

The Impact of Tutor Quality, Leadership Practices and Infrastructure on the Academic Work of Teacher-Trainees in Selected Colleges of Education in the Ashanti Region of Ghana

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Abstract

The study aimed at investigating the extent to which Tutor quality, Leadership practices, Infrastructure, impact on academic work of Teacher-trainees. A survey research design was used for the study because it involved a study of relatively large population who were purposively and randomly selected. A sample size of 322 out of the population of 1850 from Offinso, Akrokerri and Wesley Colleges of Education comprising 226 males and 114 females were used for the study. A questionnaire and an interview guide were used to collect data for the study. The data collected were analyzed using Means, Standard deviations and Analysis of Variance (ANOVA). The study established that effective leadership roles and practices of Principals and Tutors quality had impact on the academic work of Teacher-trainees. By implication, good leadership practices had a positive relationship with students' academic work. The results of the ANOVA tests indicated that there was no significant difference in the means of the responses on College Tutor provided by the respondents. The implication is that Tutor quality turn to affect classroom teaching and learning. The respondents from Offinso College had the lowest mean of 2.41on infrastructure, implying that their College infrastructure was the least developed. However, the respondents of Akrokerri had an overall mean of 3.55 which implied that their College infrastructure was moderately developed. The study also revealed that, the higher the academic qualification of College Tutors in their respective area of study, the more likely they are to impact positively on the academic work of Teacher-trainees.

Keywords: Leadership, Academic performance, Infrastructure

Academic Performance

Student success is linked with a plethora of desired student and personal development outcomes that confer benefits on individuals and society. These include becoming proficient in writing, speaking, critical thinking, scientific literacy, and quantitative skills and more highly developed levels of personal functioning represented by self-awareness, confidence, self-worth, social competence, and sense of purpose. Although cognitive development and direct measures of student learning outcomes are of great value, relatively few studies provide conclusive evidence about the performance of large numbers of students at individual institutions (Association of American Colleges and Universities (AACU), 2005; National Center for Public Policy and Higher Education, 2004; Pascarella and Terenzini, 2005).

Creating the conditions that foster student success in college has never been more important. As many as four-fifths of high school graduates need some form of postsecondary education (McCabe, 2000) to prepare them to live a economically self-sufficient life and to deal with the increasingly complex social, political, and cultural issues they will face . Earning a baccalaureate degree is the most important rung in the economic ladder (Bowen, 1978; Bowen and Bok 1998; Boyer and Hechinger, 1981; Nuñez 1998; Nuñez and Cuccaro-Alamin, 1998; Pascarella and Terenzini, 2005; Trow 2001), as college graduates on average earn almost a million dollars more over the course of their working lives than those with only a high school diploma (Pennington, 2004). Yet, if current trends continue in the production of bachelor's degrees, a 14

million shortfall of college-educated working adults is predicted by the year 2020 (Carnevale and Desrochers, 2003).

The good news is that interest in attending college is near universal. As early as 1992, 97 percent of high school completers reported that they planned to continue their education, and 71 percent aspired to earn a bachelor's degree (Choy, 1999). Two-thirds of those high school completers actually enrolled in some postsecondary education immediately after high school. Choy noted that two years later, three-quarters were still enrolled. Also, the pool of students is wider, deeper, and more diverse than ever. Women now outnumber men by an increasing margin, and more students from historically underrepresented groups are attending college. On some campuses, such as California State University Los Angeles, the City University of New York Lehman College, New Mexico State University, University of Texas at El Paso, and University of the Incarnate Word, students of color who were once "minority" students are now the majority; at Occidental College and San Diego State University, students of color students now number close to half of the student body.

Another issue is that the quality of high school preparation is not keeping pace with the interest in attending college. In 2000, for example, 48 percent and 35 percent of high school seniors scored at the basic and below basic levels, respectively, on the National Assessment of Educational Progress. Only five states—California, Indiana, Nebraska, New York, and Wyoming—have fully aligned high school academic standards with the demands of colleges and employers (Achieve, 2006). Just over half (51 percent) of high school graduates have the reading skills they need to succeed in college (American College Testing Program (ACT), 2006). This latter fact is most troubling, as 70 percent of students who took at least one remedial reading course in college do not obtain a degree or certificate within 8 years of enrollment (Adelman, 2004).

There are a number of factors that affect performance in school; one of the most influential is motivation. Motivation, also referred to as academic engagement, refers to "cognitive, emotional, and behavioral indicators of student investment in and attachment to education" (Tucker, Zayco, & Herman, 2002, p. 477). It is obvious that students who are not motivated to succeed will not work hard. In fact, several researchers have suggested that only motivation directly effects academic achievement; all other factors affect achievement only through their effect on motivation (Tucker et al., 2002). However, it is not as easy to understand what motivates students. Numerous studies have been conducted on this topic, which has led to the development of several theories of motivation.

One widely accepted theory is Goal Theory. It postulates that there are two main types of motivation for achieving in school. Students with an ability or performance goal orientation are concerned with proving their competence by getting good grades or performing well compared to other students (Anderman&Midgley, 1997; Maehr&Midgley, 1991). On the other hand, students with a task goal orientation are motivated by a desire to increase their knowledge on a subject or by enjoyment from learning the material. Studies have shown that students with a task goal orientation are more likely to engage in challenging tasks, seek help as needed, and adopt useful cognitive strategies, and, possibly most importantly, tend to be happier both with school and with themselves as learners (Ames, 1992; Anderman&Midgley, 1997).

Subsequent research has suggested, however, that despite its potential implications for middle school policy and curriculum design, a dichotomous perspective of either "task-based" or "performance-based" goals may be too simplistic of a model of adolescent motivation (Dowson &McInerney, 2001). In addition, research has also suggested that task and performance goals are not mutually exclusive. While many experimental studies forced research participants to select one goal orientation or the other, correlational research has found that individuals' endorsement of a task goal orientation is often weakly correlated or uncorrelated with endorsement of a performance goal orientation (Kaplan &Maehr, 2002).

Researchers have also identified a number of other student goals. A third academic goal orientation is work avoidance, where students try to minimize the amount of effort they put into tasks (Dowson &McInerney, 2001). Students also have social goals that influence their motivation alongside academic goals. Urdan and Maehr (1995) describe four types of social goals: social approval, social compliance, social solidarity, and social concern. Research involving qualitative methods has suggested that social goal orientations are associated with academic achievement (Kaplan &Maehr, 2002). Unfortunately, most research has focused on only the previous two orientations.

Leadership

Leadership occurs whenever one person attempts to influence the behaviour of an individual or group, regardless of the reason. It may be for one's own goals or for the goals of others and these goals may or may not be congruent with organizational goals. Leading or influencing requires three general skills, or competencies; diagnosing - understanding the situation you are trying to influence; adapting - altering your behaviour and the other, resources available to meet the contingencies of the situation; and communicating - interacting with others in a way that people can easily understand and accept (Hersey, Blanchard, Dewey&Adjei, 2001:2017).

Through the decades of the twentieth century, the role of school leaders in the United States greatly evolved and could generally be characterized as highly transformative. Metaphorically, the dominant role of school Principals in the 1930s was one of a scientific manager. In the 1940s the Principal was expected to fulfill primarily the role of a democratic leader. In the 1970s the Principal was viewed as a humanistic facilitator, and in the 1980s school Principals were expected to serve primarily as instructional leaders (Beck & Murphy, 1993). Even though instructional leadership received great popularity and pervaded leadership literature during the 1980s, this notion was introduced a few decades prior to this period. Mackenzie and Corey in 1954 were among the early writers who referred to the school Principal as an instructional leader of a school (Greenfield, 1987). De Bevoise (1984, p.15) used the term to designate "the actions that school principal takes, or delegates to others, to promote growth in student learning".

A number of researchers have developed theoretical frameworks of instructional leadership roles of school Principals, contributing to the clearer conceptualizations of the term. The works of Bossert, Dwyer, Rowan, and Lee (1982) may be considered pioneering efforts directed toward a deeper understanding of instructional leadership roles of a school Principal. These researchers emphasized that a school Principal, through his or her activities, roles, and behaviours in managing school structures does not affect student achievement directly, in the ways the teachers do. However, classroom teaching may be impacted by Principals' actions, such as setting and clearly communicating high expectations for all students, supervising teachers' instructional performance, evaluating student progress, and promoting a positive teaching/learning environment.

