Instructional Technology Integration: Understanding Senior High School Business Studies Teachers' Concerns

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ABSTRACT

In the field of education, technology has revolutionised and its noticeable quality cannot be disregarded. In Ghana, it seems that the adoption and integration of instructional technologies are as yet a predicament that postures extraordinary difficulties to most of Ghanaian teachers. The successful implementation of instructional technologies into Business Studies programme in the senior high schools (SHS) depends partially on the concerns of teachers. The study examined the concerns of Business Studies teachers towards instructional technology integration in the Takoradi Metropolis, Ghana. Descriptive survey design was used in the study and 66 teachers from 12 SHS in were selected using convenient sampling technique. Primary data was gathered from the respondents using adapted stages of concern questionnaire (SoCQ). The data was analysed using both descriptive and inferential statistics. Business Studies teachers had their primary highest concern towards instructional technology integration at stage 4 (consequence) and their second highest concern and lowest concerns at stage 1 (informational) and stage 0 (unconcern) respectively. The study, further, found no statistically significant association between teachers' characteristics (gender, age and teaching experience) and stages of concern. They are adopters, implementers and users of instructional technology in the curriculum, however, they still need more information about the change. Ministry of education (MoE) in collaboration with school administrators, National Association of Graduate Teachers (NAGRAT) and Ghana association of business education teachers (GABET) should organise workshops, seminars and conferences for teachers on instructional technology adoption and incorporation in the curriculum.

Keywords: *Business studies, Curriculum, Ghana, ICT, Instructional technology, Senior high school, Stages of concern.*

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Highlights of this paper

- The present study aimed at Business Studies teachers' concerns about instructional technology integration into the Business Studies curriculum in the senior high schools in Ghana.
- The stuy found that teachers had the consequence, information and awareness concerns towards instructional technology inetegration into the curriculum.
- Minsitry of Education (MoE) should provide teachers with necessary and clear information of about ICT integration into the curriculum through workshops, seminars and conferences.

1. INTRODUCTION

In the field of education, instructional technology has revolutionised and its prominence cannot be ignored. For example, it offers both teachers and students technological tools and resources which go past the frontier of their classrooms (Razzak, 2013; Rosenberg and Koehler, 2015). Furthermore, instructional technology offers countless opportunities for educational institutions to connect and utilise technology to supplement and bolster the instructional discourse (Agyei, 2013; Xu and Chen, 2016). In light of this, instructional technology amalgamation and integration into the school curriculum has been high on the education reform agenda worldwide. Regarding this, governments all over the world have recognised and acknowledged the positive and significant effect of instructional technology on the academic performance and well-being of its people.

In Ghana, information and communication technology (ICT) incorporation and integration in the school curriculum have receive remarkable consideration and thoughtfulness of the stakeholders of education. Per this, Ghana's national development strategy highlights the utilisation of ICT to enhance the socio-economic growth and improvement of the nation (Government of Ghana, 1995). Notwithstanding that, the nation's medium-term development plan in the Ghana Poverty Reduction Strategy Paper (GPRS I & II) and the Education Strategic Plan 2003-2015 all propose the utilization of ICT as a methods for contacting the poor in Ghana (GoG, 2003). Equally, a lot of efforts and numerous resolutions have been made by policy makers concerning technology adoption and integration as a tool for accelerating the country's socio-economic growth and improvement through instructional intercourse. For example, it was recommended that ICT should be introduced into the country's education system and into the curriculum at all levels (Anamuah-Mensah National Education Review Committee Report, 2002). On the side of this, in 2002, a national commission on ICT was set up to create a national ICT policy called Ghana ICT for Accelerated Development Policy (ICT4AD) (GoG, 2003).

The vision of Ghana's information era is enshrined in the ICT4AD policy. The ICT4AD policy epitomises 14 primacy areas including promoting instructional technologies in the school curriculum like Business Studies programme in the SHS (Ministry of Education, 2008;2015). The general objective of the ICT4AD policy is to equip students with ICT literacy in order to be efficacious and creative in the use of ICT tools and resources in digital world (MoE, 2008;2015). From ICT4AD policy, instructional technology was officially adopted, incorporated and integrated in September 2007 into Ghana's school curriculum. This was part of 2007 educational reforms with the sole purpose of improving quality and effective instructional practices. One principal prerequisite of the 2007 educational reform was to ensure that all students acquire basic ICT literacy skills for nation development (MoE, 2013;2015). Disappointingly, it appears that Ghana lags behind instructional technology adoption and integration into the educational system. The incorporation and implementation of the instructional technology has been dreadfully slow in the school curriculum. For example, Mereku *et al.* (2009) concluded that there is a mismatch between the intended ICT policy and implementation in the school's curriculum.

