

Influence of Gender of Teachers of Agriculture on Classroom Diversity Management in Secondary Schools in Homa Bay County, Kenya

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Abstract: *Recognition of diversity among learners' world over by teachers and school administrators' remains key in education. Teachers of Agriculture in secondary schools are aware of the existence of diversity among learners in their classes, but appear indifference in terms of demographic characteristics such as age, gender, level of training and years of teaching experience in managing learners with diversity in secondary schools. Although a number of studies have been conducted in Kenya on factors that affect learners' diversity management among teachers, much of such studies used cross sectional survey and were especially in the areas of special and inclusive education. The objective of this study was to examine the influence in gender of teachers of Agriculture on classroom diversity management in secondary schools in Homa Bay County, Kenya. A sample of 486 comprising of teachers and students of agriculture were considered in this study. Data collection instruments such as questionnaires and interview schedule were used and through a test-retest method during the pilot study an acceptable Cronbach's coefficient Alpha of 0.79 were obtained. Data was analysed using descriptive and inferential statistics. It is evident that there was statistically significant difference in scores for males (mean =2.788, SD=.586) and females [mean=3.104, SD=.525; $t(87) = -2.636, p=.010$], with female teachers of Agriculture recording higher scores in classroom diversity. Thus, the findings imply that gender of teachers of Agriculture had greater influence on their classroom diversity management in secondary schools in Homa Bay County, Kenya is statistically significant. The study recommends the need to balance gender with other demographic structures while posting teachers of agriculture to secondary schools to enhance classroom diversity management.*

Keywords: Classroom diversity, Diversity management, Gender, agriculture subject

1. Introduction

Education across the world is intended to prepare children in different ways for the positions they are expected to occupy in social, economic, and political life. According to Laverne, Elbert & Jones., (2011) there has been a substantial theoretical and practical shift of emphasis, mostly in mainstream education, towards acknowledging that teachers are among the principal components of any pedagogical program. In the last decade, research base increasingly showed that teachers are among the most important players influencing student achievement, holding the key to sealing the gaps in students' achievement outcomes Kantrovich, (2007); Kewal, R., A., Gilbertson, L., Fox, M. A. and Provasnik, S. (2007); Planty., Hussar., Snyder., Kena, Kewal Ramani, Kemp., Bianco, & Dinkes, (2009). Diversity in education encompasses students from different races, gender, and socioeconomic backgrounds, students who speak different languages, different learning abilities and students from different cultures Baff, (2011). Diversity management, thus, is the act of acknowledging these differences and, in turn, fostering an atmosphere to teach every student in the classroom effectively.

According to Talbert & Edwins, (2008) diversity is one of the most "significant social aspects" in the United States because of the rapid change in demographics which make secondary agriculture education programs to attract students from non-traditional backgrounds." The perceptions and needs of agriculture teachers on classroom diversity and inclusion have been well studied (Vommi, 2012) The findings of the study indicated that agriculture teachers

understood the concept of classroom diversity. They felt confident teaching racially, culturally, and linguistically diverse students and students with disabilities.

Adequately defining the teachers' perceptions about students has been at the core of research and controversy. According to Baff (2011) the term "teacher characteristics" typically refers to qualities of teachers that can be measured with tests or derived from their academic or professional records. In the current world, teacher quality is treated as a crucial factor in the educational process and students' educational achievement Whiting, M., & Young, J. (2012). As such, broad reviews research on the effects of teachers' training (duration and specialization), pedagogical approaches towards teaching, teacher experience, attitude towards learners and teachers' advanced professional training has been conducted. Whiting & Young (2012) further contend that the demographic disposition of teachers has a significant influence on how they handle learners within and outside their classrooms. Research on diversity in the classroom has mainly been carried out in the United States of America (USA). Most of the research conducted in the USA during the 1970s investigated the policy of desegregation and not integration with a focus on conditions of equal status and respect within schools. Recent surveys from the USA have shown that both white and minority students in integrated school districts tend to report that they have learned to study and work together, developing confidence and skills to work in such settings (Gurin, 2012).

Teacher quality and ability has been a subject of research in various countries. For instance, in India, studies by Rivkin,

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Hanushek & Kain, (2005); Rock off, (2004) and Aaronson, Barrow Sander (2013) found that teacher quality is reasonably stable over time. The studies are in agreement that students taught by 'high quality' teachers, in terms of level of education, training and experience, have significantly higher achievement. However, the studies show little variation in teacher quality and ability to meet the unique needs of their students.

