

Assessment of Skills Utilization towards Farming by Secondary School Agriculture Graduates in Lilongwe

Joseph Namangale

Abstract: *This study aimed to assess the utilization of agriculture skills by secondary school graduates and had four objectives. The study employed a mixed - methods approach to collect both qualitative and quantitative data, which were analyzed using thematic analysis and descriptive statistics respectively. The study found that although students had positive attitudes towards agriculture, many did not gain practical skills, impacting their ability to utilize the knowledge and skills they acquired. The study recommends strengthening teaching of agriculture at secondary schools by shifting towards critical thinking and practical application, and motivating students to value agriculture to bridge the gap between knowledge acquisition and practical utilization in the agricultural sector.*

Keywords: Secondary school agriculture graduates, skills acquisition, skills utilization, instructional strategies

1. Introduction

1.1 Background of the study

The Agriculture subject in Malawian secondary schools has been taught largely by non - specialized teachers (76%) for many years, despite the fact that agriculture is crucial to the country's economy (Mlangeni, 2015). This has resulted in a lack of practical training and skills utilization in the subject, even after graduation. Balschweid, Thompson & Cole (1997) identified various aspects of agricultural knowledge that secondary school students should acquire, including crop production, livestock raising, the economic and societal significance of agriculture, its relationship with natural resources and the environment, marketing and processing of agricultural products, public agricultural policies, global significance of agriculture, and distribution of agricultural products. However, unqualified teachers have hindered the acquisition of this knowledge.

Despite possessing knowledge and skills in agriculture, a few secondary school graduates are choosing to pursue farming as a livelihood, regardless of whether they are employed in formal jobs or not. It is important to recognize that farming has been a significant source of food, raw materials for industries, employment opportunities and foreign exchange for several decades. However, many secondary school Agriculture graduates are relying on inadequate knowledge and skills obtained at the secondary school level for their livelihoods, which has led to decreased productivity and increased poverty.

According to Mutiso (2019), Agriculture is a crucial part of the secondary school curriculum, as it serves as a means of imparting farming skills to young people. The hope is that by learning about agriculture, students will be better equipped to utilize their immediate environment for their livelihoods.

Despite the aforementioned points, studies have revealed that numerous young people who have completed their secondary education are not proficient in using the

agricultural skills they acquired in school to ensure food security. It is crucial that the teaching approaches employed in teaching agriculture subject focus on enhancing students' skills in the areas of food production, accessibility, safety, nutrition, and production economics, Njura et. al. (2020).

Despite the foregoing, research has shown that many youth who have graduated from secondary schools cannot adequately employ the agricultural skills developed during school for food security. The teaching approaches employed in secondary school agriculture should be able to develop skills of students on the aspects of food production, its accessibility, food safety, nutrition as well as production economics, Njura et. al. (2020). The authors defined agricultural teaching approaches as the methods used to address the needs, experiences, and emotions of agriculture students, both theoretically and practically, with the goal of helping them develop essential skills for ensuring food security. In addition, Deegan, Wims & Pettit (2016) conducted research that emphasized the effectiveness of blended learning, which allows students to take ownership of their learning environment, in teaching a wide range of practical skills in agriculture.

1.2 Problem statement

Agriculture in Malawian secondary schools has been taught by non - specialized teachers although agriculture is the backbone of the economy, (Mlangeni, 2015). This affected the practical aspect in the delivery of the course, resulting into non - utilization of the agricultural knowledge upon graduation, and hence reduced productivity and increased poverty.

Some tertiary institutions like LUANAR, Mzuni, Nalikule and Domasi College of Education, introduced a programme aimed at training specialized secondary agriculture teachers (Mlangeni, 2015). The programs aimed at improving delivery of the subject so that even secondary school agriculture graduates acquire knowledge that enables them to practice productive farming enterprises.

Of major concern, the country continues to experience rise in poverty levels, and dependence on donor countries for food and non - food agricultural commodities. Malawi continues to experience low agricultural productivity. Most families continue to experience food insecurity.

Research has shown that most African countries including Malawi have low production in agriculture despite skills and knowledge for better agricultural production being taught in both primary and secondary schools, (Waithera, 2013). Few secondary school graduates with agriculture knowledge and skills are taking up farming irrespective of whether they are in any formal employment or not.

The contribution of agriculture knowledge and skills to the performance in farming by secondary school agriculture graduates has not been analytically explored and documented. The greater problem here is, as much as many students pass through secondary school and have learnt agriculture, their impact on agriculture productivity is not felt as experienced by low production. These graduates often lack the needed practical skills to be able to undertake basic agricultural practices and as such they are often unable to successfully engage themselves in agriculture enterprise (Darko, Yuan, Opoku, Ansah, & Liu, 2016).

It is against this background that this study was carried out.

