Teaching efficacy beliefs of Ghanaian basic school teachers and their subject specializations

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Abstract

This study explores personal teaching efficacy beliefs of basic school teachers in Ghana undergoing recertification to upgrade their qualification. The study examines whether the personal teaching efficacy of the teachers is affected by their subject specialisation. A descriptive survey design was employed for the study. Data for the study was obtained from a total of 185 in-service teachers selected randomly from a group of teachers who were undergoing recertification from diploma to bachelor's degree in basic education in a teacher education university in Ghana. Teacher Sense of Efficacy Scale (TSES) was adapted and used to measure in-service teachers' personal teaching efficacy beliefs. The findings of the study showed that in-service teachers have a high sense of personal teaching efficacy. The study also revealed that in-service teachers' level of self-efficacy was not affected by their subject specialization.

Keywords: Self-efficacy, personal teaching efficacy, pre-service teachers, recertification

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Introduction

The importance of teacher education cannot be overestimated. Teacher education plays a crucial role in empowering people to adapt to the rapidly changing social, economic and cultural environment and in the development of human capital required for the economic and social growth of societies (Anamuah-Mensah, 2006). Research shows that if teachers acquire the professional competence and attitudes that enable them to effectively perform their multiple tasks in the classroom, school, and the community, they become the single most important contributing factor in ensuring the provision of quality education (Dave & Rajput, 2000). It has been observed that teacher preparation and teacher's knowledge of teaching and learning, subject matter knowledge, experience, and the combined set of qualifications measured by teacher licensure are all leading factors in teacher effectiveness (Darling- Hammond, 2006). Teacher preparation is expected to help students-teachers develop the knowledge and skill they need in the classroom and well-prepared teachers are more likely to remain in teaching. Goldhaber (2006) identified two components to be critically important in teacher preparation: teacher knowledge of the subject to be taught, and knowledge and skill in how to teach that subject.

It is expected that adequately prepared teachers would have the capacity to shape students' learning with academic activities (Wang, Haertel, & Walberg, 1993). In view of this, Kurt, Ekici & Gungor (2014) assert that it is obligatory for student teachers to be trained in terms of high self-efficacy and responsibility perception. A good teacher possesses the following qualities; planning, applying and evaluating the instructional process. To be successful teachers, student teachers should not only have good knowledge about pedagogy and know how to teach but must also be self- confident in their ability to deliver the content to students (Lin & Tsai, 1999).

Bandura (1977) first proposed the concept of self-efficacy. Tschannen-Moran, Woolfolk Hoy and Hoy (1998) applied this concept to teachers and defined teacher efficacy as, "the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (p. 233). Wheatley (2002) linked teacher efficacy more directly to a teacher's belief in his or her ability to influence student outcomes. Skaalvik (2007, p. 612) defines teacher's self-efficacy as "individual teachers' beliefs in their own abilities to plan, organize, and carry out activities

required to attain given educational goals". Studies show that teacher's self-efficacy is related to teachers' attitudes and beliefs regarding teaching (Gencer & Cakiroglu, 2007; Tschannen-Moran & Woolfolk-Hoy, 2001). Moreover, teacher self-efficacy beliefs define the teacher's behaviours regarding teaching and affect the attitudes and achievements of the students (Huang, Liu & Shiomi, 2007). Thus, teacher-efficacy relates to a context-specific assessment of one's ability to instruct students in a particular curriculum area or in a particular manner. Teacher efficacy is a "future-oriented, task-specific judgement" (Woolfolk Hoy, Hoy, & Davis, 2009: 628) which has been linked to a variety of teaching behaviours and student outcomes such as achievement (Ashton & Webb, 1986; Gibson & Dembo, 1984; Ross, 1992) and motivation (Midgley, Feldlaufer, & Eccles, 1989; Woolfolk, Rosoff, & Hoy, 1990). Teachers' efficacy judgments have also been associated with persistence at a task and exhibiting a greater academic focus (Gibson & Dembo, 1984), teachers' enjoyment of teaching (Watters & Ginns, 1995), and greater degrees of risk- taking (Ashton & Webb, 1986). Further, research on the efficacy of teachers suggests that teachers with a high sense of efficacy are more willing to implement instructional innovations and competent teaching methods (Czerniak & Lumpe, 1996; Stein & Wang, 1988).