Media reports have also highlighted incidents in schools where tribal and gender tension as well as discriminatory practices against learners with special needs and/or disabilities has been rife. The need to deal with and manage such issues therefore poses many challenges for schools and teachers. Odhiambo (2013) further contends that there is a growing concern on the ability of teachers to effectively meet the unique needs of learners' diversity in terms of gender, special learning, agricultural backgrounds, socio-economic backgrounds and academic potentials.

Homa Bay County is largely dominated by the Luo tribe with more or less similar cultural practices. However, in the secondary schools, there exists diversity in the region in terms of gender, socio-economic status of the learners, academic abilities and attitude towards specific subject areas Nyakado, (2013). Currently, there is limited empirical research focusing how teachers, in terms of gender, professional qualifications and teaching experience manage learners' diversity in Agriculture, unlike in other compulsory subjects, being an elective technical subject, in Homa Bay County, Kenya. Thus, the present study analyzed the relationship between gender and age of teachers of agriculture and their level of diversity management among secondary school students in the County.

Although students have the free will to choose their career subjects, cases have been cited whereby teachers of optional and technical subjects like Agriculture, dictate who joins the class based on 'some predetermined criteria' in the pretext of guidance Abdullahi, Mlozi & Nzalayaimisi (2015). In cases where all the students who are interested in studying Agriculture as an optional subject irrespective of their diversity are allowed to do so, some teachers, owing to their own individual differences and bias, may find it challenging to assist students overcome any difficulty that they may experience in the subject Waithera, (2013). Such students become excluded, which negatively affects their interests and consequent performance in the subject, a situation that requires intervention. Teachers of Agriculture in secondary schools may be aware of the existence of diversity among learners in their classes, but possess little or no knowledge on how to adequately manage such diversity among the learners adequately. Thus, effectively catering for the unique needs of such learners in Agriculture classes may pose a major concern for educators who equally come from diverse backgrounds with individual differences. This negates the tenets of diversity management and may eventually kill the career aspirations of the excluded students. Although a number of studies have been conducted in Kenya on factors that affect levels of diversity management among teachers, much of this research has been in the areas of special and inclusive education. In Agriculture subject however, much research has focused on factors affecting student

achievement, factors influencing choice of Agriculture as a subject and attitude of students towards the subject. It is upon this premise that the study sought to establish the influence of selected teacher characteristics on diversity management in teaching of agriculture in secondary schools in Homa Bay County, Kenya.

1.1 Objective of the Study

The objective of the study was:

To determine the influence of gender of teachers of agriculture on classroom diversity management in secondary schools in Homa Bay County.

2. Methodology

The study used Casual-comparative design because it enabled the researcher to use questionnaires, interview schedule in soliciting data and analysing using qualitative and quantitative methods (Mugenda & Mugenda, 2003).

Location of the Study

The study was carried out in Homa Bay County in Kenya, covering an area of 3,183.3 km² with a population of 963,794. It is located 420 km west of Nairobi on the shore of Lake Victoria at 0.52° S and 343.45° E, and is bordered by five counties, namely: Migori to the South, Kisii and Nyamira to the East, and Kericho and Kisumu to the North East. The county also borders Lake Victoria to the North and West. Homa Bay County is one of the settings in which learners with diversity are found, for instance the county has national schools which presents it with learners from both agricultural and non-agricultural backgrounds, from both low and high socio-economic status, learners with diverse academic entry behaviour, as well as learners with a variety of special learning needs. The nature of the economic activities within the county like, sugarcane farming, fishing, maize farming, cattle rearing requires agricultural knowledge that ought to be acquired by the learners in schools.

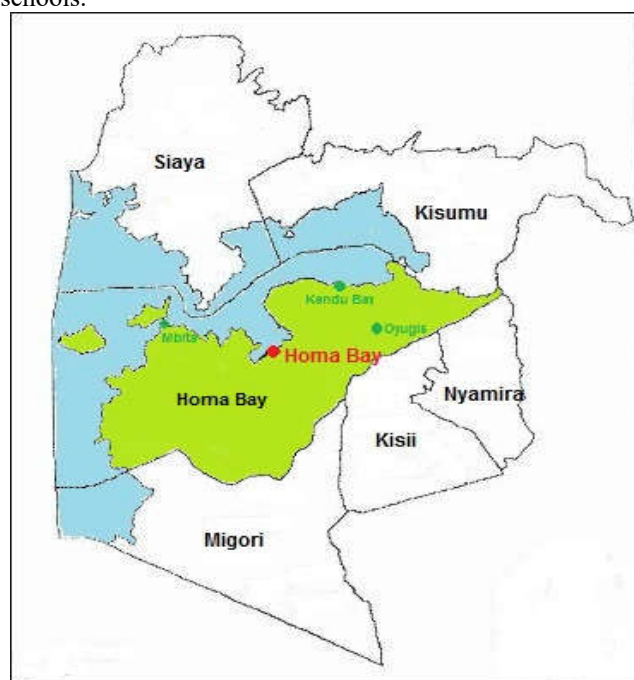


Figure 1: Map of Kenya Showing the Homa Bay County

Target Population

The study targeted 2190 comprising of teachers and students of agriculture in secondary schools in Homa Bay County. National schools and extra – county schools presented a situation with students from different socio-cultural backgrounds and academic entry behaviours.