Implementation of any education innovation like ICT is usually complex and requires consideration of factors such as people, leadership and culture (Hall and Hord, 2015). In relation to people, literature shows that teachers' feelings, anxiety and perception about reform and restructuring process is tremendously personal and it is a

significant indicator and predictor of the adoption and application of any innovation like ICT in educational institutions and other settings (Hall and Hord, 2006; Fullan, 2007). Thus, how educators see new innovation like ICT will indicate whether or not change has essentially and really occurs in the classroom (Aihi, 2011). Teachers' concerns often present barriers to the adoption and integration of innovation like ICT and researchers have found that the acceptance and implementation of pedagogical innovation like ICT is a procedure and development of change that is facilitated by addressing the concerns of teachers (Hall and Hord, 2011; Brownell and Tanner, 2012). As per (Fullan, 2007) successful ICT amalgamation and implementation relies upon how teachers comprehend ICT adoption and incorporation and how much they are concerned about it.

In Ghana, the students pursuing Business Studies programme in the senior high schools (SHS) are more likely to use instructional technologies than students pursuing other programmes. The Business Studies students do calculation in Financial Accounting, Cost Accounting and Economics that may require the use of the spreadsheet software, and other ICT applications that may be accessed from the internet. Regarding this, the MoE and National Council for Curriculum and Assessment (NaCCA) has included ICT as content (topic) to be taught and learnt in the Financial Accounting and Business Management syllabus in SHS. This is to help both teachers and students to incorporate, integrate and use ICT tools, facilities during instructional intercourse. However, a preliminary observation and informal interactions with some teachers and students showed that teachers and students do not use ICT facilities during instructional intercourse. This implies that teachers of Business Studies do not assimilate and integrate ICT facilities during instructional discourse. Some of teachers and students attributed these reactions to lack of ICT laboratories and inadequate ICT facilities. A plethora of studies have been conducted on teachers' concerns about instructional technology adoption and integration employing the Concerns-Based Adoption Model (CBAM) with varied results (Al-Rawajfih *et al*., 2010; Al-Sarrani, 2010; Donovan and Green, 2010; Hadjipavli, 2011; Zamani *et al*., 2011; Masrom, 2013; Thankachan, 2013; Al-Shabatat, 2014; Dubey and Alam, 2014; Untiedt, 2014; Jong, 2015; Lochner *et al*., 2015; Matar, 2015; Sakawat-Lemessy, 2015; Jong and Tsai, 2016; Pepe, 2016; Gabby *et al*., 2017; Gasaymeh, 2017; Hao and Lee, 2017; Mungal and Saha, 2017; Al-Furaih and Al-Awidi, 2018; Gudyanga and Jita, 2018; Jogezai *et al*., 2018). These studies concluded that teachers' stages of concern highly influenced instructional technology acceptance, adoption, incorporation, integration and implementation in all school levels. Some of these studies found that teachers use or implement ICT during teaching and learning whilst others indicated that teachers are resistant to change in the use of ICT tools, facilities and resources during teaching and learning. However, due to disparities and inequalities in geographical areas, socio-economic development, social perspectives and educational policies within these countries, the findings of these studies cannot be generalised to Ghanaian context. In Ghana, studies have been carried out on teachers' ICT adoption, integration, implementation and usage in all the levels of educational system (Mereku *et al*., 2009; Acquah, 2012; Agyei, 2013; Acquah-Doughan, 2015; Peprah, 2016; Asabere *et al*., 2017). However, these studies did not use CBAM to assess teachers' concern about instructional technology adoption, implementation and integration or into the curriculum. Extant researchers, also, used CBAM to examine university faculty and basic school teachers' concerns about ICT implementation and integration in Ghana (Yidana, 2007; Amankwah *et al*., 2016; Sarfo *et al*., 2017). Nevertheless, these studies essentially focused on lecturers and basic school teachers and not SHS Business Studies teachers. Also, other researchers used CBAM to tracked the concerns about the 2007 educational reform among basic school teachers (Cobbold and Ani-Boi, 2011; Asabere *et al*., 2017) and SHS Accounting teachers' (Kwarteng, 2009; Ankomah and Kwarteng, 2010; Kwarteng, 2016). These studies primarily focused on primary school teachers and SHS Accounting teachers' concerns about curriculum reform and not instructional technology adoption, integration and implementation into the Business Studies curriculum since its introduction in 2007. From these studies, it is

