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**PERCEPTIONS OF PRE-SERVICE AGRI-BUSINESS TEACHERS ON THE
SUPPORT, TEACHER PREPARATION QUALITY, AND STUDENT TEACHING
EXPERIENCE RELATED TO TEACHER EFFICACY**

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Abstract

The multiple regression study analyzed the percent of variance in teacher efficacy of 106 student teachers and novice teachers in the Bachelor of Science (Agricultural Education and Extension) degree programme in the Faculty of Agriculture, University of Nairobi, explained by selected variables related to perceived support (utilizing a mentor, supportive principal behaviours, collective efficacy), teacher preparation quality, and student teaching experiences. Collective efficacy, perceived teacher preparation quality, and perceived student teaching experience explained the variance in teaching efficacy over the Teaching Practice phase of the fourth year of the programme. Although utilizing a mentor and supportive principal behaviours were eliminated from the model, perhaps these variables were not perceived as being as important as collective efficacy, perceived teacher preparation quality, and perceived student teaching experience during the fourteen weeks of the teaching practice phase of the fourth year.

Key words: Agri-business; teacher education; teacher efficacy.

Introduction

Novice teachers who exhibit a higher sense of efficacy are more likely to persist and remain in the profession. Education, experience and support can help novice teachers feel more efficacious and be more effective teachers. Teachers are the single most important variable related to student achievement² and their expertise and beliefs influence the success of an agricultural education program³. Therefore, a teacher's beliefs, attitude, and disposition of being a confident, efficacious teacher needs further investigation in preparing teachers in agricultural, career, and technical education.

There occurs attrition along the pipeline from the beginning of undergraduate teacher education throughout the teaching career as new public-school teachers leave the profession within the first three years of joining service. Working conditions, including professional autonomy, poor student motivation, student discipline problems, and lack of recognition and support from administration, play an important role in determining who stays in teaching⁴. It has been suggested that novice agri-business teachers lacked confidence and expressed feelings of loneliness, isolation, frustration, and stress⁵.

Teacher efficacy is a belief concept of teacher motivation, which served as the theoretical base of the study. Teacher efficacy has been identified 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..."⁶ (p. 233). Teacher beliefs play a critical role in the development of teachers⁷ because they filter the perception and interpretation of new knowledge and phenomena, which influences how teachers learn to teach, plan to teach, make

instructional decisions, and interact with students⁸.

Motivated and confident agri-business teachers were more effective teachers⁹ and are more likely to display a disposition that all students can learn¹⁰. Students achieved more, were more motivated and had a greater sense of efficacy when their teachers had higher teacher efficacy¹¹. Moreover, teacher efficacy was related to teachers' behaviour, effort, innovation, planning and organization, persistence, resilience, enthusiasm, willingness to work with difficult students and commitment to teaching and their careers.

The conceptual framework of this study is based on the premise that agri-business education teachers who are more confident and efficacious in their teaching, will be more motivated, be more effective in helping students learn, be more persistent in difficult situations, and remain longer in the teaching profession than their counterparts who lack confidence and exhibit low teacher efficacy. However, teacher educators need to know which factors influence teacher efficacy, especially during the early years of teachers' development¹².

In a qualitative study of student teacher and novice teachers in agri-business education, Knobloch and Whittington (2002) concluded that ten factors influenced novice teachers' efficacy: (a) support and feedback; (b) knowledge and education; (c) teaching and student teaching experience; (d) positive interactions with students; (e) preparation, anticipation, and expectations; (f) resources and facilities; (g) personal background; (h) intrinsic motivation; (i) isolation, overwhelmed, and helplessness; and, (j) other factors such as school procedures, paperwork, workload, and unrealistic expectations¹³. Novice teachers felt more efficacious and confident if they received

positive feedback, support, guidance, and encouragement from students, teachers, administrators, parents, and community members. Although there can be various means of support and feedback, selected variables of having a mentor, collective efficacy, and principal support appear to be related to teacher efficacy.

Novice career and education teachers expressed that personal support from other educational professionals in the form of a mentor or peer support group was key to staying in the teaching profession¹⁴. Many educational professionals suggest that mentoring has positive impacts on novice teachers¹⁵. Mentors helped novice teachers face new challenges and make situational adjustments to teaching¹⁶. Moreover, mentors may reduce attrition among first-year teachers. However, research findings are mixed on whether mentors help novice teachers improve their performances. The presence of mentors does not in and of itself guarantee that novice teachers will become better teachers than if they did not have mentors. More importantly, mentor and novice teacher relationships have mutual benefits because learning occurs collaboratively through experimentation within a professional community¹⁷.