Sampling Procedure and Sample Size

Convenience sampling was used to select Homa Bay County for the study, while purposive sampling was used to select national and extra-county schools with student population of over 1700, in Homa Bay County. From the 108 teachers of Agriculture in these schools were purposively sampled to participate in the study, while 378 students were randomly sampled.

The sample of 486 was arrived at using Yamene (1968) formula below;

$$n = N/1+N*(e)^2$$

Where:

n=sample size;

N=population size;

e=margin of error which is fixed at .04 at 96% confidence level.

Table 1: Questionnaire Return Rate

Respondents	Questionnaires administered	Questionnaires returned	Return rate (%)
Students	378	332	87.8
Teachers	108	89	82.4
Total	486	421	86.6

Source: Survey data (2019)

The researcher administered the instruments to sample of 486 comprising of 378 students and 108 teachers. Out of this 332 students and 89 teachers returned their questionnaires, translating to an overall response rate of 86.6%. Creswell (2014) and Mugenda & Mugenda (2003) recommend that a response rate of 50% is adequate, 60% is good and 70% and above is excellent for analysis and reporting on a survey study. Based on this assertion, the current study's response rate of 86.6% is therefore excellent; it was sufficiently representative of the target population

Validity

Validity is the degree to which results obtained from the analysis of data actually represent the phenomenon under study (Golafshani (2003)).The questionnaires to be used in the study were developed by the researcher in line with the research objectives. The questionnaire items were examined and moderated by the supervisors and other research experts in the Department of Agricultural Education and Extension at Egerton University. This helped in ensuring the content validity and the construct validity of the items. The validity of the instruments was further improved during piloting as the pilot respondents were asked to respond to the questions in the questionnaire that helped to reframe the questionnaire items, making them more appropriate and understandable to the level of the respondents.

Reliability

Reliability is a measure of consistency of the questionnaire (Golafshani, 2003).The researcher carried out a pilot study to determine the reliability of the questionnaires. The pilot study was carried out in Rachuonyo South Sub-County which had similar characteristics as the study area. Randomly sampled teachers and students of Agriculture were selected from the pilot schools and given questionnaires which they responded to and their comments used to modify the questionnaire items. LOS was also piloted with the teachers. For the Teacher questionnaire, a Cronbach alpha reliability coefficient of 0.79 was obtained and considered acceptable.

Data Collection Procedure

The examined and approved proposal was presented to the Board of Post-Graduate Studies of Egerton University. Upon approval, the Board issued the researcher with a letter which was to be used to seek a research permit from the National Commission for Science, Technology and Innovation (NACOSTI) and clearance letters from the respective Sub-County Directors of Education that were used to notify the principals of the sampled schools. The researcher sought informed written consent and appointments from the sampled schools for data collection. On the appointed days, the researcher personally conducted classroom observations, distributed the questionnaires and collected them for analysis after the sessions.

Data Analysis

The researcher first pre-processed data to correct the problems identified in the raw data such as by elimination of unclear and inconsistent answers and then developed a coding scheme that guided further analysis Kombo & Tromp (2009).The study was intended to generate mainly quantitative data from the instruments administered. One-way ANOVA was used to test hypothesis.

3. Results and Discussion

Demographic Characteristics of Teachers of Agriculture

Table 2 presents the demographic characteristics of the teachers of Agriculture who participated in the study.

Table 2: Demographic Characteristics of Teachers of Agriculture (n=89)

Variable	Sub-Variable	N	Percentage
Gender	Male	50	56.2
	Female	39	43.8
Level of Training:	Masters	18	20.2
	Degree	56	62.9
	Diploma	15	16.9
Years of Teaching Experience:	Below 5 years	17	19.1
	6-10 years	34	38.2
	11-15 years	24	27.0
	Above 15 years	14	15.7
Age:	30 years and below	12	13.5
	31-40 years	55	61.8
	Above 40 years	22	24.7

Table 2; reveal that male 56.2% teachers dominated in the teaching of agriculture compared to female 43.8% in secondary schools in Homa Bay County.