The past century has taught us several ways of viewing educational organizations. One prominent model is the traditional approach, which views organizations as a hierarchical system in which power and intelligence are originated at the top and passed down through commands and control to the lower levels of the system before being put into practice. According to Chrispeels, Burke, Johnson and Daly (2008), gains in student learning have been made, but a top-down approach in leadership could inhibit organizational learning by preventing flexibility or teacher discretion in meeting the needs of diverse learners. Another perception of organizational leadership, which is also the newer perspective, is to think about organizations as cooperative, collegial and collaborative in which the belief is, good ideas exist at every level of the organization. These ideas can be manifested when the leaders of those in command act in ways to motivate subordinates to release their capabilities (Owens & Valesky, 2007).

For the past two decades, legislators and the public have provided external pressures to encourage schools to develop and change places of education. Leadership and school restructuring have been in the forefront of school reform in the effort to focus on school improvement and student achievement (Goker, 2006). It suggests that in studying school improvement and student achievement, individuals should understand leadership and administration. This means, working with and through other individuals to achieve organizational goals. When working towards achieving organizational goals, school leadership has to take into account organizational behaviour. Organizational behaviour according to Owens and Valesky (2007) is defined as "a field of social-scientific study and application to administrative practice that seeks to understand and use knowledge of human behaviour in social and cultural setting for the improvement of organizational performances" (p. 259). The hypothesis of this literature review is that school leadership has an effect on student achievement by playing a central role in nurturing the internal conditions for developing school instruction, as well as maintaining positive school and community relationships.

Leadership Traits Leading to Student Achievement

Looking to challenge the theory that certain types of leadership will improve student achievement, Berker (2007) did a qualitative case study looking at the Shire School in the south of England. Seventeen staff members were selected and interviewed. Interview notes were word processed in first person statement. Classroom observations were also undertaken to triangulate comments from interviews to student and

teacher relationships. The researcher found that although the leadership of the school played an important role in transforming the processes of the school, the direct effect on leadership pertaining to student achievement remains unclear and unproven. Miller and Rowan (2006) also looked at a study that included 20,000 students enrolled in 250 American schools. The study showed that “organic management” had no effect on achievement growth. Although the results of many studies on transformational leadership indicate that strong leaders significantly impact student outcomes, few empirical studies provide strong evidence of direct leader impact on student outcomes; few empirical studies provide strong evidence of direct leader impact on student outcomes. Berker (2007) suggests the effects are usually indirect and mediated by teachers.

In performing an inductive exploratory study to discover the common theme of successful schools in Virginia, Crum and Sherman (2008) interviewed Principals to gain insight into their practice, which was supportive of high student achievement. The need for the study was supported by the lack of information concerning successful school leadership in the post No Child Left Behind era and the statement by Dinham (2005) that “there can be little doubt from an examination of research findings that leadership is important in developing effective, innovative school and in facilitating quality teaching and learning” (p. 340). Crum and Sherman The researchers conducted semi-structured interviews with 12 Principals using a standard interview guide. The Principals were chosen from successful schools determined by those schools that met both state and federal accreditation standards. All Principals were at least in their third year and had at a minimum two years of leadership experience.

The research was grounded by allowing the Principals to talk about actual practice, rather than theory, while identifying specific initiatives that supported success within their school. Six common leadership Principles or themes emerged from the interview process. The themes are: developing personal and facilitating leadership, responsible delegation and empowering the team, recognizing ultimate accountability, communicating and rapport, facilitating instruction, and managing change. Principals in the study gave credit to their staff, rather than crediting themselves. It was also discovered that principals recognized the fact that they could not physically be in each class to guide instruction, therefore the role of the school leader was to facilitate and build rapport, and that the staff members held the responsibility of student success. It should also be noted that failure to communicate was a theme that was detrimental to the system, which caused lack of focus on teaching and student learning. Although this study took the form of a semi-structured interview, Crum and Sherman (2008) provided insight for future leaders in determining leadership roles that advocate successful student achievement.

Outstanding education outcomes of students in years seven to ten in 38 secondary schools in Australia were studied by Dinham (2005). Outstanding educational achievement was defined as: developing fully the talents of all students, attaining high standards of knowledge, skills and understanding through a comprehensive and balanced curriculum, and being socially just. Research was conducted through site visits, document analysis, lesson observations, and interviews with teachers, community members, Principals, other executive staff and students. Site teams used prepared protocols when recording data and observations and the information was compiled and entered into a database using open ended coding. Results indicate that Principals in successful schools have a positive attitude toward change and a strong focus on students and learning. Six areas contributing to outstanding educational outcomes emerged around the focus on students and learning. They include:

1. External awareness and engagement
2. Bias towards innovation and action
3. Personal qualities and relationships
4. Vision, expectations and a culture of success
5. Teacher learning, responsibility and trust
6. Student support, common purpose and collaboration

The researchers also discovered three things found in outstanding schools: Principals use their powers and the rules and boundaries of the system creatively, exhibit a bias towards experimentation and risk taking, and exhibit strength, consistency, yet flexibility in decision making and the application of policy and procedure. As found in other research, teachers indeed play a huge role in obtaining student achievement. This study recognized this fact, along with realizing that school leaders also play a key role in creating conditions where teachers feel comfortable and can operate efficiently while facilitating student achievement.

Infrastructure

Physical infrastructure here in the context of this study refers to basic facilities and equipment needed for functioning of a department or college. The facilities here include lecture/classrooms, studios, drawing boards/stools, computer room and library, halls of residence, tutors bungalows, tables and chairs, and play grounds. "Learning is a complex activity that puts students' motivation and physical condition to the test" (Lyons, 2002, p. 62). It has been a long-held assumption that curriculum and teaching have an impact on learning. However, it is becoming more apparent that the physical condition of our schools can influence student achievement.

Earthman, Cash and Van Berkum (1996) recently found that 11th grade students in standard buildings scored higher as measured by the Comprehensive Test of Basic Skills than did their counterparts attending class in substandard facilities. In a Virginia study, Cash (1993) developed research that examined the impact of various factors of building condition on student achievement in a manner that controlled for socio-economic status of the students. Cash (1993) found that when socio-economic factors were constant, facility condition had a significant correlation with student achievement. Specifically, Cash (1993) found that air conditioning, absence of graffiti, condition of science laboratories, locker accommodations, condition of classroom furniture, wall colour and acoustic levels correlated with student achievement at a significant level when controlling for socio-economic status of students. Chan (1996) conducted a similar study of the impact of physical environment on student success. This study classified 165 Georgia schools into one of three categories: Modern Learning, Obsolete Learning, or Half Modern Learning Environment. Other than building age, differences in the three categories included lighting, colour schemes, air control and acoustic levels (Chan, 1996). As one might expect, Chan (1996) found student achievement to be highest in Modern Learning Environments and lowest in Obsolete Learning Environments. Chan (1996) concluded that technology and adaptabilities of modern environments better equipped students for success and that to ignore that fact was to disregard the physical difficulties of learning.

Furniture and Equipment

The examination of ergonomic seating and positioning has been well researched in the workplace, but it has tended to be ignored in classrooms (Yeats, 1997). However, some children contributing to *The School I'd Like* (Burke & Grosvenor, 2003) mentioned inadequate furniture and there is some literature relating to classroom furniture (eg, Aagaard-Hansen & Storr-Pauben, 1995; Marschell et al., 1995). Given the difference in size between school children, adjustable furniture might seem sensible (suggested by Zandvliet & Straker, 2001) and in fact has been advocated for some time: Donovan (1921) has a design for an adjustable desk and seat (Figure 9). However, any observation in schools demonstrates the failure of such ideas to become accepted wisdom. Here is the potential for this to change if, as has been suggested, adjustability forms part of the European Standard on School Furniture which is due to be published at the end of 2004.

Knight and Noyes performed a study on classroom furniture in relation to children's behaviour and sitting positions between traditional classroom furniture and ergonomically designed furniture. They found that children showed a 'significant improvement in on-task behaviour and a marked change in sitting positions following the introduction of the newly designed furniture' (1999, p.747). In relation to sitting positions, Linton et al (1994) did not observe any different sitting positions in the children in their study when using ergonomically designed furniture. The children did comment that the ergonomically designed furniture was more comfortable, as did children in a further study conducted by Troussier (1999). Linton et al., (1994), however, suggest that students need guidance on proper use of ergonomically designed furniture.

Troussier (1999) also investigated levels of back pain when children use traditional classroom furniture and ergonomically designed furniture; however, it was concluded that there was no significant difference in prevalence of back pain. It has been argued that back pain does exist among school children (Murphy et al., 2004) but some researchers emphasize that back pain is not solely due to inappropriate classroom furniture but that other factors are relevant (Troussier et al., 1994; Grimmer & Williams, 2000). A major factor that has been highlighted is gender (Parcells et al., 1999), with girls more likely to experience back pain than boys.