Therefore, mentoring appears to depend on how supportive mentors are to novice teachers. Mentors provide two types of support: (a) emotional support for affect development; and, (b) professional support for cognitive development of teaching¹⁸. Novice agriculture teachers needed principal support, perceived that principal support had impact on their success as a teacher¹⁹, had no support from other teachers²⁰, and perceived that building the support of faculty, counselors, and administrators within the school system as an important problem and challenge²¹. The impact of collegial teacher and principal support on

teacher efficacy is imperative. Collective efficacy and teachers helping other teachers influenced teacher efficacy²². Principal and administrator behaviours influenced teacher efficacy²³.

Novice teacher who had technical, professional, and pedagogical knowledge and were prepared to teach through technical agriculture and teacher education courses felt more efficacious. Several variables have identified that were indicative of teachers' competence among which were subject matter knowledge and knowledge of teaching and learning. Indeed, teacher education programs play a significant role in developing teachers²⁴. Novice teachers also felt that teaching and student teaching experience made them feel more confident, whereas, the lack of teaching experience made them feel less confident. Commonly, the adage, experience is the best teacher, seems to fit for novice teachers because it combines technical knowledge and practical judgment into application²⁵. Experience may increase a person's automatic skill in a particular direction²⁶. It had also been suggested that mastering a performance, such as teaching, through experience is one of the most powerful influencers of efficacy²⁷.

Purpose and Objectives

The purpose of this study was to explain the variance in teacher efficacy after the first-year, second-year, third-year and the fourth-year culminating in the fourteen (14) week term of Teaching Practice experiences in the B. Sc. (Agricultural and Extension Education) programme at the University of Nairobi using variables related to support, teacher preparation, and student teaching experience. The objectives of the study were to (1) describe the teachers in the population based on selected characteristics, and (2) determine the extent that the

variability in teacher efficacy measured at the Teaching Practice experience of the school year can be explained by variables related to perceived support, perceived teacher preparation quality, and perception of student teaching experience of student teachers and novice teachers in agricultural education. To meet the *k: n* assumption of multiple regression, five variables were identified to represent the first three factors of support, knowledge and education, and student teaching that emerged from Knobloch and Whittington's study²⁸. The independent variables in this study were: utilized a mentor, perception of principal support, perception of collective efficacy, perceived quality of teacher preparation, and perceived quality of student teaching experience. The dependent variable of this study was teacher efficacy measured at the end of the Teaching Practice exposure of the fourth year.

Research Methods and Procedures

Population

This descriptive-associational study sought to explain the variance of teacher efficacy using variables related to perceptions of support, teacher preparation, and student teaching in the population. Our target population consisted of a census of student teachers and novice teachers in their four years of teaching in agricultural education in University of Nairobi. The teacher education program in the university's agricultural education department frame of the accessible population. There were 116 student teachers and novice teachers were the population of the study. The data were collected using ²⁹ Dillman's (2000) tailored design method with five contacts at the beginning of the 2018-19 academic calendar year. The data sample consisted of 106 teachers with 91.4% response rate to the

administered questionnaire, which was the instrument for data collection.

Instrumentation

The instrument used for this study was a questionnaire containing 24 teacher efficacy items, 7 principal support items, 12 collective efficacy items, 1 mentor item, 2 teacher preparation items, and 2 student teaching items. Existing reliable and valid instruments were used to measure teacher efficacy, principal support, and collective efficacy. The Ohio State Teacher Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) was used to measure teacher efficacy.

Hoy, Tarter, and Kottkamp's (2000) Organizational Climate Description Questionnaire was used to measure supportive principal behaviours³⁰. Goddard, Hoy and Woolfolk's (2000) short form was used to measure collective efficacy³¹. The researcher created the mentor, teacher preparation, and student teaching items based on Bandura's (1997) self-efficacy theory³² and Darling-Hammond's (1999)³³ review of effective teacher characteristics³³. A panel of teacher education experts in the Faculty of Agriculture, the Agriculture Extension Education Department, established content validity. The instrument was pilot tested with preservice teachers enrolled in undergraduate courses yielding a Cronbach's alpha of 0.87 for the teacher efficacy scale³⁴. Perceived teacher preparation quality had a *post hoc* reliability coefficient of 0.85 and perceived student teaching experience had a *post hoc* reliability coefficient of 0.78.

