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Francis K. Sam
Department of Educational Leadership, College of Technology Education, University of Education, Winneba. P. O. Box KS 1277, Kumasi, Tel: +233 27 7871700.

Daniel Konin
Admissions Office, College of Technology Education, University of Education, Winneba.

Francis Amankwah
Department of Educational Leadership, College of Technology Education, University of Education, Winneba. P. O. Box KS 1277, Kumasi, E-mail: francisamankwah2@gmail.com

&

Daniel Oti Aboagye
Counselling Unit, Sunyani Polytechnic, Ghana

The influence of demographic variables on self-efficacy beliefs of senior high school teachers in Kumasi metropolis

Abstract

The paper explored the influence of age, gender, educational qualification, school type and teaching experience on sense of self-efficacy beliefs among Senior High School (SHS) teachers in Kumasi metropolis of Ghana. Teachers' Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001) was personally administered to collect data from 437 respondents who were randomly selected for the study. From the Spearman correlation analysis, it was revealed that teachers' age, educational qualification and school type significantly correlated with their self-efficacy beliefs. Moreover, regression analysis conducted shown that the 5 demographic variables when taken together had significant effects on the teachers' sense of efficacy; however teachers' educational qualification made the strongest significant contribution to their self-efficacy beliefs. Among other things, it was recommended that longitudinal studies should be conducted to track the changes in teachers' self-efficacy beliefs over time.

Keywords: *Teachers' sense of self-efficacy, Senior high school teachers, Gender, Age, Educational qualification, Teaching experience, School type*

Introduction

In school settings, teachers play an indispensable role in teaching and learning activities. In fact, teachers generally teach the way they are taught and not the way they are told to teach (National Council for Accreditation of Teacher Education, 1997). A self-efficacy belief has become a function of teacher task of teaching and learning. Self-efficacy, which appears to be one of the most important concepts of Bandura's social learning theory, is defined as one's belief in being able to successfully conduct the behaviour necessary to cope with given situations (Bandura, 1977). Bandura (1986) posited self-efficacy as self-evaluation of individuals who organise necessary activities in order to display specific performance and their capacity to conduct these activities successfully. Teachers' sense of self-efficacy therefore becomes a critical factor in driving pedagogical goals and

responsibilities to the students. This is because higher levels of teachers' self-efficacy beliefs among other things correspond to greater achievement of teaching competence. Tweed (2013) identified teachers' sense of self-efficacy as a critical construct as it helps to determine whether instructional actions will be initiated, how much effort will be put into the action, and how long the action will be sustained in the face of challenges and failures. Therefore, once an action is taken, highly self-efficacious people invest more effort and persist longer than those with low self-efficacy. According to Bandura (1977), "people's beliefs in their efficacy affect almost everything they do: how they think, motivate themselves, and behave" (p. 53). Since the introduction of the concept of self-efficacy in social sciences including education, research in different areas has investigated contributions of teacher efficacy perceptions to various instructional variables and has reported contrasting results. A brief discussion of some of these empirical studies follows.

There have been many conflicting previous studies regarding the effect that age, gender, educational qualification and years of teaching experience have on teachers' sense of self-efficacy. Bandura (1995) hypothesised that age does not correlate with efficacy because people vary greatly in how efficaciously they manage their daily lives. Tweed (2013) undertook quantitative study that examined teachers' age, gender, years of teaching experience, quality of professional development and teacher self-efficacy in East Tennessee, USA. Results found that teacher age, gender, years of teaching experience did not play any significant role in the self-efficacy of teachers. Similarly, Hicks (2012) conducted correlational study into the factors that influence classroom management and self-efficacy in USA and reported that there was no statistically relationship between self-efficacy and teacher age. Voris (2011) explored teacher efficacy, job satisfaction and alternative certification in early career special education teachers and investigated the relationship between self-efficacy levels of teachers and other demographic variables like age. The findings suggested that there were no significant differences in the self-efficacy levels of special education teachers when analysed by age. In investigating differential antecedents of self-efficacy beliefs of novice and experienced teachers, Hoy and Tschannen-Moran (2007) found that there was no significant difference in the potential sources of self-efficacy beliefs of teachers with respect to their ages. Jenks (2004) also conducted a comprehensive study on the effects that age, sex and language proficiency have on self-efficacy levels. The study which employed chi-square as its statistical tool reported that age showed no statistically significant relationship with levels of self-efficacy. Ghanizaden and Moafian (2009) analysed the relationship between Iranian EFL teachers' sense of self-efficacy and their pedagogical success in language institutes. The study revealed that the older the teachers, the higher their beliefs regarding self-efficacy.