1.3 Objectives of the study

Specifically, the study intends to address the following objectives:

- a) To find out why secondary school graduates do not utilize the knowledge and skills acquired at school.
- b) To assess the learner's attitude on the value of the Agriculture subject and its influence on performance in farming.
- c) To evaluate teachers' competence on instructional strategies in the teaching of the Agriculture subject.
- d) To examine the adequacy of the Agriculture curriculum to impart knowledge and skills.

1.4 Hypothesis

H_0 : there is no statistically significant relationship between the agricultural teaching approaches and skills utilization by secondary school graduates.

H_1 : there is a statistically significant relationship between agricultural teaching approaches and skills utilization by secondary school graduates.

1.6 Significance of the study

The purpose of the study was to evaluate the utilization of agriculture skills and knowledge among secondary school graduates, and provide recommendations to teachers, schools, curriculum developers, and policy makers in Malawi on how to improve the teaching agriculture subject in secondary schools. The study aimed to use the results as intervention strategies to change the approach of teaching and learning towards agriculture, to appreciate the practicality and importance of the subject, and to produce personnel who can contribute to achieving the first pillar of

Malawi's 2063 vision, which is agriculture productivity and commercialization. Additionally, the study's findings would contribute to the existing literature and could be used for future research.

2. Literature Review

2.1 Agriculture Education in Malawi

Education plays a vital role in developing self - sufficiency among disadvantaged children and youths. This means that children who receive an education can effectively contribute to the agricultural sector, which in turn can help reduce poverty at the household level and ultimately improve the overall poverty conditions of the country. It is important to note that low levels of education are both a consequence and a cause of poverty, at both the household and national level (Kadzamira & Rose, 2001). While investing in education may not provide immediate relief from poverty, households can view this as an investment in their future well - being, as education can create long - term benefits.

Education as a whole must prepare young adults to acquire skills which will lead them towards a better life after secondary school graduation (Symonds, Robert , & Ronald, 2011). As such, Agriculture education plays a significant role in agriculture development which is pivotal to Malawi's economy which employs over 80% of the workforce. Agriculture education has a role in ensuring food security in Malawi. Research done by Engler & Kretzer (2014) argued that there is a close linkage between agricultural situation and education outcomes in the sense that if the food situation is insecure and food shortages are evident, the educational outcomes of learners suffer. Similarly, practicing agriculture without proper education on how to go about it, leads to low productivity. As such, the author suggests that proper direction of agricultural subjects in the education system, specifically the curriculum, is the only transformative way in reaching the goal of long - term food security.

Much as the Agriculture subject was made a core subject in Malawi, the subject is being taught by unqualified teachers in most secondary schools. About 76% of secondary schools have unqualified or under - qualified agriculture teachers which is negatively affecting delivery of agriculture lessons as well as impeding meaningful learning of agriculture, (Mlangeni, 2015).

2.2 Teacher preparation and professional development

In the past decade, research has been done on professional development and how it affects improvements on teaching or teaching outcome. Professional development affects teachers' ability to teach in the classroom. Research has also shown that professional development has a positive influence on teacher's classroom practice and student achievement (Garet, Porter, Desimone, Birman, & Yoon, 2001). It is needed to further strengthen teacher's abilities to teach students. The researchers suggest that using professional development as a means of improving teaching, more investment needs to be done on characteristics that foster improvements in teaching. Focusing on duration, collective participation, and the features like content, active

learning and coherence has the potential of improving professional development, Garet et. al (2001). Further, Weeks (2019) suggests that professional development programs should focus on technology literacy, communication and critical thinking which would be very beneficial to in - service teachers.

A teacher who has undergone professional development uses various teaching approaches to teach learners. Teaching of the Agriculture subject at secondary school requires a comprehensive background in theory and practical aspects by teachers of agriculture (Canice, Agwubike, & Disi, 2007). With well - designed teaching approaches, teaching acts as a vehicle of transferring knowledge and skills to learners. Skills such as collaboration, critical thinking and problem - solving are crucial to ensuring the success of students. A student who is well trained feels confident to utilize the skills and knowledge learnt at school.

Further research notes that preparing teachers with skills needed to teach 21st century skills in their classroom is necessary. As such, teacher preparation and professional development should focus on practical methods of implementing these skills in their classroom. These would in turn play an important role in helping students apply skills, by providing opportunities for workforce and higher education preparation.

2.3 Agriculture secondary school curriculum in Malawi

The curriculum is a tool through which the values, needs, aspirations, interests and objectives of the society or the nation are articulated and addressed as learning experiences for the development of the individuals through teaching and learning process, as quoted in (Chirwa, 2014). The curriculum drives the teaching and learning process. It directs what is to be taught at what level and what content. The curriculum is a composite that brings together the learner, the teacher, teaching and learning methodologies, anticipated and unanticipated experiences, and the outputs and outcomes that are possible within a learning institution.

In Malawi, the curriculum dates back to the missionaries, which was later shaped by the colonial government. It was later discovered that the curriculum did not meet the needs and challenges of the independent Malawi by 1964, (Chirwa, 2014). After a series of curriculum reviews, the country adopted student - centered teaching and learning approaches from the earlier teacher - centered approaches.