Data Analysis

Descriptive statistics were used to analyze data for Objective 1. Categorical data were reported as frequencies and metric data were reported as population means and standard deviations. Negatively worded items were reverse coded. Summated means and

standard deviations were calculated for teacher efficacy, supportive principal behaviours, collective efficacy, teacher preparation, and student teaching experience. For Objective 2, a sequential search method using backward elimination multiple linear regression statistics were used to analyze the data. Effect sizes were computed using Cohen's (1988) *d* coefficient and index [35]. The effect size decision criterion was established *a priori* ($R^2 = .09$, medium). The alpha level was established *a priori* at .05.

Findings and Conclusions

Objective 1:

The following selected teacher characteristics were found. Twenty-eight percent, 28% ($N=30$) were first-years, 24% ($N=25$) were second-years, 26% ($N=28$) were third-years, and 22% ($N=23$) were fourth year students who participated. Sixty-one percent ($N=65$) were male and 39%

($N=41$) were female. Sixty-one percent ($N=63$) of the teachers had a mentor. The teachers had "quite a bit" of efficacy, were in slight agreement with collective efficacy, perceived supportive principal behaviours as "often occurs," were in slight agreement with the quality of their teacher preparation, and were in moderate agreement that they had an excellent student teaching experience (see Table 1). Two relationships had moderate effect sizes: collective efficacy and supportive principal behaviours; and, collective efficacy and teacher efficacy.

Objective 2:

The five variables (utilized a mentor, perception of principal support, and perception of collective efficacy, perceived quality of teacher preparation, and perceived quality of student teaching experience) were entered into a backward elimination, multiple linear regression model as in Table 2 below.

TABLE 1: Regression of 10th Week Teacher Efficacy on Variables Related to Support, Teacher Preparation Quality, and Student Teaching Experience

Variables	Intercorrelations								
	X1	X2	X3	X4	X5	Y1	M	SD	
Collective efficacy (X_1) ^a	1.00	.07	.39	.15	-.01		4.27		
						.39		.65	
Utilizing a mentor (X_2) ^b		1.00	-.01	.20	.07	.04	.61		
								.49	
Supportive principal behavior (X_3) ^c			1.00	.13	.13	.17	2.96		
								.63	
Teacher preparation quality (X_4) ^c				1.00	.26	.20	4.36	1.12	
Student teaching experience (X_5) ^c					1.00	.20	5.07	1.14	
Teacher efficacy (Y_1) ^d						1.00	6.76	.88	

Notes. ^aScale: 0=No, 1=Yes; ^bScale:1=Rarely occurs, 2=Sometimes occurs, 3=Often occurs, 4=Very frequently occurs; ^cScale: 1=Strongly disagree, 2=Moderately disagree, 3=Slightly disagree, 4=Slightly agree, 5=Moderately agree, 6=Strongly agree; ^dScale: 1=Nothing, 3=Very little, 5=Some influence, 7=Quite a bit, 9=A great deal.

Two variables (utilizing a mentor and supportive principal behaviours) were eliminated from the full model yielding a significant model with three variables ($p=.001$) explaining 17% of the variance in teacher efficacy at the Teaching Practice phase of the school year. The full model had a medium effect size ³⁵ (Cohen, 1988). Collective efficacy accounted for 10.8%

unique variance, Perceived Teacher Preparation Quality accounted for 1.0% unique variance, and Perceived Student Teaching Experience accounted for 2.8% unique variance. An examination of the residuals showed the assumptions were not violated. Furthermore, there was no concern of multicollinearity (lowest tolerance factor=.910; Highest VIF=1.10).

TABLE 2 : Summary of Backward Elimination Regression Analysis for Variables Explaining Teacher Efficacy of Students and Novice Teachers

Variables	Full model <i>B</i>	<i>SE B</i>	<i>B</i>	<i>T</i>	<i>p</i>
Collective efficacy	.46	.13	.33	3.43	<.01
Teacher preparation quality	.01	.08	.11	1.06	.29
Student teaching experience	.13	.08	.17	1.73	.09
(Constant)	3.80				

Note. Full model: $R^2=.17$, $F=6.20$, $p=.001$.

