035); but shown no significant relationship with perceived learning process quality (β=-0.087; p>0.507) and flow experience (β=0.099; p>0.492).

The results suggest that flow experience does not vary with gender in an online learning environment. The relationship that exists between the variables is estimated to be (β=0.086; p>0.111). The amount of variance explained in the intention to accept online learning is estimated to be approximately 75%, perceived learning process quality is 63% and perceived learning outcome is 54%. This indicates high level of model validity and adequacy. All in all, hypotheses 2 and 3 showed significant relationships, hence supporting at 5% significance level.

Table 6
SUMMARY OF FORMULATED HYPOTHESES

	Relationships			***Estimate (β)***	***S.E.***	***C.R.***	***P-value***	***Remarks***
Direct Relationship								
H1	Perceived learning Outcome Quality	<--	Flow Experience	-0.047	0.108	-0.748	0.454	Not support
H2	Perceived learning Process Quality	<--	Flow Experience	0.791	0.124	8.424	0.000	Support
H3	Intention to Accept	<--	Perceived learning Outcome Quality	0.118	0.040	2.106	0.035	Support
H4	Intention to Accept	<--	Perceived learning Process Quality	-0.087	0.122	-0.663	0.507	Not support
H5	Intention to Accept	<--	Flow Experience	0.099	0.176	0.687	0.492	Not support
Gender Effect								
H6	Intention Accept	<--	Gender	0.086	.081	1.594	.111	Not support

Note: R-square (Perceived learning Process Quality=63%); R-square (Perceived learning Outcome Quality=54%); R-square (Intention Accept=75%)
β is the standardized regression weight coefficient; SE=standard error; CR=Critical ratio

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CONCLUSION

The current study reveals that students' flow experience highly influence their perceived learning process quality. The result is consistent with previous studies that the use of flow becomes even more complex in the online learning environment because of the interaction among students, the technology itself, and tasks conducted via technology by the students (understanding consumer (Obada, 2013; Finneran & Zhang (2005) Siekpe, (2005).This suggests that implementation of customer services strategies that provide the best online service quality to students (Martinez-Arguelles & Batalla-Busquets, 2016) is the learning quality outcome. On the contrary students' flow experience did not contribute to their perceived learning outcome quality. Therefore, the online learning model that provides the best online educational services for students that meet their flow experiences and expectations to make students satisfied with the online learning environment (Martinez-Arguelles & Batalla-Busquets, 2016) is the one that emphasis on learning process quality. In essence, online learning service quality may refer to the difference between the student's service process expectation and the flow experience (Rogers & Stodnick, 2008). The paper also identified three dimensions that constitute to students flow experience. These are balance of challenge, immediate feedback and time distortion.

Concerning balance between challenges and skills of the task, the study agrees with previous research that students experience higher flow and avoid anxiety with online learning environment that offer a student challenges that relate to his/her skills (Csikszentmihalyi, 1990).

To develop flow by immediate feedback on task, the online system must make it possible for students to check and confirm their performance, and be able to have interactions with both instructors and other learners without intimidation (Guo & Poole 2009). To experience flow by the time distortion construct, the online system must factor time as an important scale and utilize time effectively, and remove all waste that might occur in face-to-face learning. This is consistent with Hoffman & Novak (2009) and Agarwal & Karahanna, (2000) who aver that a learner cannot keep track of passaging time in the human-computer interactive experience. This study further revealed an understanding of the online flow experience and its influence on influence on students' intention to accept online learning as an alternative learning model, which is a significant contribution to the marketing literature. It is useful for marketing practitioners and professionals, to understand online learning customer behavior, and to develop effective marketing strategies in an online model. The study again, showed that the relationship between flow and students' intention to accept online learning as an alternative learning model is not dependent on gender. This suggests that flow experience and its consequent effect on online learning preference is no respecter of gender.

Recommentadions and Limitations

This study has implications for marketing practice. Since students' flow experienced in online learning is determined by balance of challenges and skills of the task, clear goals on task, immediate feedback on task, and time distortion, education institutions need to design their online courses in such a way as to provide an enhance students' flow experience with clear goals for every task given to students, manage any time distortions and be quick to give feedback on online exercises to learners. They should also ensure that they motivate students to see the use of an online platform for study as a pleasant learning alternative. Because online learning in a regular school setting is a new development in Ghana's tertiary institutions, most teachers deliver

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online learning courses through Learning Management Systems run on such platforms as Google Classroom, Moodle, Zoom, etc. With online learning or blended learning coming to stay as an alternative or complementary learning environment, more advanced technologies, such as synchronous communication tools, can explore what can bring a real-time element into teaching and learning online. This can increase the learner's flow experience and create interactive and pleasant learning environments that can reinforce the learner's involvement into a computer-generated online learning environment and make their learning more enjoyable and acceptable (Huang et al. 2010; Monahan et al. 2008). The demand for advanced technologies may mean that their lack becomes a barrier for teachers to design the online course that meets learners' needs. Managers of tertiary institutions should provide sufficient resources and support for teachers to design online courses that offer a strong sense of preference by students. Here, institutional support and incentives are necessary for teachers who lack the skills for online course development. Policymakers can engage Management Learning Systems developers to provide an easy to use and user-friendly online learning systems. Education authorities in charge of higher learning could invest in ICT infrastructure to ensure availability and reliability of internet facility that is so much needed for online learning to improve online learning quality. We can agree that flow is not the only predictor of positive learning outcomes, yet, it plays a critical role in influencing students' experiences in online learning. Thus, teachers should pay particular attention to match learners' current skills with the task provided and give feedbacks on all services, and remove time distortions to increase the likelihood of achieving optimal experience.

Like any other research, the study is not immune to limitations. First, the sample comprised students of the Technical Universities who were involuntarily undertaking their education courses online. This begs from generalizing results to all students or even higher education students in online learning. The relatively small number of students who participated in the survey limits us to make inferences for a larger population. We recommend that future studies consider other groups such as students of other tertiary and non-tertiary institutions who also use the online learning platform. Future studies could also improve the sample size. This study is based on self-reported data and cross-sectional design. However, flow experience is a complex phenomenon that cannot only improve the momentary experience but develops over time. Therefore, future research could consider using longitudinal studies to give a superior picture of how students develop their flow experience and how the relationships among constructs change over time. Finally, the study showed that flow experience and its related influence on service quality and acceptance of online learning has nothing to do with gender. Further study can be conducted, with different data collection method to confirm or disprove this fact.

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