Pajares (1996) indicates that teachers' personal self-efficacy beliefs affect their teaching activities and their approach towards teaching process and that teacher self- efficacy belief is related to the control of students' beliefs in pre-service teachers. Chong et al., (2010) state that content mastery makes teachers more confident and as a result, they perceive their self-efficacy higher. There are two major dimensions of teachers' perceived efficacy: Personal Teaching Efficacy (PTE) and General Teaching Efficacy (GTE) (Soodak & Podell, 1997; Tschannen-Moran &Wookfolk Hoy, 2001). Personal teaching efficacy refers to teachers' beliefs about their own ability to make a difference in their students' learning, whereas general teaching efficacy comprises teachers' beliefs about the power of factors outside of the school and teacher's control to affect student performance. The present study examined the personal teaching efficacy of pre-service teachers in Ghana.

Bekoe, Kankam, Ayaaba, Eshun and Bodorh (2015) observed that knowing the perceptions and beliefs of teachers enables one to make predictions about their teaching and assessment practices in classrooms. Teachers' beliefs about their own abilities, confidence and competence, acknowledged as teacher efficacy may be the cause of many important

instructional decisions which ultimately shape students' educational experiences (Soodak & Podell, 1997). Hattie (2009) has also demonstrated the significance of the teacher in students' learning. Every educational system has at its core the desire for all students to achieve their potential and to become well-rounded, socially competent citizens of society. If such ambitions are to be realized there is a need for research to consider more closely teacher variables that potentially influence student learning. In the classroom situation, "it is the differences in the teachers that make the difference in student learning" (Hattie, 2009, p.236). We know much about the instructional practices that enhance student learning, but the core of teaching relates not just to the instructional environment of the classroom but also to the socio-emotional climate that teachers create (Babad, 2009). High-quality teaching is not only based on what teachers know but also what teachers do (Bakar, Mohammed & Zakaria, 2012) and the confidence with which they deliver what they know in the classroom. It has been observed that quality teachers are those who are able to deliver lessons with great confidence, resulting in positive learning.

Teachers should have confidence in delivering the knowledge and skills to students in order to bring about more positive learning outcomes. Teachers play a vital role in determining the success of students' learning, thus, understanding teachers' perceptions and beliefs about themselves and their abilities is important (Jia, Eslami & Burlbaw, 2006). Teachers' confidence in their ability to perform the actions leading to students' learning is one of the important characteristics that predict teaching and learning outcomes (Poulou, 2007). English language, mathematics and science are three fundamental subjects that each student has to pass at the pre-tertiary level in Ghana. Pre-service teachers need adequate training to be well equipped in order to teach these subjects at the lower level. It is widely believed that the more a teacher knows about his subject matter, the more effective he will be as a teacher. The empirical literature suggests that this belief needs drastic modification and in fact suggests that once a teacher reaches a certain level of understanding of the subject matter, then further understanding contributes nothing to student achievement (Begle, 1979).

The final component of teaching proficiency is a productive disposition about one's own knowledge, practice, and learning. Just as learners must develop a productive disposition toward English language, mathematics and science such that they believe that English language, mathematics and science make sense and that they can figure it out, so too must the

teachers develop a similar productive disposition. Programs of teacher education and professional development based on research integrate the study of these three subjects and the study of students' learning so that teachers will forge connections between the two.

It is, therefore, important that teachers graduate from teacher training institutions with a high level of confidence and enter the teaching profession with full confidence because the first years of teaching are crucial in shaping their future performance (Feiman-Nemser 2001). Exploring teacher self-efficacy among pre-service teachers is important, particularly where pre-service teachers undergo an 'apprenticeship of learning' (Pendagast, Garvis & Keogh, 2011). Most of the studies that examine in-service teachers' efficacy beliefs have been conducted in Western cultural contexts (Bakar et al. 2012; Poulou, 2007). Though a few studies have surveyed Ghanaian preservice teachers' self-efficacy beliefs, the focus has been on early childhood preservice teachers' self-efficacy (Abroampa, Rotimi & Asante, 2017) and the self-efficacy beliefs of preservice teachers in colleges of education (Bekoe, Kankam, Ayaaba, Eshun & Bodorh, 2015). The present study sought to explore the personal teaching efficacy of basic school teachers undergoing recertification for an upgrade in their qualification and the differences in their efficacy beliefs and subject specialisation. It is important to find out if in-service teachers have been adequately prepared for the teaching task in terms of the level of their confidence in their ability to execute tasks associated with teaching to promote students' learning. In this paper, we explored the following questions: (1) How confident are pre-service teachers in their ability to execute the practices of teaching? (2) How do pre-service teachers' efficacy beliefs differ as a function of subject specialisation?