evident and crystal that none of them have investigated Business Studies teachers' concerns about instructional technology integration into the senior high school curriculum in Ghana. Business Studies teachers play essential roles in the actual adoption, integration and implementation instructional technology into the school curriculum, hence, it is critical and vital to comprehend their feelings, anxiety, perception and worries about ICT integration into the school curriculum. Accordingly, extant researchers have used stages of concern model to assess teachers' concerns towards any innovation including instructional technology with inconclusive findings. It is against this contextual and foundation, the current study examines Business Studies teachers' concerns of instructional technology integration in the SHS Sekondi-Takoradi Metropolis. Accordingly, the following research questions guided the study:

1. At which stage, are Business Studies teachers integrating instructional technology into the Business Studies Curriculum?
2. Is there any significant association between Business Studies teachers' characteristics and their level of concerns towards instructional technology integration?

2. THEORETICAL FRAMEWORK: STAGES OF CONCERN (SoC)

Hall and Hord (1987) stages of concern (SoC) rooted within CBAM is used for the study considering Business Studies teachers' concerns about instructional technology integration. SoC is a well-tried framework for any educational innovation including instructional technology. Teacher concern is defined as a beliefs, feelings, thoughts, and reactions individuals have about a new programme or innovation like ICT that touches their lives (Fuller, 1969; Hord *et al.*, 2006). It can be a tool for either smoothing or encumbering effective and successful adoption, integration and implementation of educational innovation like instructional technology (Hall and Hord, 1987; Hall and Hord, 2011). According to Fuller (1969) teachers' concerns are categorised into three: self, task and impact (Fuller, 1969). These have been explained in the existing literature already. In light of Fuller (1969) classes of concern, Hall *et al.* (1977) developed CBAM stages of concern (SoC) questionnaire to explore concern about innovation among teachers. The SoC explains concern as consisting of seven stages. These levels of concern occur in stages and are considered hierarchical and developmental (Hall and Hord, 1987) see Table 1.

Table-1. Teachers' stages of concern and expression.

Level	Stages of concern	Expressions of concern	Relationship with ICT Usage
Level 1 (Self-concerns)	Stage 0 (Awareness)	I am not concerned about it.	Low technology users, implementer Non-adopters
	Stage 1 (Informational)	I would like to know more about it.	
	Stage 2 (Personal)	How will using it affect me?	
Level 2 (Task concerns)	Stage 3 (Management)	I seem to be spending all of my time getting materials ready.	Moderate technology users, implementer late adopters
Level 3 (Impact concerns)	Stage 4 (Consequence)	How is my use affecting clients?	High technology users, implementer Adopters
	Stage 5 (Collaboration)	I am concerned about relating what I am doing with what my co-workers are doing.	
	Stage 6 (Refocusing)	I have some ideas about something that would work even better.	

Source: Adapted from Fuller (1969) and Hall *et al.* (1977).

Since the study aims at exploring Business studies teachers' concerns about instructional technology into the curriculum, the model is appropriate as it helps in examining teachers' most pertinent stages of concern with respect to instructional technology adoption, integration and implementation in the SHS of Ghana.

3. RESEARCH METHODS

Descriptive survey design rooted within the quantitative approach was employed to examine Business Studies teachers' concerns of instructional technology integration in Business Studies curriculum in Sekondi-Takoradi Metropolis, Ghana. The population for the study comprised all Business Studies teachers in twelve (12) senior high schools (SHS) in Sekondi-Takoradi Metropolis. There are 101 teachers within the 12 SHS in the Metropolis. The convenient sampling technique was used to select 66 Business Studies teachers from 12 SHS in Takoradi Metropolis. The rationale for selecting Business Studies teachers was that they were more likely to use computer applications, internet and other ICT software than other subject teachers in the schools. The SHS Business Studies curriculum requires calculations in Financial Accounting, Cost Accounting, Business Management and Economics that demand the use of spreadsheet and other ICT (computer) applications. Also, the teachers were chosen because they are the right source of information when it comes to ICT acceptance, adoption, incorporation and integration into the Business Studies programme. Data was gathered using modified stages of concern questionnaire (SoCQ) developed by Hall *et al.* (1977). The questionnaire contained 35-item recommended for innovation like ICT adoption, integration and implementation. Primarily, the SoCQ is constructed on the stages of concern (SoC) that discourses the emotional and sentimental side of change. It pays attention to people's feelings, anxiety, reactions, perceptions, and attitudes when adopting, integrating and implementing an educational innovation like instructional technology. The SoCQ recognises seven stages and these stages are further classified into three levels see Table 1. Ethical protocol was followed during the data collection process. The data gathered was processed using SPSS version 24.0 and analysed using descriptive statistics (frequency, percentages, means and standard deviation) and inferential statistics (Chi-square test for independence).