The curriculum being used to date aims at achieving developmental and secondary education outcomes. The curriculum states that the core objectives of the agriculture subject in secondary school is to introduce new knowledge, skills, attitudes and values in the context of their existing knowledge, skills, attitudes and values so that students develop a deeper understanding as they learn and apply the knowledge, (MoEST, 2013). The curriculum hopes to make students transfer knowledge and skills in everyday life beyond the school.

2.4 Teaching of Agriculture in secondary schools

Agriculture teachers have the responsibility of instructing students on a broad range of skills, such as science, mathematics, communication, leadership, and management. They employ various teaching methodologies to impart knowledge effectively. While learning the core content is important, it is equally vital for students to know how to apply what they have learned in real - life situations. Teachers should utilize strategies that prepare students for the workforce. According to Weeks (2019), teachers should shift from traditional rote memorization and teacher - centered classrooms to student - centered classrooms that emphasize the practical application of content knowledge. The selection of teaching strategies should encourage students to construct their education through their own life experiences.

Research has shown that 21st century teaching permits students to build the skills needed when entering higher education, the workforce, and life (Scott, 2017). Teaching is more focused on the student than the teacher. John Dewey's theory of constructivism argues that for effective teaching to occur, students should be given opportunities for learning that enable them to link content learned in school to previous and future experiences and knowledge which are developed through active participation. Incorporating 21st century skills into the classroom engages students in the learning process and allow them to graduate being better prepared to succeed in an ever changing growing global economy. Research done by Weeks (2019) further noted that effective teaching strategies incorporate the explicit skills in the classroom in conjunction with teaching real - world scenarios to understand the importance of agriculture skills outside the secondary school classroom.

2.5 Student's engagement and skills utilization

The success of students in mastering knowledge and skills in studying agriculture largely depends on a number of factors. For instance, the environment and teacher's choice of instructional methodologies has a positive impact towards the students. Engaging students in classroom activities is another factor that greatly affects the learning outcomes. Research has shown that increased levels of student engagement relates highly to academic achievement, (Skinner & Belmont, 1993). Student attitude and engagement broaden the potential of student outcomes. Teaching and learning becomes more productive to students if they are engaged in the classroom.

The concept of student engagement and attitude encompasses various aspects of involvement in school and commitment to learning. Research done by Pagan (2018) identified and measured student engagement in three distinct domains: behavioral, affective, and cognitive. Behavioral engagement involves the extent to which students comply with class - related activities, such as following rules, attending classes regularly, and participating actively in class. Affective engagement pertains to students' emotions and how these emotions influence their learning experience. This includes displaying interest in learning, having positive relationships with teachers and peers, and recognizing the

value of schooling. Cognitive engagement refers to the use of metacognitive and self - regulatory strategies by students to better comprehend the instructional material.

2.6 Student’s attitude and skills utilization

An attitude is an inward feeling expressed by outward behavior. The attitude of a student towards a specific subject influences their attitude towards a specific class. It has been reported that students are attracted to subjects that are taught by highly enthusiastic, knowledgeable, supportive and friendly teachers as compared to subjects taught by arrogant, rigid and less supportive teachers (Curran & Rosen, 2006). It is argued that when teachers are rigid, less supportive and unclear in their teaching, the learners learning experiences is negatively affected therefore a major issue for learners. A negative attitude to a particular subject may result to lack of interest to choose the subject. For example, poor attitude towards subjects such as science, technology and mathematics has been an obstacle to entry to fields related to science, technology and mathematics.

Research has also shown that students’ negative attitude, low interest in agriculture and lack of skills acquisition is traceable to teacher - centered methodologies used to deliver instruction (Onanuga , Ifamuyiwa, & Alebiosu, 2021). Such teaching instructions do not encourage hands on experience which could allow proper acquisition of skills. Teacher centered methods rarely arouse students interest towards the subject and this has an effect on student’s attitude.

According to Wilhelm (2004), if learners have reservations about an instructor, they are less likely to enroll in the subject, and the opposite is also true. On the other hand, when teachers utilize techniques that improve students' outlook and attitude towards agriculture, it tends to result in the acquisition of new skills by the students.

Research has indicated that the presence and effective use of instructional materials during agricultural science lessons can have a positive impact on students' attitudes towards the subject (Seraphine, Jacob, & Joash, 2018). The availability

of appropriate teaching and learning materials can generate student interest in the subject matter. For example, engaging students in garden activities can provide them with practical skills that supplement the theoretical knowledge gained in the classroom, leading to a more positive attitude towards agriculture.

2.7 Theoretical framework

This study was guided by Mitzel model, cited in Warner et. al. (2006), which proposed that teaching must take into account sets of variables: teachers and students, their interactions, and the product of those interactions. The Mitzel model was later expanded on by Dunkin and Biddle to include four major variable types: presage, context, process and product.