Hypotheses

1. There is no significant difference between teachers' subject specialization in their instructional practices.

2. There is no significant difference between in-service teachers' subject specialization in their classroom management practices

3. There is no significant difference between in-service teachers' subject specialisation in their student engagement practices.

Methodology

A descriptive survey research design was employed for this study. Descriptive survey research design was deemed appropriate for this study in three ways. First, it enabled the researchers to obtain information from large samples of the population. Second, it was well suited for gathering demographic data that describe the composition of the sample (McIntyre, 1999). Finally, it required minimal investment to develop and administer, and is relatively easy for making generalisations (Bell, 1996).

Data for this study was obtained from a total of 185 in-service teachers randomly selected from a group of teachers who had enrolled in a two-year post diploma in Basic Education programme in one of the teacher education universities in Ghana. There was a total of 53 male teachers and 132 female teachers. The respondents per type of school were: private school, 9 and public school, 176. The questionnaire was made up of two parts. Part one sought to gather respondents' background information such as age, gender, educational background, years of experience and subject specialisation. However, part two consisted of a measure of teachers' sense of efficacy based on instructional strategy, students' engagement and classroom management. All the participants had already obtained a diploma in Basic Education and were teaching in basic schools within the Ashanti Region of Ghana. All the respondents were undergoing re-certification from diploma to a bachelor's degree.

Measure of Teacher Efficacy

In this research, Teacher Sense of Efficacy Scale (TSES) was used to measure pre-service teachers' teacher efficacy beliefs. This scale was developed by Tschannen-Moran and Woolfolk-Hoy (2001) and has been adopted by many researchers to assess teacher's sense of efficacy (Cobbold & Boateng, 2015; Bekoe, et al. 2015; Bakar, et. al, 2012). The TSES consists of 24 items with three subscales: efficacy for student engagement (SE), instructional strategies (IS) and classroom management (CM). The original TSES uses a nine-point-Likert scale with an overall reliability of 0.94. However, the present study, like others (e.g. Bakar et al. 2012; Poulou, 2007; Atay,2007), used a five-point Likert scale of TSES. The original TSES scale asks the respondents ''How much'' but the present study like Bakar et al. (2012) asked respondents ''How confident'' since teacher efficacy is a measure of the confidence one has to perform the tasks given to him or her. For example, we asked the respondents ''how confident are you to: get through to the most difficult students", ''use a variety of assessment strategies" and ''control disruptive behaviour in the classroom".

All the three subscales consist of eight items and each item is assessed along on a five-point Likert scale between 1 (not at all confident and 5 (very confident). The instrument was piloted to ascertain its reliability. The overall reliability coefficient was .82. For the subscale ''efficacy in student engagement'', reliability was .79; for ''efficacy in instructional practices'', it was .82; and for ''efficacy in classroom management'', the reliability was .86.

Findings

The teachers were asked how many years of experience they had in the classroom and also their subject of specialization (Tables 1 and 2).

Table 1: Years of teaching experience

No of years	Frequency	Percentage
0-5	101	54.6
6-10	46	24.9
11-15	21	11.3
16-20	8	4.3
Above 21 years	9	4.9
Total	185	100

Table 2: Subject of specialization

Subject	Frequency	Percentage
Social Studies	68	36.8
Science	30	16.2
Mathematics	55	29.7
Home Economics	32	17.3
Total	185	100

The mean and standard deviation values of respondents' views on how confident they are to undertake the following activities in the classroom namely; student engagement, instructional strategies and classroom management are provided in Table three.