4. RESULTS AND DISCUSSION

This section presents the results, interpretation and discussion of the findings in relation to the research questions that guided the study.

4.1. Business Studies Teachers' Concerns Regarding Instructional Technology Integration

The objective of this research question was to identify the stage at which business Studies teachers are integrating and implementing ICT into the curriculum. The feelings, worries, perception and attitude of teachers towards instructional technology integration and implementation in the curriculum are capable in gauging the quality, merit and worth of Business Studies curriculum in SHS. Table 2 indicates the mean and standard deviation results of the Business Studies teachers' stages of concern relating to instructional technology and Figure 1 shows a pictorial representation of the percentile relative intensity of those concerns.

The results in Table 2 showed that, the respondents had their highest concerns (M=13.83; SD=3.71) at stage 4 (Consequence). This implies that a majority of the teachers are concerned about the impact that ICT integration into business curriculum will have on the students. The respondents' second highest concerns (M=13.21; SD=3.50) was at stage 1 (Informational).

Table-2. Teachers' stages of concerns about instructional technology integration.

Stages of concern	Means	SD	%
Stage 0 (Unconcerned/awareness)	9.03***	3.42	36
Stage 1 (Informational)	13.21**	3.50	53
Stage 2 (Personal)	12.55	3.41	50
Stage 3 (Management)	10.97	2.77	44
Stage 4 (Consequence)	13.83*	3.71	55
Stage 5 (Collaboration)	13.03	3.75	52

Source: Field data, 2019 *primary concern **secondary concern *** least concern.

The third highest concerns (M=13.03; SD=3.75) of the teachers was at stage 5 (collaboration). This shows that the teachers have concerns about coordinating and cooperating with other teachers in order to integrate and implement instructional technology activities in the curriculum. This is an indication of teachers' teamwork and collaboration in discoursing and deliberating the adoption and integration of ICT tools, facilities and resources into the Business Studies curriculum in the SHS. The stage 2 (personal) was recorded as the fourth highest concerns (M=12.55; SD=3.41) of the teachers. This explains that the teachers are worried about uncertainties, status, rewards and the effect of instructional technology integration in his/her personal life. They are also concern about their ability to implement and integrate instructional technology into the curriculum. The lowest concerns (M=9.03; SD=3.42) of the teacher was documented at stage 0 (awareness). This suggests that teachers are concerned about implementing instructional technology during instructional discourse. They are also involved in integrating instructional technology into the Business Studies curriculum Table 2.

Figure 1 designates the pictorial representation of the teachers' percentile relative intensity (PRI) of stages of concern about instructional technology, adoption, integration and implementation in the curriculum.

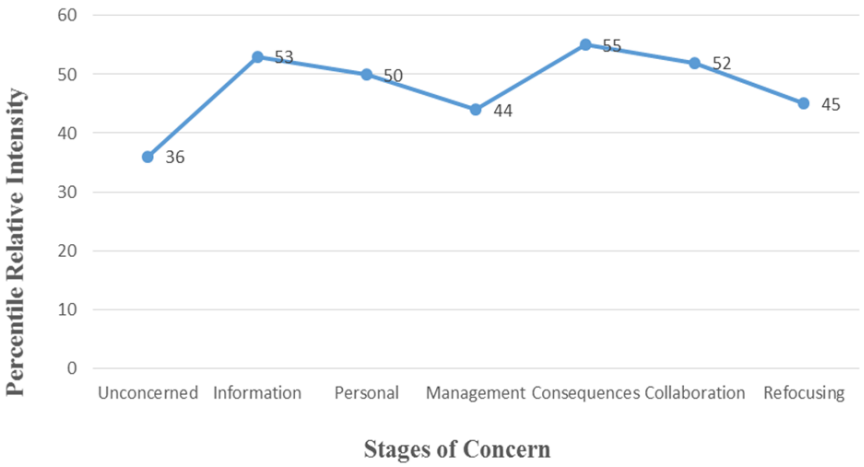

Figure-1. Teachers' levels of stages of concern about instructional technology integration.
Source: Field data, 2019.