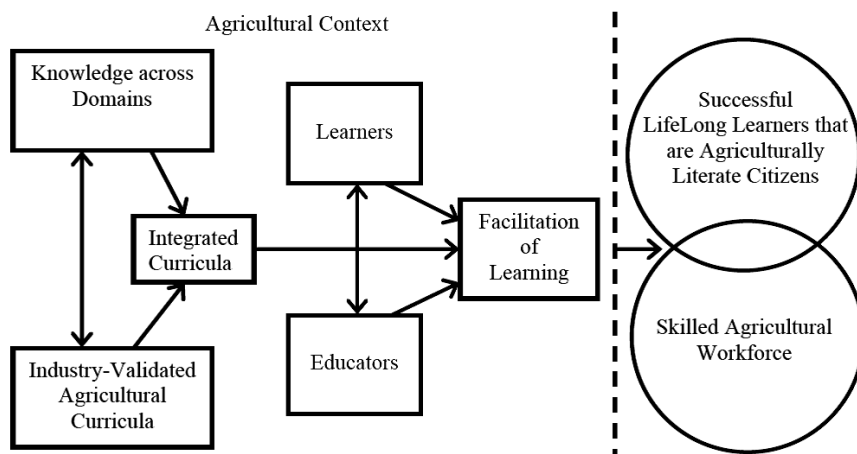
Presage variables, such as teacher formative experiences and teacher - training experiences, concern the characteristics of teachers that may influence the teaching process, Warner et. al. (2006). Well trained teachers with necessary expertise and experience greatly influence teaching process. Skills acquisition becomes easier if qualified teachers are involved in teaching and learning process.

This study adopted Mitzel model with much emphasis on the product variable. The study aimed at investigating skills utilization by secondary school agriculture graduates towards farming. Understanding of these variables and their interactions was therefore very significant to this study.

2.8 Conceptual framework

The conceptual framework of this study was based on the assumption that skills utilization by secondary school graduates is influenced by independent variables such as teachers’ qualifications, student’s attitude towards farming and teacher’s choice of teaching methodologies from the curriculum.

Conceptual model of agricultural subject matter as content and context of teaching



Adapted from Roberts and Ball, 2009

Figure 1: Mitzel Model

The concept begins with the agricultural industry which provides the basis for the curriculum to be taught to students

as well as teacher preparation and professional development trainings. Well trained teachers implement the curricula with

relevant instructional strategies and resources that result in observable skills acquisition in students. The teacher also interacts well with the learners to ensure knowledge and skills are transmitted. This is attainable only if the students have the right attitude towards the subject. Otherwise negative attitude leads to students not acquiring the necessary skills.

3. Methodology

3.1 Research design

According to Cohen, Manion, & Morrison, (2007) and Saunders, Lewis, & Thornhill (2009), a mixed approach is used for the empirical data collection, using numerical and non - numerical data, in order to gather rounded, reliable data. Mixed method research uses qualitative and quantitative data collection techniques and analysis procedures. This study adopted mixed method approach. The design was appropriate because it enabled the researcher to collect data from respondents to address this study's objectives and establish the reasons of non - utilization of skills towards farming.

3.2 Location of the study

The study was conducted in Lilongwe district and the schools where data was collected from include Lilongwe Girls secondary school, Dzenza secondary school, Chigoneka CDSS, Chilambula CDSS, Bwaila secondary school and Chinsapo secondary school. The schools targeted were falling in these categories: National boarding schools, National day secondary schools and Community Day Secondary Schools. Lilongwe girls and Dzenza are national boarding schools; Bwaila and Chinsapo are national day secondary schools; whilst Chigoneka and Chilambula are community day secondary schools. All these schools are located in the Central West Education Division.

3.3 Sampling procedure

The study utilized a mixed approach, incorporating both probability and non - probability sampling methods. For probability sampling, the schools provided lists of their graduates which the study used as sampling frames from which the samples were drawn. For non - probability sampling, purposive sampling technique was adopted to identify agriculture teachers and heads of science department.

3.4. Sample size

For simple random sampling, data was collected from a total of sixty graduates from six schools. For purposive sampling, twelve teachers and six heads of department from the six schools participated in the study.

3.5 Data collection

A semi - structured questionnaire and likert scale were developed and used to collect data from secondary school agriculture graduates. Separate questionnaires were

administered to Agriculture teachers and heads of science departments.

3.6 Data analysis

Quantitative data collected was analyzed using Statistical Package for Social Scientists (SPSS) to derive tables, percentage and graphs. Regression analysis was conducted to establish the relationship between teachers' ability to teach with skills acquisition by secondary school agriculture graduates. Qualitatively, data was analyzed using thematic analysis in which data collected was categorized into themes.

3.7 Limitations of the study

Lack of adequate time since the researcher was also committed to work place. To balance the time between work and research hasn't been easy. Lack of time may have impact on the study in terms of limited sample size, data collection, data analysis and risk of bias.

4. Results and Discussion

This chapter presents the findings of the research and it provides the data in table and graphical forms.

4.1 Objective 1: to find out why secondary school agriculture graduates do not utilize the knowledge and skills acquired at school.