Milanese and Grimmer (2004) argue that the taller the student, the more likely they are to experience back pain. From the literature that has been reviewed for this report, it can be concluded that, overall, there

is preference for the ergonomically designed furniture in the studies (Marschell et al., 1995; Panagiotopoulou et al., 2004; Troussier, 1999 & Yeats, 1997). Molenbroek et al., (2003) argued that the design of classroom furniture should be based on the student's popliteal height (see Figure 10) rather than body height. A study which used this idea and took anthropometric measurements of students' body dimensions (Parcells et al., 1999) concluded that there was a substantial degree of mismatch between student's body dimensions and furniture that they use. Such a mismatch was also found (Panagiotopoulou et al., 2004).

Arrangement and Layout

One of the more basic variables that can be altered in the classroom is the arrangement of the students' desks and chairs, and this issue has been quite well researched and debated by educationists. Rows of desks are considered to be appropriate to individual work and increase time on-task (Galton et al., 1999). The research which specifically compares rows and tables (Wheldall et al., 1981; Wheldall & Lam, 1987; Hastings, 1995) suggests that less attentive and less successful pupils are particularly affected by the desk arrangement, with their on-task behaviour increasing very significantly when seated in rows instead. It is pointed out by these authors that the vital mediating element between the physical environment and improved classroom climates could be the reduction in negative interactions between teacher and student, since the student in the rows arrangement is able to concentrate and so provokes fewer admonishments. This plausible chain of events has relevance for any alteration to the physical environment.

Temperature and Air Quality

Earthman (2004) rates temperature, heating and air quality as the most important individual elements for student achievement. Two studies (Buckley et al., 2004; Young et al., 2003;) mention the importance of these issues in reports which address the needs of particular US states' schools, while Fisher (2001) and Schneider (2002) similarly rate these factors as likely to affect student behaviour and outcomes. Within the studies there are some reasonably clear findings but also some disagreement. Much of the earlier work, in the USA, emphasized comfortable temperatures and, therefore, given the climates of some of the districts studied, advocated an increased use of air conditioning.

There has been questioning of some of the assumptions made about maximum comfortable temperatures (Wong & Khoo, 2003) and about the necessity of using air conditioning to achieve ventilation (Grams et al., 2003; Khedari et al., 2000). Furthermore, it is notable that air conditioning, ventilation and heating systems are found to contribute quite distinctly to the level of classroom noise (Shield & Dockrell, 2004). This is considered too noisy by many researchers in that area and suggests the potential for conflict between demands for certain physical elements to be prioritized over others. However, the importance of ventilation in educational establishments continues to be emphasized (Khattar et al., 2003; Kimmel et al., 2000), while the inadequacies of indoor air in schools continue to be reported (; Kimmel et al., 2000; Khattar et al., 2003; Lee & Chang, 2000) and linked to ill-health (Ahman et al., 2000). Smedje and Norback (2001) argue that since irritants and allergens collect in dust, it might be advisable to avoid particular sorts of 'fleecy' furnishings and open shelving and to increase the frequency of cleaning. It is evident that the demands of clean air might come into conflict with the teacher's desire to provide a comfortable, cozy and welcoming classroom.

Lighting

There is a considerable amount of literature relating to lighting in the classroom. There is research relating to different kinds of lighting, from daylight to artificial, and there is a disagreement among researchers on which form of lighting is the most suitable for the classroom. In relation to student achievement it is argued that day lighting offers the most positive effect (Earthman, 2004; HeschongMahone Group, 2003) as daylight produces biological effects on the human body (Wurtman, 1975). However, having solely a daylight source in the classroom is not practical or possible. Benya suggested that for 'lighting to be effective, daylight must be supplemented by automatically controlled electric lighting that dims in response to daylight levels'. (2001, p.1). Barnitt (2003) suggests that good lighting can only be achieved by a combination of direct and indirect lighting.

There are different kinds of indoor lighting and differences in the intensity depending on colour temperatures. Jago and Tanner (1999) argue that "the visual environment affects a learner's ability to

perceive visual stimuli and affects his/her mental attitude, and thus, performance” (1999, P.350). Knez (1995) found evidence that lighting conditions that induced negative affect reduced performance, and therefore, lighting conditions that induced positive affect improved performance. Veitch (1997), however, argued that lighting has no effect on mood or performance. In another study, Knez studied the effect of lighting and gender and found that females were more perceptive to light than males. Furthermore, Knez (2001) found that males and females performed differently in different kinds of lighting. Differences in performance and mood under different kinds of lighting in relation to gender and age were studied by Knez and Kers (2000). Another line of research that relates to lighting is concerned with health issues. The most common complaints of inappropriate lighting are headaches, eyestrain and fatigue. To overcome these complaints, Karpen (1993) suggests the use of full spectrum polarized lighting as it is glare-free and flicker-free. As there is an increased use of computers in schools the idea of creating glare free lighting is important (Barnitt, 2003). However, concerns about glare and suggestions for overcoming it is not new.

One way of determining the health of students is to examine absenteeism. Mahone Group (2003) argues that physical classroom characteristics, including lighting, do not affect student attendance, while other researchers, for example, Hathaway (1990) argue that there is a correlation between absenteeism and lighting. Hathaway goes further on the aspects of lighting than other researchers, linking lighting to incidence of dental cavities and gains in height and weight.

Studies about student academic achievement and building condition conclude that the quality of the physical environment significantly affects student achievement. 'There is sufficient research to state without equivocation that the building in which students spend a good deal of their time learning does in fact influence how well they learn' (Earthman, 2004, p. 18). Desirable designs include having 'friendly and agreeable' entrance areas, supervised private places for students, as well as public spaces that foster a sense of community, with particular attention to the colour used (Fisher, as cited in McGregor, 2004, p. 2). "Today's schools must create spaces that students want to go to, similar to the way cafes attract people, rather than the space being purely functional" (Bunting, 2004, p. 12).

Other researchers have acknowledged that 'student achievement lags in shabby school buildings' but go on to say that this research 'does not show that student performance rises when facilities go from decent buildings to those equipped with fancy classrooms, swimming pools, television studios and the like' (Stricherz as cited in Higgins et al., 2005, p. 36). In one study the significant improvements in the learning environment were attributed to the better attitudes to teaching and learning than improvements in the physical environment created amongst all users (Berry cited in Higgins et al., 2005, p. 14).

Tutor Quality

In an effort to pinpoint teacher quality variables across studies for which there is strong agreement, Goe (2007) undertook a research synthesis for the National Comprehensive Centre for Teachers Quality. He examined dozens of research studies that linked a number of teacher quality variables to student achievement, as measured by standardized tests: which included teacher qualification, teacher characteristics, teacher practices, and teacher effectiveness.

Teacher qualifications are particularly necessary for regulating entry into the classroom when performance and outcome data are not yet available as is the case with new teachers. Teacher qualifications are also commonly used as indicators of teacher quality because of the relative ease and cost-effectiveness of collecting this data, which can often be found in public records maintained by states and districts (Goe, 2007)

Studies indicate that teachers' undergraduate or graduate major in mathematics marginally improved secondary students' achievement (Goldhaber & Brewer, 1996) Teachers' subject-matter expertise, as reflected by academic course taking, positively impacted secondary student achievement in mathematics and science (Monk, 1994). Percentage of teachers with mathematics education majors positively impacted middle school mathematics achievement (Forme et al., 2005; Wenglinsky, 2000). Research indicates that teacher curriculum workshops and learning about the 1985 mathematics framework positively impacted elementary school achievement (Cohen & Hill, 1998). Kannapel and Clements (2005) found that ongoing, job-embedded professional development differentiated high-from low-performing elementary schools. Wenglinsky (2000, 2002) found significant relationships between student mathematics and science achievement and specific types of professional development. However, Harbison and Hanushek (1992) found no impact.

Tutor Characteristics

Teacher social capital or sharing of information, vision, and trust, positively impacted observed instructional quality and school achievement in reading and mathematics (Leana&Pil, 2006). Kannapel and Clements (2005) found that collaborative decision making differentiated high-from low-performing elementary schools. Interactive practices positively impacted elementary student achievement in reading and mathematics (Smith et al., 2001). Wenglinisky (2000: 2002) found hand-on teaching practices were significantly related to higher mathematics and science achievement.

Quality of assignments - clarity and overall quality marginally contributed to middle school students' reading and language achievement (Matsumura et al., 2006). Intellectually demanding assignments positively impacted elementary and middle school students' reading and mathematics achievement (Newman, 2001).