Karimvand (2011) investigated the effects of years of teaching experience and gender and their interaction effects on Iranian EFL teachers' sense of self-efficacy. Through regression analysis, it was found that teaching experience and gender had no significant interaction effect on the participants' efficacy. In examining the impact of English teachers' self-efficacy beliefs on students' performance at secondary level in North-West of Pakiskan, Butt, Khan and Jehan (2012) reported that female teachers had more sense of efficacy as compared to male teachers on the distribution of teachers' sense of efficacy scale. Similarly, Evans and Tribble (1986) found that females reported higher teacher sense of efficacy beliefs as compared to the male in a study that assessed perceived teaching medium problems, self-efficacy and commitment to teaching among pre-service teachers.

Akkuzu and Akcay (2012) explored the self-efficacy beliefs of prospective chemistry teachers' in terms of differences in variables and reported significant difference between efficacies of prospective chemistry teachers' according to their gender. Similarly, Morgil, Secken and Yucel as cited in Akkuzu and Akcay (2012) conducted a study to find the relationship between chemistry teachers' self-efficacy beliefs and gender. The study showed that male teachers had higher self-efficacy beliefs than the female teachers.

Brian and Kay (2009) investigated the influence of educational qualification and gender on lecturers' self-efficacy and their study revealed significant differences were found for gender and educational

qualifications and lecturers' self-efficacy. Moreover, from univariate test results, males and those holding higher educational qualifications like PhDs and masters reported high self-efficacy beliefs than their counterparts.

Investigating the teachers' self-efficacy and school improvement in both private and public junior high schools in the Takoradi metropolis of Ghana, Abroampa and Wilson (2013) found among other things that there was no relationship between educational qualification and teachers' self-efficacy beliefs. In addition, there was no significant difference in the level of efficacy in both public and private school teachers, however, private school teachers were found to have a slightly higher self-efficacy than their counterparts in the public schools.

From the above empirical review, literature is replete with numerous previous studies on demographic variables affecting self-efficacy beliefs of teachers, however, the findings are inconclusive. Some previous studies have reported self-efficacy that beliefs to be a function of individual teacher characteristics such as gender, age, educational qualification, school type and years of teaching experience (Akkuzu & Akcay, 2012; Brian & Kay, 2009; Butt, Khan & Jehan, 2012; Evans & Tribble, 1986; Ghanizaden & Moafian, 2009). On the other hand, equally good number of empirical studies has found these variables to be a totally independent of teachers' self-efficacy beliefs (Abroampa & Wilson, 2013; Bandura, 1995; Hicks, 2012; Hoy & Tschannen-Moran, 2007; Jenks, 2004; Karimvand, 2011; Tweed, 2013; Voris, 2011). Hence, this present study was propelled by two major reasons. First, the studies investigating the influence of demographic variables (age, gender, qualification, school type and years of teaching experience) on teachers' sense of self-efficacy beliefs are very rare in the Ghanaian setting. This study therefore examined the influence of age, gender, educational qualification, school type and years of teaching experience on teachers' sense of self-efficacy. The selection of these variables was necessitated by previously discussed empirical reviews: age (Bandura, 1995; Ghanizaden & Moafian, 2009; Hicks, 2012; Hoy & Tschannen-Moran, 2007; Tweed, 2013; Voris, 2011), gender (Akkuzu & Akcay, 2012; Brian & Kay, 2009; Butt, Khan & Jehan, 2012; Evans & Tribble, 1986; Jenks, 2004; Karimvand, 2011; Tweed, 2013); educational qualification (Abroampa & Wilson, 2013; Brian & Kay, 2009); years of teaching experience (Karimvand, 2011; Tweed, 2013) and school type (Abroampa & Wilson, 2013). The second reason that necessitated this study was that finding from previous studies about the relationships between age, gender, educational qualification, school type and years of teaching and teachers' self-efficacy beliefs are inconclusive. Therefore, the study sought to ascertain the relationships between age, gender, educational qualification, school type and years of teaching experience and teachers' self-efficacy in Kumasi metropolis. This current study could provide useful information for educational authorities and policy makers on how these variables impact on teachers' self-efficacy beliefs, which subsequently influence student engagement, classroom management and instructional management practices.