Table 4.1: Skills acquisition and utilization

Skills	Not good	Good	Very good	Excellent
Problem - solving	43.3	25	21.7	10
Organization	48.3	36.7	13.3	1.7
Management	43.3	15	31.7	10
Technical Know - how	40	23.3	25	11.7
Farm operations	15	51.7	18.3	15
Interpersonal	25	43.3	20	11.7

Skills acquisition was assessed by asking the graduates to indicate extent of skills they gained at school. According to the results in Table 4.1, the students believed they were not good enough in terms of technical know - how. Generally, it is only in farm operation and interpersonal skills that graduates feel better equipped.

These findings suggest that while students may have practical experience in carrying out basic farm operations, they lack the necessary skills to apply critical thinking and problem - solving abilities required for successful agriculture production.

The study implies that the lack of skills among secondary school graduates in agriculture production may be attributed to the incompetence of teachers in delivering the subject matter effectively. Thus, there is a need for teachers to improve their teaching strategies and develop comprehensive teaching plans that focus on developing a wide range of skills required for agriculture production. Additionally, students should be encouraged and motivated to participate in agricultural activities to enhance their skills and knowledge in the field.

4.1.4 Regression analysis on teacher’s teaching knowledge and skills acquisition

The study included an assessment of the teaching approaches utilized by teachers of agriculture subject, with a

focus on problem - solving, management, organization, farm operations, interpersonal skills, and technical know - how. The study used regression analysis to examine the relationship between these variables and the teachers' choice of teaching methodologies.

Table 4.2: Regression analysis on teacher’s teaching approaches and skills acquisition and utilization

Hypothesis	Regression Weights	B	t	p - value	Hypotheses supported
H ₁	Problem solving → teaching approaches	.100	.676	.502	No
H ₂	Organization → teaching approach	-.111	-.885	.380	No
H ₃	Management → teaching approach	-.219	-1.683	.098	No
H ₄	Technical know - how → teaching approach	.130	.880	.383	No
H ₅	Farm operations → teaching approach	.155	1.125	.266	No
H ₆	Interpersonal → teaching approach	-.297	-2.118	.039	Yes
R	.186				
F (6, 53)	2.015				

Note: *p < 0.05

From the results, the regression model has a statistically significant F - value (F (6, 53) = 2.015, p < 0.05), indicating that at least one of the independent variables is related to the dependent variable. However, the individual regression weights and t - values suggest that only H6 is fully supported by the data. The coefficient of determination R² for the model is 0.186, indicating that about 19% of the variance in teaching approaches can be explained by the independent variables included in the model. This suggests

that the independent variables in the model are not able to fully explain the variation in teaching approaches, and there may be other factors that are also influencing teaching approaches.

4.2 Objective 2: To assess the learner's attitude on the value of the Agriculture subject and its influence on performance in farming.

Table 4.3: Likert scale on student’s attitude

Opinion	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
Agriculture is simple among science subjects	35	50	10	5	0
Agriculture is effective to students with differing abilities	6.7	45	13.3	28.3	6.7
Agriculture is suited for boys than girls	3.3	18.3	18.3	21.7	38.3
Agriculture prepares students for college	10	56.7	20	8.3	5
Parents & teachers encourages learners	10	40	18.3	23.3	8.3
Agriculture content is appropriate to learners	25	53.3	18.3	3.3	0
Teacher use of different teaching & learning approaches	11.7	36.7	15	33.3	3.3
Teaching and learning materials are available and enough	6.7	30	26.7	23.3	13.3
Choice of teaching method by the teacher made it simple to understand concepts	23.3	38.3	16.7	15	6.7
Willingness to choose Agriculture subject	40	41.7	11.7	5	1.7
Motivated to practice skills and knowledge at home	16.7	40	16.7	25	1.7
Our teacher knew how to teach	25	55	8.3	10	1.7

The results in table 4.3 show that 50% of the secondary graduates indicated that agriculture subject is one of the simplest subjects among sciences and that agriculture’s content is appropriate. This suggest that there is positive perception of quality of instruction and relevance of the subject. In terms of willingness to choose the subject, the respondents gave relatively positive response and that they were motivated to practice what they learnt in class at home. The results further shows lower percentage of respondents (45%) agreeing that agriculture is effective to students with differing abilities which could suggest some variability in how the subject meets the needs of different students. Overall, the data has demonstrated that most students have positive attitudes towards the subject.

4.2.1 Aspiration to take agriculture oriented careers

Secondary school agriculture graduates were asked if they could considered pursuing agriculture oriented careers after

secondary school. The graduates responded and the results are presented in the table 4.4.

Table 4.4 Aspiration to take agriculture oriented careers

Consideration of Agriculture oriented career		
Response	Frequency	Percentage
Yes	49	81.7
No	11	18.3
Total	60	100.0

From the results, it appears that the majority of secondary graduates in the study had a positive attitude towards agricultural careers. As indicated in table 4.4, 82% of respondents said they would consider pursuing such careers after secondary school. This suggests that the graduates could see the value in the subject and its potential applications in their future careers.