Conceptual Framework

For the purposes of this research study, a modified Bossert's (1982) framework was utilized. According to Bossert's model, a principal's managerial behaviour is shaped by school context (external and district) and the principal's personal characteristics. At the same time, a principal's managerial behaviour directly influences school climate and instructional organization, and indirectly school outcomes (student learning and performance).

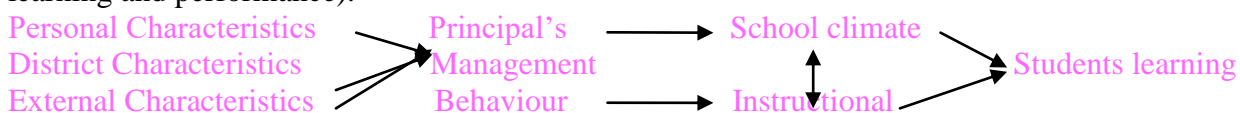


Figure 1: Bossert's Model of School Climate (1982)

As obvious from the proposed framework, the school principal's managerial behaviour (prevalent leadership roles) may be at the same time considered a dependent and an independent variable. It plays the dependent variable role in relation to principal's personal characteristics, district characteristics, and external characteristics variables, while it plays an independent variable role when related to school outcomes. I modified Bossert's framework by leaving out antecedent variables (context and leader's personal characteristics), assuming that these characteristics are already embedded in the leader's dominant leadership style. By leaving out the variables with potential antecedent effects, the nature of the model changes, and researchers look at the indirect effect of leadership style on school outcomes, moderated by the presence of a third variable (school climate). Modification of the Bossert's model has led to a proposed conceptual framework.

I speculate that the presence of the first variable and an aspect of the third variable may influence the relationship between the independent and dependent variables (the relationship between leadership and academic achievement). Normally, researchers theorize that administrator effects would take place less than one set of conditions and not under another.

Figure 2 is a conceptual framework that shows moderated effects of administrator's behaviour. It is obvious from the figure that the first two represent a generic variable indicating leadership style, while the third represents generic variable indicating school outcomes.

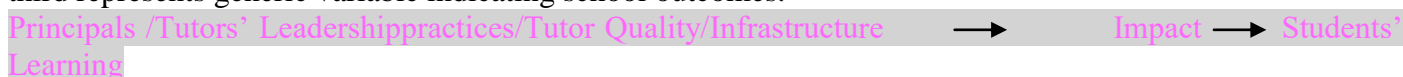


Figure 2: Moderated Effects Model- A Conceptual Framework.

Research Design

Exploring a multi-faceted process such as college climate and how it impacts on trainee's academic work requires a methodology that is adaptable and sensitive to variables that influence trainee's academic work. Therefore, the research design employed both qualitative and quantitative method to seek out and describe the extent to which college climate impact on the trainee's academic work.

A research design according to (Amin, 2005) is the plan which the research study follows. It is a series of advanced decisions that, taken together, make up a master plan or model for a research study. Amin goes further to state that it is a stated structure and process of conducting a research project, detailing the plan and method for systematically and scientifically obtaining the data to be analyzed. To conduct this

study, survey research design was adopted. This was because it involved a study of relatively large population of respondents out of which a representative sample of the subgroups in the population were randomly and purposively selected. The data were analyzed qualitatively and quantitatively and generalization made from the study and also expressed by establishing impacts between and among variables. It became necessary to use quantitative method because the data was analyzed in terms of values, and since I used questionnaire to collect the data and that called for quantitative method. I used qualitative method because an interview guide was used to collect data and it was analyzed using content analysis which revealed issues which could not have been possible with questionnaire.

Quantitative research designs are well suited for identifying general trends in population (Gall, Borg & Gall, 1996). Quantitative research can be defined as “inquiry that is grounded in the assumption that features of the social environment constitute an objective reality that is relatively constant across time and settings. The dominant methodology is to describe and explain features of this reality by collecting numerical data on observable behaviours of samples and by subjecting this data to statistical analysis” (Gall et al., 1996, p. 767). Qualitative inquiry, on the other hand, is a method of research that describes events and occurrences without the use of numbers and investigates the poorly understand territories of human interactions (Glesne, 1999). For Denzin and Lincoln (1994), qualitative research is multimethod in focus, “involving an interpretative, naturalistic approach to its subject matter” (p.2). Quantitative researchers “seek to describe and understand the processes that create the patterns of human terrain” (Glesne, 1999, p. 193), and “study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them” (Denzin& Lincoln, 1994, p.2). Given that both quantitative and qualitative types of research are different in nature, the question may arise, whether one approach is better than the other and whether they produce conflicting data. Gall et al (1996) state, that qualitative and quantitative research can complement each other by playing the respective roles of discovery and confirmation.

Population

The target population included all student-trainees, tutors and Principals of the Colleges of Education in the Ashanti region. The accessible population for the study comprised of the Offinso College of Education, Akokerri College of Education and Wesley Colleges of Education which included male and female and which was estimated to be 1830 respondents.

Sample and Sampling Techniques

In this study, the sample size of 322 was selected from all the accessible population. Following the Krejcie and Morgan (1970) table, for a population of 1800, the sample size is 317, what it means is that, for every target population, about a sixth is used as a sample size .The sample size was therefore derived using Krejcie and Morgan’s formula. The sample size of 322 was purposively selected because the respondents were made up of subgroups, thus, female and male trainees, male and female course tutors and Principals after which they were randomly selected from the three colleges of Education in the Ashanti Region of Ghana. The distribution of the population and the sample by college is presented in Table 3.1

Table 3.1: Distribution of Population and Sample Size by Colleges of Education

College	Population	Sample Size
Offinso College of Education	610	102
Wesley College of Education.	620	110
Akokerri College of Education	620	110
Total	1850	322

Source: field, 2018

To ensure credibility and reliability of the quality of the data, students were given brief explanation of the research idea to find out their understanding of College climate variables and whether or not it influenced their academic work. The purposive and random sampling techniques were adopted to select the student-trainees, Principals and tutors who were involved in the study. In using purposive sampling

technique, I carefully and consciously chose the subjects to be included in the sample so that the sample can be developed for their needs. It is a non-probabilistic sampling technique. I handpicked the elements to be included in the sample on the basis of their judgment of their typicality or particularly knowledgeable about the issues under study. Purposive sampling is also known as judgmental sampling, I purposively chose subjects who in my opinion were relevant to the research topic. The researcher used purposive sampling because he wanted a sample of experts as in the case of a need assessment using the key informant approach. It was after the purposive sampling that I used the stratified randomization sampling technique

In the case of stratified random sampling, the sample was broken into distinct classes; the method of simple randomization was applied to select the subjects of interest. That is, after the population has been divided into strata, samples were selected randomly but independent from each stratum. Out of a sample size of 322 from 1800, I broke this into male and female tutors and teacher-trainees. Random sampling is the most basic of the probability designs. This design gave all units of the target population an equal chance of being selected. After identifying the target population that in my opinion who could provide the expert information, I used the lottery method which is one of the strategies of simple random sampling techniques. A sampling frame was first constructed comprising a list of the units of the target population with names of sample units in alphabetical order and numbered accordingly. Names were listed in sample frame on slips of paper and put them in a container. It was mixed well and removed one slip or paper at a time from the container without looking into it. Name on slip was picked and recorded. Anytime a slip was selected and recorded, it was thrown back into the container and ignored before the next one was picked. The process continued until the required number of respondents was recorded.

Instruments for Data Collection

A questionnaire was adapted for data collection in this study. It was adapted from Martin Olsen Laney (2002). He used it to collect data on shy students and the way it has been structured to best suit the structure of my items; it comprised 15 standard structured items. The questionnaire was divided into three major sections. Section A sought for information about the bio-data of the respondents while sections B and C sought for information from respondents on the variables: Leadership roles, class size, and infrastructure and tutor quality under study related to the four (4) research questions.

A 5point Likert-scale questionnaire was structured in the Likert-scale format and included: Strongly Agree (SA), Agree (A), Not sure (NS) Disagree (D), and Strongly Disagree (SD). They were also assigned numerical weight of 5, 4, 3, 2, and 1 respectively. The respondents were instructed to select the option most appropriate to them and that corresponded to their opinion about the statement provided.

Validity of Instrument

Validity and reliability are essential to the effectiveness of any data-gathering procedure (Best & Kahn, 1998). Reliability is the degree of consistency that the instrument or procedure demonstrates. Validity is defined as the appropriateness, meaningfulness and usefulness of specific inferences made from the instrument or procedure results (Gall et al; 1996). As Best and Kahn (1998) stated, reliability is a necessary but not sufficient condition for validity. A test must be reliable for it to be valid, but a test can be reliable and still not be valid.