Implications and Recommendations

Collective efficacy was related to supportive principal behaviours and teacher efficacy. This finding was congruent with Hoy and Woolfolk whose study found that teacher efficacy was influenced by principal's influence with superiors³⁶. In their study, Newmann, Rutter, and Smith in their study established that administrator responsiveness and teachers helping one another were associated with teacher efficacy³⁷. Then, Tschannen-Moran, et al., seemed to suggest that collective efficacy might have an effect on novice teachers as they are socialized into the profession³⁸. And lastly, Goddard and Goddard in their study concluded that teacher efficacy was higher in schools where collective efficacy was higher³⁹.

Collective efficacy, student teaching experience, and teacher preparation quality were collectively associated with teacher efficacy of student teachers and novice teachers during the Teaching Practice phase of the programme. The rank-order of importance of variables in the model implies that there may be sequential building blocks of teacher development⁴⁰. A quality teacher preparation program provides a foundation to develop teachers⁴¹. Positive student teaching experiences engage preservice teachers to apply the concepts they learned in their teacher preparation programs⁴². However, during the fourteen weeks of the of the Teaching Practice experience of the fourth year, collective efficacy was most closely associated with teacher efficacy of these three variables.

Collective efficacy is a group of teachers' shared belief in its collaborative capabilities to organize and execute courses of action required to produce student success⁴³. Goddard and Goddard posited that teachers are aware of and influenced by the social processes and collective beliefs that make up a school⁴⁴. Based on his social cognitive theory, Bandura postulated that social influence shapes self-efficacy⁴⁵. Therefore, the social belief component of collective efficacy may indicate that student teachers and novice teachers may need to feel that they are part of an efficacious group of teachers. School organizational and contextual variables, especially the professional community of teachers, influence teachers' efficacy, motivation, and performances as found by Richardson and Placier⁴⁶.

Further investigation of the school organizational and contextual variables needs to be conducted, perhaps at various points of teacher development and the school year. Although teacher educators would agree that pre-service teachers need to have a positive student teaching experience accompanied by a quality teacher preparation program⁴⁷, teacher educators, cooperating teachers, and instructional leaders should focus on developing a sense of collective efficacy with novice teachers and their teaching colleagues during the Teaching Practice phase of the fourth year of the course. This finding clearly implies that student teachers and novice teachers need to feel that they are part of a team of teachers who are supportive to each other in helping students learn.

Teacher educators should help preservice teachers understand and apply the concept of collective efficacy by helping them understand the normative school environment shaped by teachers' shared beliefs. University supervisors, cooperating

teachers, and instructional leaders should instruct, support, and guide novice teachers to collaborate with other teachers and help them understand the organizational processes and informal structure of schools⁴⁸.

The relationship between collective efficacy and teacher efficacy supports that these factors are theoretically related and have the same theoretical underpinnings Bandura⁴⁹; Goddard and Goddard, 2001⁵⁰; Goddard et al.⁵¹. However, perhaps collective efficacy overshadowed the influences of teacher preparation and student teaching on teacher efficacy because collective efficacy is conceptually and operationally aligned with teacher efficacy. Tenably, a limitation of this study could have been measuring the novice teachers' perceptions of teacher preparation and student teaching experience based on four items. Further investigation should focus on identifying indicators that comprehensively measure quality teacher preparation and student teaching experiences and help clarify this possibility.

The various types of support that novice teachers' need should be identified as their needs change throughout the school year. Although principal support and utilizing a mentor were excluded from the model, they may not have been perceived as important during the fourteen weeks of the of the Teaching Practice experience of the fourth year. Yet, they may appear to be associated with teacher efficacy later in the school year. Another limitation of the study was measuring if novice teachers had a mentor with one item. The mentoring relationship should be investigated to determine the contribution mentors make to novice teachers' efficacy.

Additional environmental factors need to be investigated and mixed research methods such as focus group interviews should be

conducted with novice teachers in the quest for grounded theory of understanding the nature of variables that influence teacher efficacy that emerged from this study. Novice teachers are influenced by various contextual factors and knowing which environmental factors contribute to positive growth and performance would help instructional leaders nurture and facilitate novice teachers' development who become effective, contributing to the teachers' growth in the career and technical education profession.

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