4.3 Evaluating teachers' competence on instructional strategies in the teaching of agriculture subject.

4.3.1 Choice of teaching methodologies

Teachers were asked of teaching methodologies that they use to teach learners. The findings are presented in the Figure 2.

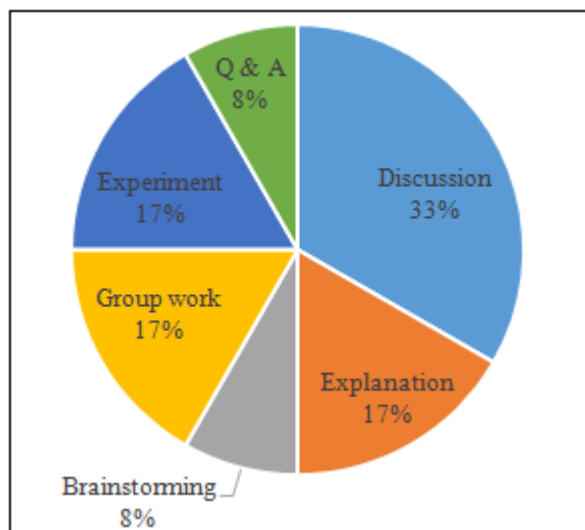


Figure 3: Utilization teaching methodologies adopted to teach agriculture

The data presented in Figure 2 indicates that the teachers use different teaching methodologies to instruct students. Among these methods, discussion (33%) is the most common, followed by explanation (17%), experiment (17%), and group work (17%). However, the chart also suggests that practical methodologies are used less frequently than methods that promote theoretical learning. These findings are consistent with the research conducted by Onanuga, Ifamuyiwa, & Alebiosu (2021), who found that many agriculture science teachers prioritize teaching scientific principles over agricultural practices, despite the importance of reinforcing skills acquisition through practical applications.

4.3.2 Delivery of content

The heads of departments were asked to assess the way teachers delivered content to students. They observed that teachers were using diverse teaching methods to impart knowledge effectively to students. A head of department from Lilongwe girl's secondary school noted that the teachers' deep understanding of the subject matter made it easier for them to teach. This sentiment was also shared by the graduates. As shown in table 4.3, approximately 55% of the respondents agreed that their teacher was knowledgeable in teaching.

4.3.3 Student's engagement

Teachers were asked how often they engage students during their lessons with respect to cognitive engagement, affective and behavioral. The findings are presented in Figure 3 below.

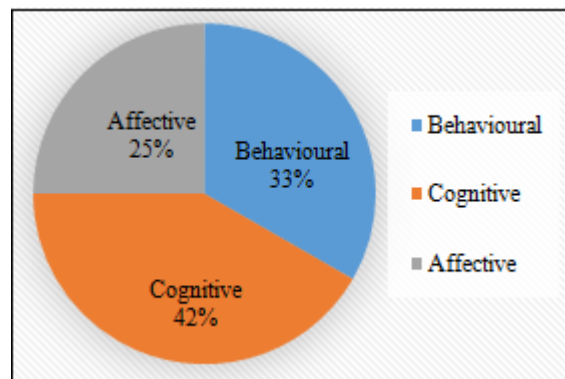


Figure 3: Student engagement

According to figure 3, the highest percentage of respondents (42%) reported that teachers engage them cognitively, indicating a focus on developing critical thinking and understanding of the subject matter. The results also showed that 33% of respondents reported that teachers engage them behaviorally, indicating that hands - on learning is encouraged. A smaller percentage of respondents (25%) reported that teachers engage them affectively, indicating a focus on developing positive attitudes towards agriculture.

4.5 Analysis of Agriculture curriculum to impart knowledge and skills.

When one teacher was asked on the adequacy of the curriculum, he had to say the following and I quote; *"Agriculture subject is one of the subjects that if taken seriously, one would not want to be employed.... but the problem with our students is that they take this subject for granted."*

While the statement by the teacher suggests that the content of the agriculture curriculum is relevant to learners, it does not provide a comprehensive analysis of the adequacy of the curriculum in terms of imparting knowledge and skills. The study did not provide detailed information on the specific aspects of the curriculum that were assessed or the criteria used to determine its adequacy. Therefore, it is difficult to draw conclusive remarks on the adequacy of the curriculum based on this statement alone. However, the study did highlight the importance of developing effective teaching strategies that focus on developing a wide range of skills required for agriculture production to ensure that learners can effectively utilize the knowledge and skills acquired from the curriculum.