According to Gall et al, (1996), four procedures exist for demonstrating the validity of the research inferences. This study used validity. Content validity refers to the degree to which the scores yielded by a test adequately represent the content or conceptual domain that these scores purport to measure. The claim of content validity was based on the examination of the survey instrument by educational professionals, advisory committee members and participants of the pilot study.

The questionnaire was adapted from Martin Olsen Laney, based on experience and to reflect the dependent and independent variables and also based on literature reviewed, purpose of study and research questions. In addition, the questionnaires were given to my supervisor and two other experts in Educational Psychology Department at the University of Education, Winneba to read through and offer the necessary advice where possible. They helped to correct all errors, corrected and reframed its content in line with the research topic, purpose of study and the research questions.

It was hoped that they helped modify certain items in the questionnaire and suggested other areas of improvement where necessary. Their suggestions and corrections were effected. All the corrections helped

to ensure that the instruments were close to perfection and were of high content, construct and face validities.

Reliability of the Instrument

The questionnaire was trial-tested using Staff, Principals and Student-teachers in St. Louis College of Education who were not part of the main study. In all, 50 participants were involved in the pilot testing. The study established the degree of consistency of the questionnaire at providing the required information. The resulting data was divided into two equal halves and correlated statistically with a correlational statistic. The Cronbach’s alpha reliability coefficient was calculated to be .75. This indicated that the questionnaire was highly reliable.

Method of Data Collection

A letter of introduction was collected from the Head of Department of Educational Leadership, University of Education Winneba, Kumasi; which enabled me to collect data from the respondents in the Colleges of Education. The letter was sent to the Principals of the aforementioned colleges to seek permission to undertake the research. The questionnaire was administered on the respondents through the help of my colleagues in Education department from Offinso, Wesley and Akokerri colleges of Education with St. Louis College of Education being used for pilot study. The required number of questionnaires were counted and given to them and after a week, went for the administered questionnaire.

Method of Data Analysis

The data collection techniques presuppose specific data analysis for qualitative and quantitative research methods. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) computer software packages. Analysis of the data included Means, Standard deviations, and Analysis of Variance (ANOVA) were used as analytical methods on all the data except items on interview guide and open ended items for teacher-trainees and college tutors. Upon completion of the data collection a comprehensive analysis of trainees’ additional comments found at the end of the survey was performed in order to identify notable themes or ideas (Glesne, 1999).

The purpose of the interview data analysis in this study was to draw out the emergent themes and present these in such a manner as to address the research questions. Actual quotes of the interviewees were also used to describe certain points of view. The data were presented according to the research questions of the study.

To examine the college leadership roles, the respondents were asked to respond to some statements using a 5 point Likert scale that ranged from Strongly Disagree (=1) to Strongly Agree (=5). The means and standard deviations were calculated for each question. The responses of the trainees are shown in Table 4.6.

Table 4.6: Trainees Response on College Tutor’s Leadership Roles / Leadership Impact on Academic Work

Items	Offinso (n=95)		Akokerri (n=95)		Wesley (n=95)		Average Mean
	Mean	SD	Mean	SD	Mean	SD	
1. Collective formulation of rules and regulations.	3.30	1.41	4.08	0.90	4.06	1.09	3.8
2. Shared Leadership roles	4.06	1.13	4.31	0.90	4.34	.979	4.2
3. Negative comments by tutors	3.24	1.40	2.43	1.37	2.04	1.27	2.3

4. Extensive Feedback on progress of work.	3.86	1.00	4.01	1.09	3.79	1.30	3.9
5. Collective decisions taking	2.95	1.36	3.54	1.36	3.82	1.30	2.5
6. Fair treatment by tutors	3.38	1.17	4.15	1.04	4.18	0.73	3.9

Source: Field Survey, 2018

With regard to the individual statements, it could be observed that the responses of the trainees regarding their respective college tutor’s leadership practices were similar for the respondents of Akokerri and Wesley Colleges but different for the respondents of Offinso College. For instance, the mean scores recorded for “shared leadership roles of tutors” were 4.06, 4.31 and 4.34 for Offinso, Akokerri and Wesley Colleges respectively. The results indicate that majority of the respondents in all the colleges agreed to the statement that leadership roles (such as class prefectship) are given to students in class to perform.

The mean scores recorded for “collective decisions taking” were 2.95, 3.54 and 3.82 for Offinso, Akokerri and Wesley Colleges respectively. The results indicate that majority of the respondents in Offinso college disagreed or were not sure about the statement while majority of the respondents in Akokerri and Wesley Colleges were not sure or agreed to the statement that there is collective decisions taking in their colleges.

However, for purposes of comparing the means of the responses from the trainees of the various colleges, all the statements on college leadership roles and practices were aggregated into one index with the arithmetic mean and standard deviation calculated for the various colleges. This is shown in Table 4.7

Table 4.7: Aggregated Trainees Response on College Tutor’s Leadership Roles / Leadership Impact on Academic Work

College Leadership Roles	Offinso College (n=95)		Akokerri College (n=95)		Wesley College(n=95)	
	Mean	Std D.	Mean	Std D.	Mean	Std D
	3.46	0.42	3.75	0.70	3.71	0.84

Source: Field Survey, 2018

Based on the five point Likert scale, a mean of 3.0 was calculated to be the mid-point. A mean score above 3.0 therefore denoted a positive perception (which suggests college leadership impacted on student-trainees’ academic work) while a mean score below 3.0 denoted negative perception (which suggests college leadership did not impact on student-trainee’s academic work). A fairly good number of respondents strongly agreed that the role tutors play during instruction impact positively, while a section of the respondents however disagreed. The respondents from Offinso College for instance, had the lowest mean of 3.46 with a standard deviation of 0.42.

Some of the comments from the respondents of Offinso College revealed that rules and regulations were well formulated. However, the respondents of Akokerri and Wesley colleges had an overall mean of 3.75 and 3.71 respectively. Some of the comments from the respondents of Akokerri College revealed that the cordial relationship between the teachers facilitates learning and affects academic work positively. From the results, most of the student-trainees indicated that effective leadership roles such as cordial relationships, collective decision making and well formulated rules and regulations had an impact on their study habits. By implication, the good leadership practices had a positive relationship with student-trainees’ academic work. This is in line with the findings of Kannapel and Clements (2005) when they found that collaborative decision making differentiated high-from low-performing elementary schools. This is however in contrast with the view of Ross and Gray (2006) and Berker (2007) who argued that Principals have very little direct

impact on student achievement as they indirectly contributes to student achievement through teacher commitment and beliefs about their collective capacity.

To test the variations in the aggregated means of their responses on college leadership roles, a one way analysis of variance was used. This is shown in Table 4.8

Table 4.8: Analysis of Variance on College Tutor’s Leadership Practices as Perceived by Trainees

Source of Variation	SS	df	MS		P-value	
Between Groups	0.29	2	0.143		0.74	
Within Groups	6.84	15	0.46			
Total	7.12	17				

Alpha level is .05

The results from Table 4.8 indicate that there was no significant difference in the means of the aggregated responses of the respondents from the various colleges. The significance or p-value was 0.74 which is greater than the predetermined alpha of 0.05.

The responses of the tutors on their respective college leadership styles also showed some variations. The responses of the tutors are shown in Table 4.9

Table 4.9: Tutors Response on College Leadership Practices

	Offinso College (n=20)		Akokerri College (n=20)		Wesley College (n=15)		Average Mean
	Mean	SD	Mean	SD	Mean	SD	
1. Guidance of trainees during instruction.	4.05	.83	4.20	.959	4.47	.52	4.3
2. Offer of career and educational guidance and counseling by tutors.	2.95	1.39	2.85	1.39	2.80	1.42	2.9
3. Cordial relationship between Principals, Administrators, Staff and Trainees.	3.40	0.94	2.90	0.92	3.14	1.13	3.16
4. Tutors assign student-trainees roles in the classroom teaching and learning situations.	3.20	1.20	4.05	0.61	4.40	0.83	4.0
5. Issues are mostly imposed on the teaching staff.	2.75	.85	3.35	.815	3.07	.883	3.1
6. Tutors are well motivated to give of their best as part of their work.	3.25	1.25	2.40	1.05	2.34	0.72	2.7
7. Collective decision making	2.90	0.97	2.35	0.81	2.27	0.70	2.5
8. My principal exhibits more of transformational leadership than autocratic.	3.25	.91	2.35	.813	3.07	.96	2.9
9. Tutors are always regular and punctual.	3.40	1.31	4.00	1.17	3.67	.62	3.7

Source: Field Survey, 2018

The tutors’ responses on some individual statements regarding their respective college leadership styles showed some variations. For instance, the mean scores recorded for “tutors assign student-trainees roles in the classroom” were 3.20, 4.05 and 4.40 for Offinso, Akokerri and Wesley Colleges respectively. The results indicate that majority of the respondents in Offinso college were not sure about the statement while majority of the respondents in Akokerri and Wesley Colleges agreed to the statement that they assign student-trainees roles in the classroom teaching and learning situations.