The teachers most intense concern towards instructional technology integration and implementation in the curriculum was at Consequence stage (PRI=55) and Informational (PRI=53) respectively with the lowest intense concern at Awareness stage (PRI =36). The first three stages (awareness, informational and personal) were transformed into Self-Concerns; the management stage was categorised as Task Concern and the consequence, collaboration and refocusing stages were also tagged as Impact Concerns.

In effect, a majority (51%) of the teachers had Impact Concern about instructional technology integration and implementation in the curriculum. Thus, most of the teachers highly use and integrate ICT tools, facilities and resources into the curriculum. This was followed by 46% of teachers who also had Self-Concern about instructional technology integration and implementation in the curriculum. This indicates that they lowly use and implement

ICT tools, facilities and resources during teaching and learning. The findings of the current study support the results of previous researchers who found that teachers had more intense concerns at consequences, information, and collaboration stages and lowest concerns at awareness (unconcerned) stages.

Also, the findings of the current study corroborated with the results of Yidana (2007) in Ghana who found that a majority of the lecturers (56%) were at the non-adopter stages of awareness, informational, personal, and management or beginning to use technology for information, personal and management tasks. Kwarteng (2009) in Ghana, also, found that Accounting teachers had their first and second high concerns at awareness and personal stages respectively. Ankomah and Kwarteng (2010) in Ghana found that senior high school Accounting teachers had their primary concerns at the awareness stage. Cobbold and Ani-Boi (2011) in Ghana indicated that primary school teachers had high personal and management concerns, and low informational concerns towards implementing the 2007 educational reform. Kwarteng (2016) found that the senior high school Accounting teachers had both the primary and secondary concerns at the awareness and informational stages respectively. Amankwah *et al.* (2016) in Ghana showed that teachers generally had high consequence and informational concerns and low concern at awareness stage regarding the implementation of ICT curriculum in basic schools. Sarfo *et al.* (2017) in Ghana showed that ICT teachers generally had their first and second high concerns at informational and consequence stages respectively and with low concern at awareness stage regarding the implementation of ICT curriculum in basic schools.

4.2. Association between Business Studies Teachers' Characteristics and Concerns towards Instructional Technology Integration

This research question examined whether teachers' background characteristics (gender, age and years of teaching experience) influence their concern towards instructional technology implementation and integration into Business Studies curriculum. The results were investigated using Chi-Square and presented in Table 3.

Table-3. Teachers' background characteristics and stages of concerns.

Variables	Stages of concern						
	0	**1**	**2**	**3**	**4**	**5**	**6**
Gender of teachers							
Male	36	53	51	44	55	53	44
Female	36	52	49	43	56	51	46
Age group of teachers							
21-30yrs	35	53	50	43	56	50	44
31-40yrs	38	53	52	47	55	53	44
41-50yrs	34	53	45	39	54	55	44
Teaching experience							
1-5yrs	37	52	49	43	54	50	43
6-10yrs	37	51	51	46	55	53	48
11-15yrs	37	59	55	47	54	50	40
16yrs and above	32	53	49	39	63	61	50

Source: Field data, 2018, $p > 0.05$.

As seen from Table 3, it was observed that there was no statistically significant difference in the teachers' stages of concern about instructional technology integration and implementation into Business Studies curriculum at the SHS based on gender. This implies that teachers' concerns about instructional technology integration and implementation is not sensitive to gender. Accordingly, both male and female teachers had the same concerns towards instructional technology integration and implementation into the Business Studies curriculum. This finding was similar to result of researchers who showed that gender did not have any significant effect on teachers'

stages of concerns (Zamani *et al*., 2011; Jennings, 2015; Gudyanga and Jita, 2018). However, the current finding contradicts the results of other researchers who revealed that gender has effect on teachers' concerns (Ani-Boi, 2009; Al-Rawajfih *et al*., 2010; Cobbold and Ani-Boi, 2011; Cetinkaya, 2012; Al-Shabatat, 2014; Amankwah *et al*., 2016; Hao and Lee, 2017; Sarfo *et al*., 2017).