It is also important to note that while the curriculum was deemed relevant and comprehensive by the teachers, the study also found that the adequacy of the curriculum in terms of imparting practical skills was debatable. Many students did not gain practical skills despite the rich content of the curriculum. This highlights the need for a review of the curriculum to ensure that it adequately prepares students with practical skills and knowledge that they can apply in real - world situations. For example, one teacher suggested that some content need to be taught at higher level as it require high order of learning than memorizing. He said,

"The content is fine with me. However, I would suggest that the topic of Agricultural experimentation should be taught in

senior classes rather than junior classes. At least senior classes, students can comprehend and understand. Unlike in junior classes, where most learners would only learn and tend to forget by the time they leave secondary school. ”

One teacher admitted that the content of agriculture was too much with respect to time allocated to the subject and this is what he said:

“It is unfortunate that we have too much content in agriculture and little time to cover it. This makes it difficult for us to teach all the skills required for our students to become proficient in agriculture. I emphasize much on theory than the practical. As a result, some students end up not gaining the necessary skills and knowledge needed to succeed in agriculture after graduation. ”

This suggests that the curriculum may need to be reviewed in terms of the amount of content covered in relation to the time allocated to the subject, in order to ensure that students are able to gain the necessary skills and knowledge to succeed in agriculture. It was noted that most teachers were after completing the syllabus to catch up with the MSCE calendar of examinations.

In terms of suggested teaching, learning and assessment methods the curriculum seems to focus much on the theoretical part rather than the practical aspect. One teacher said:

“Most of the suggested teaching methods don’t encourage learners to practice what they have learnt. In the past, we used to have projects and we were assessed at the end of the academic year. That was our practical exams, not what is happening these days. ”

The researcher noted that many schools did not have school gardens as they are a valuable resource for practical learning and application of agricultural skills. Lack of learning resource like the gardens, could hinder students' ability to develop and utilize the skills learned in class. Additionally, the researcher also noted that it was more concerning that some teachers prioritize speed of content delivery over utilizing effective teaching methodologies that could enhance skills acquisition.

Lastly, the researcher noted that teachers were not prioritizing practical skills in livestock production, as it is an important aspect of agriculture. The lack of practical skills could lead to a knowledge gap that may hinder students' ability to engage in livestock production in the future. It was also disappointing to learn that teachers were prioritizing completion of the syllabus over providing a well - rounded education that includes practical skills. The curriculum's suggestions for field visits to nearby farms should have been utilized to enhance the learning experience and provide students with practical skills in livestock production.

5. Conclusion and Recommendations

In this study, the researcher’s focus was assessing skills utilization towards farming by secondary school graduates

and the following were the recommendations and conclusions made.

5.1 Recommendations

The researcher made the following recommendations:

- 1) For Malawi to achieve its vision 2063, there needs to be a change in the way agriculture is taught in secondary schools. Agriculture is a critical sector for Malawi's economy, and it's essential that students receive a high - quality education in this subject.
- 2) To achieve this goal, it is also important for agriculture teachers to upgrade their skills and knowledge. This could include attending training sessions, workshops, and seminars to learn about new teaching methods, technologies, and innovations in the field of agriculture. Teachers could also work to obtain additional certifications or degrees in agriculture or related fields.
- 3) In addition, teachers should focus on incorporating practical aspects of agriculture into their teaching. This could involve partnering with local farmers or businesses to provide students with hands - on learning experiences, or utilizing resources like school gardens or greenhouses to teach students about plant growth and cultivation. This will ensure that students gain the necessary skills for success in agriculture and contribute to the country’s agricultural sector.
- 4) Encouraging students to develop positive attitudes towards practicing agriculture concepts in their homes is also an important step towards achieving Malawi's vision 2063. Agriculture is a crucial sector for the country's economy, and it's essential that students see the value in pursuing careers in this field.

5.2 Areas for further research

A broader study would provide a more comprehensive view of the challenges and opportunities facing agriculture education in Malawi, allowing for more targeted interventions and improvements. It would also help to identify any regional differences or unique challenges that may exist in different parts of the country, which could inform the development of more effective strategies for teaching agriculture in those areas. Ultimately, by conducting a more extensive study on the teaching of agriculture in secondary schools across Malawi, the country can take a more evidence - based approach to strengthening the subject and improving the quality of agricultural education for students.

5.3 Conclusions

Students had a positive attitude towards the subject, indicating that they were interested in learning and engaging with the subject matter. Despite the positive attitude, most students could not acquire and utilize the skills after graduating from secondary school. This suggests that there may be factors beyond student motivation that are hindering their ability to apply what they have learned. The study, identifies inadequate qualified teachers and teaching and learning resources as potential factors contributing to the students' inability to acquire and utilize skills. Therefore, there is a need to invest in the training of qualified teachers

and the provision of teaching and learning resources to equip students with the necessary skills to succeed in the agricultural sector.

The study also recommends the need for a review of the curriculum to ensure content matches the level of the students to enhance their retention rates. Content that requires much application should be taught at senior level than lower classes. There are some teaching methods that do not adequately measure the skills that are most relevant for success in today's society. As such, teaching methodologies employed by the teacher should focus on measuring students' ability to think critically, apply knowledge to real-world situations, and gather useful information.