The current study was guided by these research questions

1. What is the relationship between age, gender, school type, educational qualification and teaching experience and self-efficacy among SHS teachers in Kumasi metropolis?
2. To what extent will age, gender, qualification, school type and teaching experience predict the sense of self-efficacy among SHS teachers in Kumasi metropolis?
3. Which of the demographic variables (age, gender, qualification, school type and teaching experience) has a significant relative effect on the sense of self-efficacy of the teachers in Kumasi metropolis?
4. Which of the demographic variables can predict the sense of self-efficacy of the SHS teachers in Kumasi metropolis?

Methodology

Participants

The target population for the study consisted of all senior high school teachers in Kumasi metropolis. Stratified random sampling procedure was used to select 437 research participants. This procedure

was employed to ensure that the different categories of teachers (male, female; private and public school teachers with various ages with different years of teaching experiences) who were of interest for the study were adequately represented in the sample. This did not only help in assessing the influence o demographic variables on teachers' self-efficacy beliefs but also enabled the researchers to generalise in terms of population. A simple random sampling was used to select 437 respondents from both public and private senior high schools. Table 1 displays the demographic characteristics of the respondents sampled for the study.

Table 1: Demographic Variables of the Respondents (N=437)

S/N	Variables	Frequency	Percentage (%)
1.	Gender		
	Male	259	59.5
	Female	178	40.5
2.	Age in year		
	20-30	80	18.3
	31-40	185	41.9
	41-50	113	25.9
	51-60	60	14.0
3.	School type		
	Public	257	58.8
	Private	180	41.2
4.	Educational qualification		
	Bachelor's	297	68.0
	Master's	140	32.0
5.	Teaching Experience in year		
	1-5	200	45.8
	6-10	118	27.0
	11-15	47	10.8
	16-20	40	9.2
	21 and above	32	7.3

From Table 1, out of 437 respondents, 259 representing 59.5% were males whereas 178 representing 40.5% were females and the majority of the respondents 265, representing 60.2% were aged between 20 -40 years. The type of school showed that 257 representing 58.8% were selected from the public schools while 180 representing 41.2% were from private schools. In terms of their educational qualification, 297 representing 68.0% were bachelor degree holders whereas 140 representing 32.0% were master's degree holders. Moreover, years of teaching experience of the respondents were also of interest to the researchers. From Table 1, majority of the respondents 318, representing 72.8% have taught between 1-10 years

Measures

The data of the study were collected through the administration of personal information survey adopted by the researchers on teachers' sense self-efficacy scale developed by Tschannen-Moran and Woolfolk Hoy (2001). The survey instrument consisted of the introduction, sections A and B; the introduction briefly explained the purpose of the study and also the respondents were assured that their participation in the study was voluntary and their responses would be treated as confidential and be used for only academic purpose. Section A included five items and it focused on demographic information of teachers: age, gender, educational qualification, school type and teaching experience. Section B had 24 items on Likert scale which measured teacher efficacy beliefs in the areas of student engagement, classroom management and instructional strategies.

Since the instrument was adopted from USA, its validity and reliability has to be re-established. Consequently, the research instrument was pilot-tested on a group of teachers (n=35) at Mampong Municipality of Ashanti Region who were not part of the study. No ambiguous items were found, and reliability for the 24 items yielded Cronbach alpha of .943, indicating a good internal consistency.

According to Fraenkel and Wallen (2000), a reliability coefficient of 0.78 is acceptable. Based on reliability coefficient of 0.943 from the pilot test, the researchers accepted the instrument as reliable and appropriate for the study and continued its administration.

Procedure

Before the administration of research instrument, details of the study were made known to the respondents and they were informed that their responses to the questionnaire items would be anonymous and that they could withdraw from the study at any given time. Afterwards, questionnaires were distributed and later on collected back in their respective schools. Four hundred and fifty questionnaires were distributed and retrieved from the respondents. However, 13 of them were not properly filled; as a result they were not used in the analysis.

Data Analysis

The completed questionnaires were carefully scrutinised to identify any mistakes and all the participants responses inputted into the computer for computer analysis using the SPSS 16.0. For the effects of variables, means and standard deviations (descriptive statistics) were determined. Spearman correlation and multiple regressions (inferential statistics) were also conducted to find out whether or not variables are different from one another.

Results

Research Question One: What is the relationship between age, gender, school type, educational qualification and teaching experience and sense of self-efficacy among SHS teachers in Kumasi metropolis? Spearman correlation analysis was conducted to assess the relationship between SHS teachers' demographic variables (age, gender, school type, educational qualification and teaching experience) and sense of self-efficacy beliefs. Details of the results are presented in Table 2.