With regard to guidance of trainees during instruction, the mean scores recorded were 4.05, 4.20 and 4.47 for Offinso, Akokerri and Wesley Colleges respectively which indicate that majority of the tutors in all the three colleges agreed to the statement that Tutors guide trainees in their assignments, projects, and exercises during instruction. The aggregated means of their responses on the various statements is shown in Table 4.10;

Table 4.10: Aggregated Tutors Response on College Leadership Practices

	Offinso College (n=20)		Akokerri College (n=20)		Wesley College (n=15)	
	Mean	Std D	Mean	Std D.	Mean	Std D.
College leadership practices	3.24	0.38	3.16	0.76	3.24	0.80

Source: Field survey, 2018

The aggregated means of the statements on college leadership roles indicate that the impacts of college leadership styles on students' academic work was also fairly neutral in all the colleges. To test the variations in the aggregated means of the tutors' responses on college leadership styles, a one way analysis of variance was used as shown in Table 4.11:

Table 4.11: Analysis of Variance on College Leadership Practices as Perceived by Tutors

Source of Variation	SS	df	MS		P-value
Between Groups	0.04	2	0.02		0.96
Within Groups	10.88	24	0.45		
Total	10.92	26			

Alpha level=0.05

The results indicate that there was no significant difference in the aggregated means of the responses of the tutors. The significance or p-value was .96 which is greater than predetermined alpha of .05.

Regarding the college infrastructure, respondents were asked to respond to some statements. The means and standard deviations were calculated for each statement. The responses of the trainees are shown in Table 4.18

Table 4.18: Trainees Response on College Infrastructure

	Offinso College (n=95)		Akokerri College (n=95)		Wesley College (n=95)		Average Mean
	Mean	SD	Mean	SD	Mean	SD	
1.Spacious and well-furnished I C T centre	2.41	1.49	3.54	1.35	4.80	.475	3.6
2.Enough halls of residence.	2.86	1.47	3.84	1.25	4.59	0.76	3.8
3.Frequent flow of water.	1.96	1.05	3.01	1.42	4.12	1.10	3.0
4.Playing ground for games and physical Education lessons.	2.60	1.37	4.05	1.19	4.83	0.50	3.8
5.Well-stocked library for students and staff use	2.64	1.34	3.44	1.33	4.64	.64	2.9

6.Well-furnished Science laboratory.	1.99	1.20	3.44	1.33	3.60	1.19	3.0
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Source: Field survey, 2018

With regard to the individual statements on college infrastructure, the mean scores recorded for the statement that college has a spacious and well-furnished I C T centre for lessons were 2.41, 3.54 and 4.80 for Offinso, Akokerri and Wesley Colleges respectively. This indicates that majority of the trainees in Offinso college disagree with the statement while majority of the respondents in Akokerri agree or are not sure about the statement. However, majority of the respondents from Wesley College agree or strongly agree with the statement.

The mean scores recorded for the statement of frequent flow of water were 1.96, 3.01 and 4.12 for Offinso, Akokerri and Wesley Colleges respectively. The results indicate that majority of the trainees in Offinso college disagree with the item while majority of the respondents in Akokerri are not sure about the statement. The responses of the individual items are indicative of the differences in the infrastructural development of the various colleges. However, majority of the respondents from Wesley College agree with the statement. For purposes of comparing the means of the responses from the trainees of the various colleges, all the statements on college infrastructure were aggregated into one index with the arithmetic mean and standard deviation calculated for the various colleges. This is shown in Table 4.19.

Table 4.19: Aggregated Trainees Response on College Infrastructure

	Offinso College (n=95)		Akokerri College (n=95)		Wesley College(n=95)	
	Mean	Std D.	Mean	Std D.	Mean	Std D.
College Infrastructure	2.41	0.37	3.55	0.36	4.43	.48

Source: Field survey, 2018

The aggregated mean of the items on college infrastructure among the various colleges indicate that the impacts of college infrastructure on their study habits varied. The respondents from Offinso College had the lowest mean of 2.41 implying that their college infrastructure was the least developed. Most of the comments regarding the things that negatively affect academic work in Offinso College were related to infrastructure. Some comments are as follows:

“My college does not have well-furnished and spacious ICT lab for lessons”

“The college does not have well-furnished science laboratory”

“Chairs and tables are the problem. They are not enough”

“Lighting problems when there are lights out”

However, the respondents of Akokerri with an overall mean of 3.55 imply that their college infrastructure was moderately developed. Some of their comments, however, are as follows:

“Inadequate facilities to do practical work”

“Lack of power plants to provide electricity when lights are out”

The respondents from Wesley College had the highest mean of 4.43 implying that their college infrastructure was the most developed. However, most trainees commented on the inadequacy of infrastructure such as follows:

“There is no generator or plant that generate lighting when lights are off and this prevents us from learning in the night”

“Science lab is not very well furnished”

To test the variations in the overall means of their responses on college infrastructure, a one way analysis of variance was used. The results indicate that there was no significant difference in the means of their responses. This is shown in Table 4.20.

Table 4.20: Analysis of Variance on College Infrastructure as Perceived by Trainees

Source of Variation	SS	df	MS	P-value
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Between Groups	12.30	2	6.15		1.57E-06	
Within Groups	2.49	15	0.17			
Total	14.79	17				

Alpha level=.05

From the analysis, the impacts of college infrastructure on academic work are positively related with the level of infrastructural development of the colleges. This is consistent with most researches reviewed in this study. For instance, Earthman et. al; (1996) found that 11th grade students in standard buildings scored higher as measured by the Comprehensive Test of Basic Skills than did their counterparts attending class in substandard facilities. Knez (1995) found evidence that lighting conditions that induced negative affect reduced performance, and therefore, lighting conditions that induced positive affect improved performance.

The responses of the tutors on the impact between college infrastructure and the academic work of trainees are shown in Table 4.21.

Table 4.21: Tutors Response on College Infrastructure

	Offinso College (n=20)		Akokerri College (n=20)		Wesley College (n=15)		Average Mean
	Mean	SD	Mean	SD	Mean	SD	
1. Enough tutors' bungalows.	1.55	.51	3.65	1.04	3.33	0.82	2.8
2. Well-furnished computer laboratory.	1.85	.75	2.15	.75	2.67	.98	2.2
3. Enough classroom structures to accommodate students.	2.60	.94	2.85	.81	2.93	.88	2.8
4. Well-established science laboratory.	1.95	.83	1.95	.83	2.13	.74	2.8
5. Effective lightening system.	3.30	1.13	2.70	0.80	2.40	0.51	3.2
6. Well ventilated classrooms	3.35	0.93	3.20	0.89	3.13	0.64	3.2
7. Adequate chairs and tables for students.	2.15	.671	2.90	.968	3.20	.78	2.8

Source: Field survey, 2018

From Table 4.21, it can be observed that the responses of the tutors regarding their respective college infrastructure varied. With regards to item 1, the mean scores recorded were 1.55, 3.65 and 3.33 for Offinso, Akokerri and Wesley Colleges respectively. The results indicate that majority of the trainees in Offinso college disagree with the item while majority of the respondents in Akokerri were not sure or agree with the statement. However, majority of the respondents from Wesley College are not sure with the statement. Also, with regards to Item 5, the mean scores recorded were 3.30, 2.70 and 2.40 for Offinso, Akokerri and Wesley Colleges respectively. The mean scores recorded for Item 7 were 2.15, 2.90 and 3.20 for Offinso, Akokerri and Wesley Colleges respectively. The results indicated that majority of the respondents in Akokerri college are not sure about the statement while majority of the respondents in Offinso disagree with the statement and believes that good college infrastructural development impacts positively on the academic work of

trainees. This confirms Chan's (1996) view that, students' achievements to be highest in modern learning environments and lowest in obsolete learning environments. He concluded that technology and adaptabilities of modern environments better equipped students for success and that to ignore that fact was to disregard the physical difficulties of learning.