References

- [1] Balschweid, M. A., Thompson, G. W., & Cole, R. L. (1997). The effects of an agricultural literacy treatment on participating K - 12 teachers and their curricula. *Educational Resources Information Center*, 1 - 13.
- [2] Canice, I., Agwubike, C. C., & Disi, J. O. (2007). Perceptions of Head Agricultural Science Teachers Regarding problems and challenges of vocational Agriculture Delivery in secondary schools in Delta State, Nigeria. *Electronic Journal of Science Education*, 7 - 16.
- [3] Chirwa, G. (2014). Curriculum change and development in Malawi: A Historical Overview. *Mediterranean Journal of Social Sciences*, 5 (16), 336 - 345.
- [4] Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education* (6th ed.). London and New York: Routledge.
- [5] Curran, J. M., & Rosen, D. E. (2006). Student Attitudes toward College Courses: An Examination of Influences and Intentions. *Journal of Marketing Education*, 28 (2), 135 - 148.
- [6] Darko, R. O., Yuan, S., Opoku, S. F., Ansah, C. O., & Liu, J. (2016). Gender differences in attitude towards the learning of Agricultural science in senior high schools in Assin South District of the Central Region, Ghana. *Journal of Agricultural science*, 8 (9), 143 - 151.
- [7] Deegan, D., Wims, P., & Pettit, T. (2016). Practical Skills Training in Agricultural Education: A Comparison between Traditional and Blended Approaches. *Journal of Agricultural Education and Extension*, 22 (2), 145 - 161.
- [8] Engler, S., & Kretzer, M. (2014). Agriculture and Education: Agricultural Education as an adaptation to food insecurity in Malawi. *Universalk Journal of Agricultural Research*, 224 - 231.
- [9] Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes Professional Development effective? Results from a National Sample of teachers. *American Educational Research Journal*, 38 (4), 915 - 945.
- [10] Kadzamira, E., & Rose, P. (2001). Educational Policy choice and policy practice in Malawi: Dilemmas and Disjunctures. Institute of Development studies working paper.
- [11] Manion, C. L., & Morrison, K. (2007). *Research Methods in Education* (6th ed.). Routledge.
- [12] Mlangeni, T. A. (2015). Investigating Agriculture Teacher shortage in Secondary schools in Malawi. *Journal of studies in Education*, 224 - 238.
- [13] MoEST. (2013). *Syllabus for Agriculture for forms 3 and 4* (1st ed.). Malawi Institute of Education.
- [14] Mutiso, S. K. (2019). Perception on performance in farming by secondary school agriculture graduates in Kangundi District, Kenya. *International Journal of Science and Research*, 8 (2), 1101 - 1115.
- [15] Njura, H. J., Kuabi, K. L., Taaliu, S. T., & Khakame, K. S. (2020). The relationship between teaching approaches and food security in Kenya. *Education Research International*, 243 - 258.
- [16] Onanuga, P. A., Ifamuyiwa, A. S., & Alebiosu, K. A. (2021). Learning by doing instructional strategy and parents' Education in determining secondary students' attitude in Agricultural science. *Journal of Turkish Science Education*, 18 (2), 305 - 319.
- [17] Pagan, J. E. (2018). *Behavioral, Affective and Cognitive Engagement of High School Music students: Relation to academic achievement and ensemble performance ratings*. University of South Florida: USF Tampa Graduate Theses and Dissertations. Retrieved March 27, 2023, from <https://digitalcommons.usf.edu/etd/7347>
- [18] Roberts, G. T., & Ball, A. L. (2009). Secondary Agricultural science as content and context for teaching. *Journal for Agricultural Education*, 81 - 91.
- [19] Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5th ed.). Essex: Pearson Education Limited.
- [20] Scott, L. A. (2017). *Battelle for Kids*. Retrieved from [battelleforkids.org: https://www.battelleforkids.org/networks/p21](https://www.battelleforkids.org/networks/p21)
- [21] Seraphine, S. A., Jacob, K. O., & Joash, K. K. (2018). Influence of instructional resources in learning agriculture in secondary school on employment creation in Vihiga county, Kenya. *Academic Journals*, 10 (1), 1 - 9.
- [22] Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85 (4), 571 - 581.
- [23] Symonds, W. C., Robert, S., & Ronald, F. F. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st Century*. Cambridge: Harvard University Graduate school for Education.
- [24] Waithera, K. S. (2013). *Challenges to teaching and learning of Agriculture in secondary schools in Kakuyuni division, Kangundo district, Machakos county, Kenya*. Kenyatta University.
- [25] Warner, W. J., Arnold, S., Jones, D. W., & Myers, B. E. (2006). The use and design of laboratory instruction in secondary Agriscience classrooms. *Journal of Southern Agricultural Education Research*, 56 (1), 125 - 135.
- [26] Weeks, K. J. (2019). *Twenty - First century skills: A Needs assessment of school - based Agricultural Education Teachers*. Logan: Utah State University.

- [27] Wilhelm, W. B. (2004). The relative influence of published teaching evaluations and other instructor attributes on course. *Journal of Marketing Education*, 17 - 30.