Table 3: Means and standard deviations of in-service teachers' self-efficacy

	Mean	SD
Student Engagement	**4.04**	**1.00**
Get through to the most difficult students	4.07	1.00
Help students think critically	3.94	1.06
Motivate students who show low interest in school work	3.98	1.12
Get students to believe they can do well in school work	4.19	0.97
Help your students value learning	4.23	0.98
Foster student creativity	4.07	0.98
Understanding of a student who is failing	4.03	0.90
Assist families in helping their children do well in school	3.82	1.01
Instructional Strategy	**3.97**	**1.06**
Respond to difficult questions from your students	4.00	1.03
Gauge student comprehension of what you have taught	4.01	1.06
Craft good question for your students	4.15	1.16
Adjust your lessons to the proper level for individual student	3.84	1.19
Use a variety of assessment strategies	3.96	1.05
Provide an alternative explanation or an example when students are confused	4.05	1.04
Implement alternative strategies in your classroom	3.97	0.96
Provide appropriate challenges for very capable students	3.82	0.99
Classroom Management	**4.09**	**0.97**
Control disruptive behaviour in the classroom	4.23	0.93
Make your expectations clear about student behaviour	4.00	0.96
Establish routines to keep activities running smoothly	4.06	1.03
Children to follow classroom rules	4.28	0.94
Establish a classroom management system with each group of students	4.00	0.95
Calm a student who is disruptive and noisy	4.15	0.97
Keep few problem students from ruining an entire lesson	4.04	0.95
Respond to defiant student	3.92	1.03

The present study explores the personal teaching efficacy beliefs of basic school teachers who were undergoing recertification to upgrade their qualification in Ghana and the findings are summarized in Table 3. The major finding from Table 3 is that respondents are largely very confident on every scale with a mean value around 4 (on a 1-5 scale). Table 3 shows the mean and standard deviations values for student engagement (M=4.04, SD=1.0), instructional strategy (M=3.98, SD= 1.06) and classroom management (4.09, 0.97). Generally, a mean value of 4 was recorded for the three scales. This shows that the respondents largely believe themselves to be efficacious. From Table 3 it can be observed that the statement "How confident are you to help your students value learning"

from the student engagement scale recorded the highest mean value of 4.23.

For instructional management, in-service teachers reported a high sense of efficacy for crafting good question for their students (M=4.15, SD=1.16). However, "providing appropriate challenge for very capable students" and "Adjust your lessons to the proper level for individual student" recorded the least mean value for that scale. This indicates that respondents need help in these two areas since they relate. Most teacher either do not provide instruction to meet the unique needs of individual students or find it very difficult to do it. These two areas require skills training. It requires a lot attention going forward in training our teachers.

Table 4: Mean and standard deviation of total sub-scale scores by respondents' subject specialisation

Specialisation		Instructional Strategies	Students Engagement	Classroom Management
Social Studies	Mean	30.79	32.12	32.15
	N	68	68	68
	SD	6.68	5.65	5.66
Science	Mean	30.30	32.30	32.65
	N	23	23	23
	SD	5.20	4.47	4.23
Mathematics	Mean	31.87	32.25	32.64
	N	55	55	55
	SD	5.53	5.76	4.84
Home Economics	Mean	30.72	31.19	30.94
	N	32	32	32
	SD	6.16	4.71	5.67

The descriptive statistics for the sub-categories based on subject specialisations are provided in Table 4. It is worth noting that the mean values based on the three sub-categories (Instructional strategies, Students engagement and Classroom management)

and the subject groupings ranges from 30 to 32.

A one-way between-groups analysis of variance was conducted to explore the teachers' Efficacy in instructional strategies, Efficacy in Student Engagement, and Efficacy in Classroom Management.

Table 5: One-way ANOVA results of respondents' instructional efficacy and specialization

Instructional Strategies	Sum of Squares	df	Mean Square	F	Sig
Between Groups	57.98	3	19.327		
				.525	.666
Within Groups	6406.565	174	36.819		
Total	**6464.545**	**177**			

As shown in Table 5, the One – Way ANOVA result of F (3,174) = .526, p = .666 indicates that there are no significant differences between the means of the subject specialization of the respondents. The p-value .666 is greater than alpha .05. This means that pre-service teachers' subject area specialization had no effect on their instructional efficacy.

Table 6: One-way ANOVA of respondents' student engagement efficacy and specialization

Student Engagement	Sum of Squares	df	Mean Square	F	Sig
Between Groups	27.71	3	9.237		
				.318	.813
Within Groups	5059.24	174	29.076		
Total	**5086.95**	**177**			

As shown in Table 6, the One – Way ANOVA result of F (3,174) = .796, p = .498 indicates that there are no significant differences between the means of the subject specialization of teachers. The p-value .498 is greater than alpha .05; therefore, we fail to reject the null hypothesis. It cannot be concluded that there is a statistically significant difference in the

subject specialization of teachers and efficacy for student engagement.