Table 2: Correlation Matrix Results of Teachers' Demographics and Sense of Self-Efficacy

		1	2	3	4	5	6
1	Age [a]	1.000					
2	Gender [b]	.177**	1.000				
3	Qualification [c]	.142**	.017	1.000			
4	School type [d]	.219**	-.033	.173**	1.000		
5	Teaching experience [e]	.353**	.169**	.470**	.319**	1.000	
6	Sense of self-efficacy	.223**	.076	.309**	.165**	.082	1.000

** Significant at the 0.01 level (2-tailed)

[a] 1= 20- 30, 2 =31-40, 3= 41-50, 4= 51-60

[b] 1 =Male, 2= Female

[c] 1=Bachelor's, 2= Master's

[d] 1=Private, 2= Public

[e] 1= 0-5 years, 2= 6-10 years, 3= 11-15 years, 4= 16-20 years, 5= 21 years and above

Table 2 shows correlation matrix between teachers' demographic variables and their sense of self-efficacy. As shown in Table 2, sense of self-efficacy of teachers correlated positively with age ($r = .223$, $p < 0.01$); educational qualification ($r = .309$, $p < 0.01$) and school type ($r = .165$, $p < 0.01$). With regard to gender and teaching experience, there were no statistically significant relationships between gender and sense of self-efficacy ($r = .076$, $p > 0.05$) and between years of teaching experience and sense of self-efficacy ($r = .082$, $p > 0.05$).

Research Question Two: To what extent will age, gender, qualification, school type and teaching experience predict the sense of self-efficacy among SHS teachers in Kumasi metropolis? In order to answer this research question, multiple regression analysis was conducted. The summary of the results has been presented in Table 3.

Table 3: Summary of Regression Analysing Showing Joint Effect on the Teachers' Sense of Self-Efficacy

Model	Sum of squares	df	Mean square	F	Sig.	R	R^2	Adjusted R^2
Regression	16844.093	5	3368.819	12.061	.000*	.352	.124	.114
Residual	118981.454	426	279.313					
Total	13583.546	431						

*significant level 0.05

From Table 3, the five demographic variables (age, gender, qualification, school type and teaching experience) when pulled together have significant effects on the teachers' sense of self-efficacy F (5, 426) = 12.061; $p < 0.05$. The joint prediction (R = 0.352) accounted for 12.4% of the total variance on the sense of self-efficacy of the teachers.

Research Question Three: Which of the demographic variables (age, gender, qualification, school type and teaching experience) has a significant relative effect on the sense of self-efficacy of SHS teachers in Kumasi metropolis?

Table 4: Relative Contributions of the Demographic Variables to Prediction

	Unstandarised Coefficients		Standarised Coeffients			
Predictors	B	Std Error	Beta	Rank	t	Sig
(Constant)	82.945	4.524			18.332	.000*
Age	3.133	.848	.211	2	3.694	.000*
Gender	2.304	2.067	.052	4	1.115	.266
Qualification	3.970	.650	.296	1	6.111	.000*
School type	-4.053	1.860	-.113	3	-2.179	.030*
Teaching experience	-.040	.762	-.003	5	-.053	.958

*significant level 0.05

Table 4 shows the extent to which each of the demographic variables made significant contribution to the prediction of sense of self-efficacy among the SHS teachers. From Table 3, educational qualification made the greatest significant contribution ($\beta = .296$; $t = 6.111$; $p < 0.05$) to the prediction, sense of self-efficacy. Other variables made significant contributions in the following order: age ($\beta = .211$; $t = 3.694$; $p < 0.05$) and school type ($\beta = -.113$; $t = -2.179$; $p < 0.05$). Notwithstanding, gender ($\beta = .053$; $t = 1.115$; $p > 0.05$) and teaching experience ($\beta = -.003$; $t = -.053$; $p > 0.05$) made insignificant contributions to the prediction. This implies that teaching experience has the least contribution to the sense of self-efficacy among the SHS teachers.

Research Question Four: Which of the demographic variables can predict the sense of self-efficacy of SHS teachers in Kumasi metropolis?
From Table 4, the variables that could predict teachers' sense of self-efficacy are educational qualification, age and school type.