Demographic Characteristics of Students of Agriculture

Table 3 presents the demographic characteristics of the students of Agriculture who participated in the study.

Table 3: Demographic Characteristics of Students of Agriculture (n =332)

Characteristic	Sub-variable	N	Percentage
Gender:	Male	228	68.7
	Female	104	31.3
Class:	Form Three	156	47.1
	Form Four	176	52.9
Presence of Special Need:	Present	56	17.8
	Absent	276	83.2

From Table 3, it was reported that there were more male than female students of agriculture in secondary schools in Homa Bay County, at 68.7 percent and 31.3 percent respectively. The study established that gender distribution of teachers as per Table 2 and of students of agriculture in secondary schools have a close similarity. This implies that agriculture being a science oriented subject is a preference for male than female students.

Influence of Gender of Teachers of Agriculture on Classroom Diversity Management

The study investigated difference in gender of teachers of agriculture on the use of specific strategies by the sampled teachers of Agriculture in meeting the unique needs of learners with varying learning needs. The teachers were presented with a table to indicate the frequency with which they used specific strategies indicated (3= very often, 2=often, 1 = not often). The scores were averaged with a maximum score being '3=very often'. Figure 1 presents the findings on the average of the scores obtained, based on the gender of the teachers.

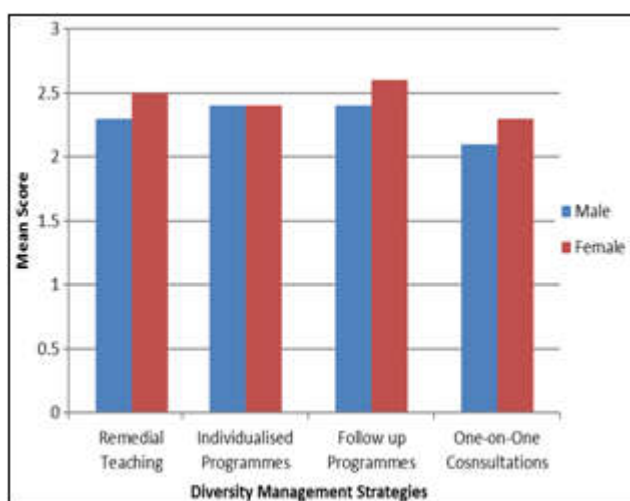


Figure 1: Mean Scores by Gender on the Use of Diversity Management Strategies by Teachers of Agriculture

From Figure 1 it was established that the sampled teachers were responsive to the unique needs of learners in their

classes. However, the figure indicates that female teachers were more responsive to these needs than the male teachers, as evidenced by their high mean scores than the male counterparts, in the use of all the diversity inclusion strategies investigated.

Figure 3 presents the findings from the sampled students on the difference in gender on the use of specific strategies by the sampled teachers of agriculture in meeting the unique needs of learners with varying learning needs in their classes.

Similarly, the students of agriculture were presented with a table to indicate the frequency with which their teachers used specific strategies indicated (3= very often, 2=often, 1 = not often). The scores were averaged with a maximum score being '3=very often'. Figure 3 presents the findings on the average of the scores obtained, based on the gender of their teachers.

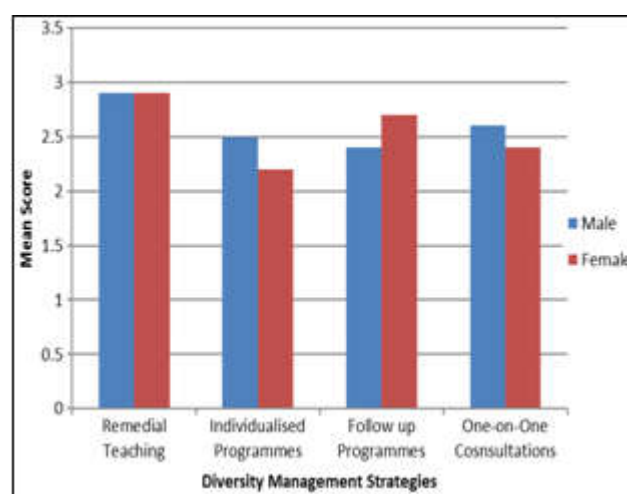


Figure 2: Mean Scores by Gender from Students on the Use of Diversity Management Strategies by Teachers of Agriculture

From Figure 2, it appears that the sampled teachers of agriculture were responsive to the unique needs of learners in their classrooms. However, female teachers obtained higher means than their male counterparts in using the specified diversity inclusion strategies, except in the use of 'Individualized Programmes and 'One-on-One Consultations' where male teachers obtained higher means. Further, the data on inclusive classroom practices obtained from the LOS was analysed into percentages, by the gender of the 10 teachers. Table 3 presents the findings.