Table 7: One-way ANOVA results of respondents' classroom management efficacy and specialization

Classroom management	Sum of Squares	df	Mean Square	F	Sig
Between Groups	65.853	3	21.951		
				.796	.498
Within Groups	4798.349	174	27.577		
Total	**4864.202**	**177**			

As shown in Table 7, the One–Way ANOVA result of F (3,174) = .796, p = .498 indicates that there is no significant difference between the means of the four groups. The p-value .498 is greater than alpha .05, therefore, we fail to reject the null hypothesis. It cannot be concluded that there is a statistically significant difference in subject specialization of teachers and their efficacy for classroom management.

Discussion

The study explored the teaching efficacy beliefs of some selected Ghanaian basic school teachers with emphasis on their subject specialization. The respondents reported a high sense of personal teaching efficacy. This implies that they have high confidence in their ability to execute courses of action required to improve students' learning, maintain classroom order and engage students in the learning process as they graduate from teacher institutions and enter into the teaching profession. The findings of our study are consistent with Bakar, Mohammed and Zakaria's (2012) study on Turkish and Malaysian pre-service teachers respectively. The findings of the present study are also consistent with the findings of a related study by Abroampa, Rotimi and Asante (2017). They found that early childhood pre-service teachers in Ghanaian teacher education universities have high self-efficacy. Our TSES score is also relatively lower than the average mean score of 4.47 recorded in a study conducted by

Cobbold and Boateng (2016) to explore in-service kindergarten teachers' self-efficacy in the Kumasi metropolis of Ghana. The slight difference in the efficacy beliefs of both in-service and pre-service teachers in Ghana is understandable since experience plays an important role in the development of teaching efficacy (Tschannen-Moran & Hoy, 2007). It is also logical that the efficacy of preservice teachers is merely an indicator of how confident they are to face the real challenges of teaching (Bakar, Mohammed and Zakaria (2012). Mastery of teaching task, teaching practice, hard work and perseverance (Steele, 2010), parental involvement in school activities (Hoover-Dempsey, Brassler & Brissie, 1987) and induction (Keilwitz, 2014) can help preservice teachers experience success in teaching and subsequently improve upon their teaching efficacy.

Another purpose of the study was to determine whether in-service teachers' sense of efficacy differed across subject specializations. The study revealed no statistically significant difference between subject specializations of in-service teachers and their sense of efficacy in terms of instructional practices, classroom management and student's engagement. This suggests that pre-service teachers have similar levels of self-efficacy irrespective of their subject specializations to perform a task associated with teaching. This agrees well with Evans's study (2010) which examined the relationships between mathematical content knowledge and perceptions of teaching efficacy in a cohort of Teach for America teachers. Evans (2010) found that mathematics related majors, business majors and liberal arts majors had similar levels of self-efficacy.

However, the findings of the present study seem to partly contradict the findings of the previous study conducted by Bakar, Mohammed and Zakaria (2012). In a study to determine student teachers' sense of efficacy, Bakar, et al. (2012) found that preservice teachers' sense of efficacy differed across content majors in Malaysia. Their study further showed that student teachers who majored in languages were more efficacious than students of others majors (vocational, science, mathematics and physical education. However, their study found no significant difference in teachers' sense of efficacy among student teachers who majored in vocational, science, mathematics and physical education. Our findings appear to agree partly with that of Bakar, Mohammed and Zakaria's (2012) findings that students who specialized in teaching social studies, science, home economics and mathematics did not differ in the sense of efficacy beliefs. This finding is not surprising since the participants in both studies share

similar characteristics: all participants were undergoing recertification, that is, from diploma to post-diploma. This assertion corroborates the idea that taking additional teacher education courses do not contribute significantly to increasing preservice teachers' self-efficacy beliefs (Gencer and Çakiroğlu, 2007).

Conclusion and implication for research and practice

In-service teachers who participated in the study have a high sense of personal teaching efficacy. This implies that they have high confidence in their ability to execute courses of action required to improve students' learning. Also, the respondents believe that they have the capability to maintain classroom order and engage students in the learning process as they graduate from teacher institutions and enter into the teaching profession.

However, respondents' abilities in the area of instructional strategies especially, providing appropriate challenges for very capable students and adjusting lessons to the proper level of individual students needs a lot of training. The respondents found it challenging in meeting students' needs in these two areas. Teacher training in the future should look at these two areas very well. It also requires that special education curriculum at the pre-service level should be revised to meet current classroom demands. The present study looked at in-service teachers' efficacy beliefs and the findings showed that in-service teachers largely believe themselves to be efficacious. Further studies are required to look into the personal efficacy level of beginning teachers in Ghana to ascertain whether it will increase or decrease after teacher preparation programmes.

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