In Table 3, based on age distribution of the teachers, it was found that there was no statistically significant difference in the teachers' stages of concern about instructional technology integration and implementation into Business Studies curriculum at SHS. However, teachers within the age group of 41-50 years showed their highest concerns at the collaboration stage. This implies that teachers' concerns about instructional technology integration and implementation into Business Studies curriculum is not influence by their age distribution. Consequently, the teachers within all the age groups had the same concerns towards instructional technology integration and implementation in the curriculum. These findings agree with the results of previous researchers who found that age did not influence teachers concerns about an innovation like ICT (Al-Sarrani, 2010), however contradicts with the results of other researchers who found otherwise (Thankachan, 2013).

From Table 3, it was evident that there is no statistically significant association between teachers' stages of concern about instructional technology integration and implementation into Business Studies curriculum and the years of teaching experience. This implies that years of teaching experience is not an important factor that would predict teachers' concerns towards instructional technology integration and implementation in the curriculum. Thus, teachers' concerns about instructional technology integration is not sensitive to their years of teaching experience. Accordingly, the teachers, despite their years of service/experience in transacting the Business Studies curriculum had the same concerns towards instructional technology integration into the curriculum. The finding of the current study confirmed the results of previous researchers who indicated that teaching experiences do not influence teachers' stages of concerns towards an innovation like ICT (Chrysostomou and Mousoulides, 2009; Gudyanga and Jita, 2018). However, teachers with teaching experience from 11-15 years showed their highest concern at the informational stage. This finding also confirmed those researchers who found that there was significant difference in the teachers' stages of concern based on their years of teaching experience (Donovan and Green, 2010; Thankachan, 2013; Jennings, 2015).

5. CONCLUSIONS AND RECOMMENDATIONS

The study was conducted to examine and understand Business Studies teachers' concerns about instructional technology integration into the curriculum. A majority of the teachers expressed their most intense and highest concerns at consequence and informational stages respectively. This was followed by awareness stage as the lowest intense concerns of the teachers towards instructional technology integration and implementation in the curriculum. This implies that most of the teachers had impact-oriented questions and few of them also had self-concerns about instructional technology integration and implementation in the curriculum. Thus, most of the teachers are much concerned and interested about the influence of instructional technology integration on students learning. They are also much concern about collaborating and working with other teachers on how to effectively and successfully adopt, integrate and implement instructional technology in the curriculum. Teachers' expression of low concern at awareness stage implies that they had no anxiety, negative perception, attitude, feelings, thoughts and reactions about adopting, integrating and implementing instructional technologies in Business Studies curriculum in the senior high school. They rather had high interest about incorporating and integrating instructional technologies into the curriculum and they want to be highly involved in its implementation. The teachers want more requisite information and knowledge on instructional technology. All these feelings, worries

and questions hinge on the consequence and outcome of adopting, integrating and implementing instructional technologies in Business Studies curriculum in the senior high school. There is no statistically significant association between teachers' background characteristics (gender, age distribution and teaching experience) and their stages of concern towards instructional technology adoption, integration and implementation. Thus, teachers' concerns about instructional technology integration and implementation in the curriculum is not influence or sensitive to their gender, age and years of teaching experience. Hence, these personal characteristics of the teachers are not significant factors to be considered when considering and addressing teachers' stages of concern towards instructional technology adoption, integration and implementation in Business Studies curriculum in the SHS in Ghana. Finally, it is concluded that the teachers are users or adopters of instructional technology in the curriculum.

The study recommended that MoE in collaboration with school administrators, National Association of Graduate Teachers (NAGRAT) and Ghana Association of Business Education Teachers (GABET) should continually organise workshops, seminars and conferences for teachers on the use and strategies for integrating ICT into the curriculum in order to equip the teachers with requisite information, knowledge and relevant skills on ICT. The study recommended that MoE and GES in partnership with GABET should continuously monitor, mentor, and provide support for ICT facilities for effective integration and use in the implementation of Business Studies curriculum. Furthermore, the MoE through these agencies should involve teachers in decisions making about ICT and its implementation, provide clear and accurate information about the ICT using a variety of ways and help teachers see how the ICT relates to their current practices. Also, the MoE in collaboration with school administrators should provide platforms for teachers where they can learn about ICT integration and usage from other teachers in different schools. In addition, teachers who do not have practical skills in ICT usage should seek some training to enable them competently and confidently use them in teaching their respective subjects. This would ultimately enable them to grow professionally for effective implementation of ICT curriculum.

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