Table 3: LOS Scores of Teachers of Agriculture on Inclusive Classroom Practices by Gender of Teachers

Scores (Percentages)	Male		Female	
	Frequency	Percentages	Frequency	Percentages
76-100	1	10	2	20
51 - 75	6	60	0	0
26-50	1	10	0	0
0 -25	0	0	0	0
Total	8	80	2	20

The finding on Table 3 indicate that from the LOS, all the female teachers of Agriculture (20%) were found in the upper quartile (scores of 76% - 100%), than their male

counterparts, majority of whom (60%) fell in the third quartile (scores of 51% - 75%). This is a possible indicator that in general, the female teachers of Agriculture who participated in this study were more responsive to diversity in their classroom than their male counterparts.

These findings reflect that the works of Mlozi, Kagu & Nyamba (2013) which indicated that female teachers were more accommodative to diversity than their male counterparts. Further, Madine, M. (2011) found that female teachers consistently scored higher in acceptance scale over a period of time than their male counterparts; with the scores of male teachers in the acceptance scale being relatively unstable. Pijl (2010) had previously reported that female teachers were found to score significantly higher than their male counterparts in the acceptance scale; with a conclusion that there is a significant correlation between gender of teachers and their ability to support learners with diversity in their classroom.

Testing of hypothesis

H_{01} : There is no statistically significant influence of the gender of teachers of Agriculture on their classroom diversity management in secondary schools in HomaBay County.

The ANOVA analysis of the statements based on the gender of teachers of Agriculture is presented in Table 8. The study sought to investigate whether there is difference in the level of classroom diversity management given the gender of the Agriculture teacher. An inferential statistic, independent-samples t-test, was used to test the null hypothesis that there is no statistically significant difference in classroom diversity management between male and female teachers in secondary schools. The significant level (p-value) was set at .05, such that if the p-value was less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. If the p-value was larger than 0.05, it would be concluded that a significant difference does not exist. The preliminary test done revealed that the assumption on equality of variance was not violated, as was reflected by the Levene's test=.736 >.05. Table 13 shows the independent-samples t test results output.

Table 4: Independent Samples t-test on the Relationship between Gender of Agriculture Teacher and Level of Classroom Diversity Management

Mean on Diversity		t	Df	Sig. (2-tailed)	Mean Diff.	95% C.I	
Male (n=50)	Female (n=39)					-	-
2.788 (SD=.586)	3.104 (SD=.525)	-2.636	87	0.010	-.315	-.550	-.077

Table 4 shows the results of the independent-samples t-test conducted to compare the classroom diversity management scores for male and female teachers of Agriculture. It is evident that there was statistically significant difference in scores for males (mean =2.788, SD=.586) and females [mean=3.104, SD=.525; $t(87) = -2.636$, $p=.010$], with female teachers of Agriculture recording higher classroom diversity management practices than their male counterparts. Based on the fact that the p-value was less than the prior set significant level of .05, the null hypothesis was rejected and conclusion reached that there is statistically significant difference in classroom diversity management between male and female teachers in secondary schools. However, the study further computed the effect size, which provided an indication of the magnitude of the differences in the level of classroom diversity management practices between male and female teachers of Agriculture. The magnitude of the differences in the means was fairly low ($\eta^2=.073$), implying that 7.3 per cent of the variance in classroom diversity management practices in secondary schools in Homa Bay County was explained by the gender of the teacher of Agriculture. Thus, the findings imply that the influence of the gender of teachers of Agriculture on their classroom diversity management in secondary schools in Homa Bay County is statistically significant.

4. Summary, Conclusions and Recommendations

4.1 Conclusions

Female teachers of agriculture are more than their male counterparts in secondary schools in Homa Bay County, Kenya. However, female teachers are more responsive to student diversity than their male counterparts. Most teachers of Agriculture in secondary schools are either young or middle aged. However, there is no statistical significance in the influence in how the age of these teachers influence how they manage classroom diversity.

4.2 Recommendations

- The principals of secondary schools should put in place capacity building opportunities for teachers of Agriculture towards classroom diversity management.
- The teachers' training colleges should re-focus their training on classroom diversity management by training teachers on specific diversity management strategies.
- The Ministry of Education in conjunction with the Teachers Service Commission should implement continuous sensitization among teachers of Agriculture on classroom diversity management strategies.
- Teachers of Agriculture to establish the unique needs assessment of students in their classes and implement strategies aimed at meeting these needs during their teaching.

5. Suggestions for Further Research

It would be prudent to study the influence of school-based factors on classroom diversity management by teachers of Agriculture.

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