The aggregated means of the tutors' responses on the various statements under their respective college infrastructure is shown in Table 4.22

Table 4.22: Aggregated Tutors Response on College Infrastructure

	Offinso College (n=95)		Akokerri College (n=95)		Wesley College (n=95)	
	Mean	Std D.	Mean	Std D	Mean	Std D
College infrastructure	2.39	0.71	2.77	0.58	2.83	0.45

Source: Field survey, 2018

The aggregated mean of the responses from tutors on their respective college infrastructure shows that the tutors disagreed or were not sure about most statements.

To test the variations in the overall means of their responses on college infrastructure, a one way analysis of variance was used. The results indicate that there was no significant difference in the means of their responses. The significance or p-value was 0.35 which is greater than predetermined alpha of .05. This is shown in Table 4.23.

Table 4.23: Analysis of Variance on College Infrastructure Practices as Perceived by Tutors

Source of Variation	SS	df	MS	P-value
Between Groups	0.78	2	0.39	0.35
Within Groups	6.28	18	0.35	
Total	7.06	20		

Alpha level=.05

College Tutor Quality and Trainees' Academic Work

Research Question 4: How does teacher quality influence trainees' academic work? The question sought to find out how tutor quality tends to impact on the academic work.

Regarding the college tutor quality, respondents were asked to respond to some questions using a Likert scale that ranged from (1) Strongly Disagree to (5) Strongly Agree. The responses of the trainees are shown in Table 4.24

Table 4.24: Trainees Response on College Tutor Quality

	Offinso College (n=95)		Akokerri College (n=95)		Wesley College (n=95)		Average Mean
	Mean	SD	Mean	SD	Mean	SD	
1. Most of my Tutors are resident on campus making them punctual and regular for classes.	2.43	1.39	4.07	1.24	4.36	0.94	3.6
2. Tutor use right methods in teaching.	3.74	1.11	4.24	.90	4.28	.63	4.1
3. Tutors are knowledgeable in the course areas they handle.	4.11	.88	4.31	0.89	4.56	0.56	4.3

4. During preps, Tutors are always available to offer help to us.	1.35	.60	2.80	1.32	2.09	1.20	2.3
5. I wish some of the Tutors are transferred from my college.	3.40	1.44	3.07	1.45	2.60	1.49	3.7
6. Tutors are able to attain and sustain my attention during instruction.	3.36	1.05	3.78	.99	3.99	.78	3.7
7. Varied reinforcement approaches are used in class.	3.58	.92	3.74	1.05	3.78	.95	3.7
8. Offer of Guidance and Counselling services to trainees.	2.06	1.34	4.02	0.99	3.51	1.34	3.2

Source: Field survey, 2018

From Table 4.24, it can be observed that the responses of the trainees regarding teacher quality of their respective colleges showed some variations. With regards to the individual statements, the mean scores recorded for the statement that “tutors are knowledgeable in the course areas they handle” were 4.11, 4.31 and 4.56 for Offinso, Akokerri and Wesley Colleges respectively. The results indicate that majority of the respondents in Wesley college agree or strongly agree with the statement while majority of the respondents in Akokerri and Offinso Colleges agreed with the statement. This could be attributed to the fact that all the tutors were professionally qualified with at least a Bachelor’s degree.

Also, the results indicate that majority of the respondents in all three colleges were not sure or agreed with the statement that tutors are able to attain and sustain their attention during instruction. The mean scores recorded were 3.36, 3.78 and 3.99 for Offinso, Akokerri and Wesley Colleges respectively. The results of the analysis of the individual statements imply that tutor quality is very critical as in situations where students were not satisfied with their teachers, they behaved badly for example, moving out of class, dodging lessons or even studying at wrong hours. This is supported by Buga (1991) who said that if a teacher does not use the appropriate method he causes anxiety, in attentiveness, monotony and redundancy.

Table 4.25 illustrates the aggregate means of the responses given by the trainees in the various colleges of education.

Table 4.25: Aggregated Trainees’ Response on College Tutor Quality

	Offinso College (n=95)		Akokerri College (n=95)		Wesley College(n=95)	
	Mean	Std D	Mean	Std D	Mean	Std D
College Tutor quality	3.00	0.95	3.75	0.55	3.65	0.88

Source: Field survey, 2018

The aggregated mean of the items on college tutor quality among the various colleges indicate that the impacts of college teacher quality on their study habits was fairly neutral. The respondents from Offinso College had the lowest mean of 3.00. The comments from some trainees are as follows:

“Some teachers are not punctual”

“Tutors do not have time during preps to offer help when we are in difficulties”

“Some tutors have patience in teaching the topics to our understanding and also accepting our views”

However, the respondents of Akokerri and Wesley colleges had an overall mean of 3.75 and 3.65 respectively. Some comments from trainees of Akokerri College are as follows:

“Tutors are committed to teaching”

“Tutors not always available during preps”

“Good methodological teaching and proper use of instructional periods”

Some comments from trainees of Wesley College are as follows:

“Tutors are punctual to class and also well trained”

“A lot of tutors use right methods of teaching”

“Tutors do not come to class to explain some things to us after our exams”

The results of the analysis show that college tutor quality had significant impacts on the student-trainees’ academic work as expected. This is in line with the findings of Leana and Pil (2006), that teacher social capital or sharing of information vision, and trust, positively impacted observed instructional quality and school achievement.

To test the variations in the overall means of their responses on college teacher quality, a one way analysis of variance was used. The results indicate that there was no significant difference in the means of their responses. The significance or p-value was 0.16 which is greater than predetermined alpha of .05. This is shown in Table 4.26

Table 4.26: Analysis of Variance on College Tutor Quality as Perceived by Trainees

Source of Variation	SS	Df	MS		P-value	
Between Groups	2.64	2	1.32		0.16	
Within Groups	13.79	21	0.66			
Total	16.43	23				

Alpha level is .05

The responses of the tutors on how teacher quality influences trainees’ academic work are shown in Table 4.27.

Table 4.27: Tutors Response on College Tutor Quality

	Offinso College (n=20)		Akokerri College (n=20)		Wesley College (n=15)		Average Mean
	Mean	SD	Mean	SD	Mean	SD	
1.Tutors use appropriate teaching techniques to reinforce/ motivate trainees.	4.00	.56	4.00	.56	4.53	.64	4.1
2.Most Tutors in your College have masters in the course areas they teach.	2.65	1.04	3.30	.92	3.53	.99	3.1
3.Tutors are able to offer effective Guidance and Counselling to Trainees.	2.10	0.97	2.50	1.43	3.60	0.83	2.7

4.Close relationship between Tutors and Trainees.	3.70	0.73	3.05	0.83	3.87	.64	3.5
5.Use of varied methods of teaching by tutors.	3.90	.79	3.55	.89	4.33	.49	3.9
6.Tutors guide student-trainees in the preparation of TLMs.	4.10	0.79	4.15	0.59	4.47	0.52	4.2

Source: Field survey, 2018

Results of the individual statements show that majority of the tutors in all the three colleges agreed with the statement that they use appropriate teaching techniques to reinforce/ motivate trainees. The mean scores recorded were 4.00, 4.00 and 4.53 for Offinso, Akokerri and Wesley Colleges respectively. Also, the results indicate that majority of the tutors in all the three colleges agreed with the statement that they guide student-trainees in the preparation of teaching and learning materials. The mean scores recorded were 4.10, 4.15 and 4.47 for Offinso, Akokerri and Wesley Colleges respectively. For purposes of comparing the means of the responses from the tutors of the various colleges, all the statements on college tutor quality were aggregated into one index with the arithmetic mean and standard deviation calculated for the various colleges. This is shown in Table 4.28;

Table 4.28: Aggregated Tutors Response on College Tutor Quality

	Offinso College (n=95)		Akokerri College (n=95)		Wesley College (n=95)	
	Mean	Std D	Mean	Std D	Mean	Std D
College tutor quality	3.41	0.83	3.43	0.61	4.06	0.45

Source: Field survey, 2018

The aggregated mean of the statements on college tutor quality among the various colleges indicate that the impacts of college tutor quality on students study habits was varied. To test the variations in the overall means of their responses, analysis of variance was used. The results indicated that there was no significant difference in the means of at least two groups of the respondents. The significance or p-value was 0.18 which is greater than predetermined alpha of .05

Summary of Findings

College Leadership Practices and academic work of Teacher-trainees

It can be observed that the responses of the trainees regarding their respective college leadership styles were similar for the respondents of Akokerri and Wesley Colleges. Comparing the means of the responses from the trainees of the various colleges, the aggregated mean of the items indicate that the impacts of college leadership practices on academic work had neither a positive impact nor a negative impact (neutral) was for all the colleges. The respondents from Offinso College had the lowest mean of 3.46. However, the respondents of Akokerri and Wesley colleges had an overall mean of 3.75 and 3.71 respectively. The results of an ANOVA test indicate that there was no significant difference in the means of the aggregated responses of the respondents from the various colleges. The significance or p-value was 0.74 which is greater than the predetermined alpha of .05.