Discussion
The study employed teachers' sense of efficacy scale as a measure of self-assessment and examined the invariability of its scores in relation to age, gender, educational qualification, school and years of teaching experience of teachers. Results presented in Table 2 shown that teachers' age correlated positively with sense of self-efficacy but the relationship was weak and significant. The implication is that the older teachers, the more likely for them to have higher levels of self-efficacy beliefs than the younger teachers. This finding is at variance with previous empirical studies of Hicks (2012), Hoy and Tschannen-Moran (2007), Tweed (2013) and Voris (2011). For instance, Tweed reported that age did not play any significant role in their self-efficacy beliefs. Similarly, Hoy and Tschannen-Moran found that there was no significant difference in the potential sources of self-efficacy beliefs of teachers with

respect to their age. It is also disagrees with assertion made by Bandura (1995) that age does not correlate with efficacy because people vary greatly in low efficaciously they manage their daily lives. However, the finding is consistent with previous finding of Ghanizaden and Moafian (2009). Ghanizaden and Moafian examined the relationship between EFL teachers' sense of self-efficacy and their pedagogical success in language institutes and reported that the older the teachers, the higher their beliefs regarding self-efficacy.

Moreover, teachers' educational qualification was found to be correlated with self-efficacy beliefs and the correlation was positive, mild and significant. This suggests that the higher the teachers' educational qualification, the more likely for them to possess higher self-efficacy beliefs than those teachers with lower educational qualification. This result agrees with previous finding of Brian and Kay (2009) who reported that teachers with higher educational qualifications indicated higher level of self-efficacy beliefs than those teachers with lower educational qualification. On the other hand, the current result is not consistent with finding of Abroampa and Wilson (2013) who observed that there was no relationship between teachers' qualification and level of self-efficacy.

School type also correlated positively with teachers' sense of self-efficacy beliefs. However, the relationship was found to be weak and significant. This finding indicates that those teachers who teach at public schools are more likely to have higher level of self-efficacy beliefs than their counterparts at the private schools. This finding is not in support of previous result of Abroampa and Wilson (2013) who found that private school teachers at Takoradi metropolis of Ghana reported a slightly higher self-efficacy than their counterparts in the public schools.

Notwithstanding these findings, gender and years of teaching experience of teachers were found not to have any effect on self-efficacy beliefs significantly. This finding is in consonance with previous empirical study of Karimvand (2011). For instance, Karimvand examined the effects of years of teaching experience and gender and their interaction effects on Iranian EFL teachers' sense of self-efficacy. The study found that teaching experience and gender had no significant effect on the teachers' efficacy. Similarly, it supports previous study of Tweed (2013) who in a study observed that gender and teaching experience did not play any significant role in the self-efficacy of teachers. On contrary, it contradicts the finding of Akkuzu and Akcay (2012) who reported significant difference between efficacies of prospective chemistry teachers according to their gender. However, it is at variance with previous findings of Evans and Tribble (1986) and Butt et al. (2012). Butt et al. found that female English teachers had more sense of efficacy as compared to male teachers in a study conducted to find out the impact of English teachers' self-efficacy beliefs on students' performance at secondary level in North-West of Pakistan.

From Table 3, the joint effect of the demographic variables (age, gender, educational qualification, school type and years of teaching experience) on the self-efficacy beliefs was significant. This means that self-efficacy beliefs of teachers vary as their age, gender, educational qualification, school type and teaching experience vary. In relative terms, educational qualification made the most significant contribution to the teachers' self-efficacy beliefs and then followed by age and school type. However, gender and teaching experience had least insignificant contributions to the self-efficacy beliefs of teachers. Consequently, educational qualification, age and school type were best predictors of teachers' self-efficacy beliefs

Conclusion

The present study found that when considering SHS teachers sense of self-efficacy beliefs, gender and years of teaching experience were not significant factors. Rather age, educational qualification and school type were the significant factors. This implies that age, educational qualification and school type are function of self-efficacy beliefs of teachers.

Recommendations

The following recommendations are made in line with findings and conclusion drawn from the study.

1. Ghana Education Service should regularly organise specific task-related training programmes for teachers in order to enhance their self-efficacy beliefs on student engagement, classroom management and instructional strategies.
2. In planning and developing these training programmes, teachers' age, educational qualification and school type should be taken into account as these variables have effect on their self-efficacy beliefs.
3. The current study employed cross sectional survey which assessed the influence of some demographic variables on teachers' sense of self-efficacy beliefs at a given time. Since self-efficacy beliefs of teachers change over time, further studies should include longitudinal study to track the changes in teachers' self-efficacy beliefs over time.
4. Further studies should be conducted to address the relationships between teachers' self-efficacy and other variables such as teachers' professional training and subject taught

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