From the analysis, most of the trainees indicated that effective leadership roles such as cordial relationships, collective decision making and well formulated rules and regulations had an impact on their study habits. By implication, the good leadership practices had a positive relationship with students study habits. This is in line with the findings of Kannapel and Clements (2005) when they found that collaborative decision making differentiated high-from low-performing elementary schools.

The responses by the tutors on college leadership roles among the various colleges indicate that the impacts of college leadership styles on students study habits was also fairly neutral. The results an ANOVA

test indicate that there was no significant difference in the aggregated means of the responses of the tutors. The significance or p-value was 0.96 which is greater than predetermined alpha of .05.

College Infrastructure and Academic Work among Teacher-trainees

College infrastructure can lead to successful or unsuccessful academic achievement among students. According to Sadker and Sadker (2000) school infrastructure refers to basic facilities and structures that underpin a school plant, such as plumbing, sewage, heat, electricity roof, masonry and carpentry. Regarding the college infrastructure, it can be observed that the responses of both the trainees and tutors regarding their respective college infrastructure varied considerably. This is indicative of the differences in the infrastructural development of the various colleges.

The aggregated mean of the responses by the trainees on college infrastructure among the various colleges indicate that the impacts of college infrastructure on their academic work varied. The respondents from Offinso College had the lowest mean of 2.41 implying that their college infrastructure was the least developed. Most of the comments regarding the things that negatively affect academic work in Offinso College were related to infrastructure.

However, the respondents of Akokerri with an overall mean of 3.55 imply that their college infrastructure was moderately developed. The respondents from Wesley College had the highest mean of 4.43 implying that their college infrastructure was the most developed. Despite the variations in responses from the various respondents, the ANOVA test showed that the differences in the means of their responses were not significant ($p > .05$).

Most of the trainees from the various colleges indicated that there were not enough infrastructural facilities such as chairs and tables, effective lighting systems and well-furnished ICT and science laboratories which impacted negatively on their academic work. However, the impacts of college infrastructure on academic work are expected to be positively related with the level of infrastructural development of the colleges. This is consistent with most studies reviewed in this study. For instance, Earthman et al; (1996) found that 11th grade students in standard buildings scored higher as measured by the Comprehensive Test of Basic Skills than did their counterparts attending class in substandard facilities. Cash (1993), also found that when socio-economic factors were constant, facility condition had a significant correlation with student achievement. Knez (1995) found evidence that lighting conditions that induced negative affect reduced performance, and therefore, lighting conditions that induced positive affect improved performance.

Also, the aggregated mean of the responses from tutors on their respective college infrastructure was also implied that they share the same experiences with their students. However, the results of the ANOVA test indicate that there was no significant difference in the means of their responses. The significance or p-value was 0.35 which is greater than predetermined alpha of .05.

College Tutor Quality and Trainees' academic work

Collective tutor quality is a specific form of self-efficacy in which the target of the belief is that the efforts of the faculty as a unit will have a positive impact on student performance. Regarding the college tutor quality, it was observed that the responses of the trainees regarding impacts of teacher quality on their academic work showed some variations in their respective colleges.

The aggregated mean of the items on college tutor quality among the various colleges indicate that the impacts of college teacher quality on their academic work was fairly neutral among all three colleges. To test the variations in the overall means of their responses on college teacher quality on their study habits, a one way analysis of variance was used. The results indicate that there was no significant difference in the means of their responses. The significance or p-value was 0.16 which is greater than predetermined alpha of 0.05. The respondents from Offinso College had the lowest mean of 3.00. This could be attributed to the fact that majority of their tutors had only a Bachelor's Degree. However, the respondents of Akokerri and Wesley colleges had an overall mean of 3.75 and 3.65 respectively which could be due to the relatively large number of their tutors with Master's degree. It was found that all the tutors were professionally qualified with at least a Bachelor's degree. Standard of education depend largely on teachers' motivation and qualification as these enhance the performance of students. If tutors are less motivated and less qualified the standard of education will decline.

Analysis of the results showed that most trainees commenting on the things that negatively affect their academic work indicated that of teachers were not using the right teaching methods to their understanding. Regarding the positive things that affect their academic work, some trainees also emphasized that of tutors using right methods of teaching.

Thus, college tutor quality was found to have impacts on the trainees' academic work as expected. This is in line with the findings of several studies including Leana and Pil (2006), that teacher social capital or sharing of information vision, and trust, positively impacted observed instructional quality and school achievement in reading and mathematics. Wenglinsky (2000: 2002), also found hand-on teaching practices were significantly related to higher mathematics and science achievement. In situations where students were not satisfied with their teachers, they behaved badly for example, moving out of class, dodging lessons or even studying at wrong hours. This is supported by Buga (1991) who said that if a teacher does not use the appropriate method he causes anxiety, in attentiveness, monotony and redundancy.

Conclusions

On the basis of the findings of the study, the following conclusions are drawn:

Effective College leadership practices will promote good academic work in student-trainees. This was based on the finding that there was positive relationship between leadership roles and student-trainees' academic work.

Regarding the impacts of college infrastructure on academic work, the results showed that respondents who had high aggregated mean scores for the variables under their respective college infrastructure had better academic achievement than those who had low aggregated mean scores. The study therefore concludes that availability of college infrastructure (such as tables and chairs, laboratory equipment, library etc) has a positive relationship with trainees' academic work. Thus, improving infrastructural facilities in the colleges of education will lead to improvement in trainees' academic work: This was based on the finding that availability of college infrastructure (such as classroom blocks, tables, chairs, science and computer laboratories, and libraries) had positive relationship with trainees' academic work.

Improvement in standard of education to some extent depends on highly qualified and motivated tutors. Such conclusion is drawn because the study found that tutor quality had positive impacts on trainees' academic work.

Recommendations

Based on the findings of the study and conclusions drawn from them, the following recommendations are made:

1. College administrators should guarantee an enabling learning environment for trainees. It is therefore recommended that College administrators should formulate policies that will ensure that the number of students in a class should not be large during instruction. This suggests that the government should provide enough classrooms for the Colleges. Other stakeholders are also implored to compliment the effort of the government to boost the academic work of trainees by building more classrooms for the colleges.
2. Stakeholders of the colleges of education should ensure that colleges are provided adequate facilities in terms of teaching and learning materials. This will enable the teachers successfully plan their teaching and learning environment to attract trainees attention which will in turn promote their study habits.
3. Administrators and designers of school buildings should take into account factors such as interior environment and academic learning space when planning schools to positively impact on student learning achievements. School design and construction should focus on specialized learning spaces and other academic areas more than administrative support spaces in order to increase trainees' satisfaction with academic working conditions.
4. Positive student relationship should be encouraged in schools because the teachers' role is not limited to teaching; they also act as parents to the students. Such relationships should be positive, warm and trusting so as to enable students develop positive self-image and attitudes towards school and consequently improved grades. Healthy relationships require trust, self-disclosure, and reciprocity, so that true feelings can be shared. Insecure student-trainees seek positive, warm,

trusting relationships, but do not have the skills to create them. This means it is up to the teacher to change trainees' views of relationships and meet their academic and socio-emotional needs.

5. Colleges should implement and enforce strict school rules that guarantee an enabling learning environment. A student's zeal and tenacity to excel sometimes becomes sidetracked by distractions and disruptions in the classroom and school. These disruptions are usually counterproductive and greatly affect performance.
6. It is also recommended that all Colleges of Education in the country should fully establish Guidance and Counselling centres on campus where Counsellors shall operate to help reduce if not completely do away with learning difficulties, emotional, and psychological problems mostly associated with student-trainees.
7. Educational policy makers together with government should make sure that enough budgetary allocation is committed into infrastructural development in the country's Colleges of Education so as to manage the class size of student-trainees for effective tuition and quality professional training of teachers.

Suggestions for Further Studies

On the basis of this research, recommendations for future studies in the area of school climate and student achievement are as follows:

1. It is recommended that this study be replicated using different college climate variables such as teachers' expectations about their students' abilities, mutual acceptance between students and teachers, codes of conduct, cooperation between parents and teachers and Guidance and Counselling.
2. It is recommended that this study be replicated in all colleges in the Ashanti Region.
3. It is recommended that this study be replicated in all Colleges of Education in Ghana.

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