

## GAP ANALYSIS IN POST-GRADUATE AGRICULTURAL EDUCATION RESEARCH IN ESWATINI

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### ABSTRACT

*Post-graduate student research is fundamental for the growth of a young discipline such as agricultural education. However, no study was conducted on research themes covered by post-graduate Agricultural Education students in Eswatini. Thus, this study sought to identify thematic research gaps in post-graduates students' theses in Agricultural Education in Eswatini. The study was a desk review research on Agricultural Education masters' degree theses completed from 1996 to 2017 in the Department of Agricultural Education and Extension(AEE), Faculty of Agriculture at the University of Eswatini (UNESWA). The validity of the instrument was ensured through the use of experts from the AEE Department at UNESWA. Data analysis was performed using frequencies and percentages. Results of the study revealed that in Agricultural Education post-graduates research, gaps existed in the following thematic areas: primary themes - Delivery methodologies and Curriculum programme and secondary themes- Educational methodologies for teaching and learning; Innovative instructional technologies; History, philosophy, future and policy in Agricultural Education; Teaching basic and academic skills; and Creative thinking and problem solving. The study concluded that some of the thematic areas were still under-researched in Agricultural Education in Eswatini. The study also recommended that the Department of AEE at UNESWA needs to have a research agenda that will ensure that the research conducted is thematically balance.*

**KEYWORDS:** *Agricultural Education, Gap Analysis, Research Thematic Areas, Primary Themes, Post Graduate, Secondary Themes*

### INTRODUCTION

Generally, Agricultural Education is relatively a young discipline that emerged in the early 1900s (Williams, 1991). In a young discipline such as agricultural education, research is important as its place among other fields of knowledge is not fully understood (New comb(1993) stated that much of there search in agricultural education is accomplished by post-graduate (graduate) students. The term 'postgraduate' is often used to describe further study undertaken by those who already have a first degree such as masters' or doctoral studies. However, post-graduate studies may also include certificates and diplomas which are taught at a more academically demanding standard than undergraduate certificates and diplomas (House, 2010).

Kaur and Sidhu (2009) noted that the provision of postgraduate education in many developed and developing countries have been in response to increasing demands of students to enhance their career prospects. The provision of postgraduate education in many countries often takes the form of graduate studies either by mixed mode or research modes (Kaur & Sidhu, 2009). Unfortunately, research work is not cumulative; that is, it lacked depth and sound theoretical framework (Campbell & Martin, 2012).

Figure 1 presents the Agricultural Education research activities as postulated by Buriak and Shinn (1989). The inner-most circle represents the mission of Agricultural Education. The second circle presents the Agricultural Education research activities grouped into four research problem areas. These research thematic areas are (i) "Knowledge -base for teaching and learning"; (ii) "Curriculum programme planning"; (iii) "Delivery methodologies"; and (iv) "Programme relevance and effectiveness". The outer most circle presents the objectives of research in Agricultural Education. Buriak and Shinn (1993) revealed that the Knowledge-base for teaching and learning has the following objectives: creative thinking and problem solving, individual achievement, and professional preparation and competence. Curriculum programme planning entails teaching basic and academic skills; and needs of the future agricultural workforce. Then, Delivery methodologies relate to educational methodologies for teaching and learning; and innovative instructional technologies. Finally, Programme relevance and effectiveness involves the history, philosophy, future, and policy in Agricultural Education; faculty and staff development, and evaluation of teaching or programmes. In this study, the second circle on the dimensions of Agricultural Education was adapted as primary themes. Then, the outermost circle on the objectives of each dimension in Agricultural Education was adapted as secondary themes.

Newcomb, 1993). Late in the 1970s to the early 1980s, agricultural educators began believing in both knowledge and facts coming from empirical investigation. Agricultural Education research became a way of verifying existing knowledge, creating new knowledge, and for disseminating and applying that knowledge.

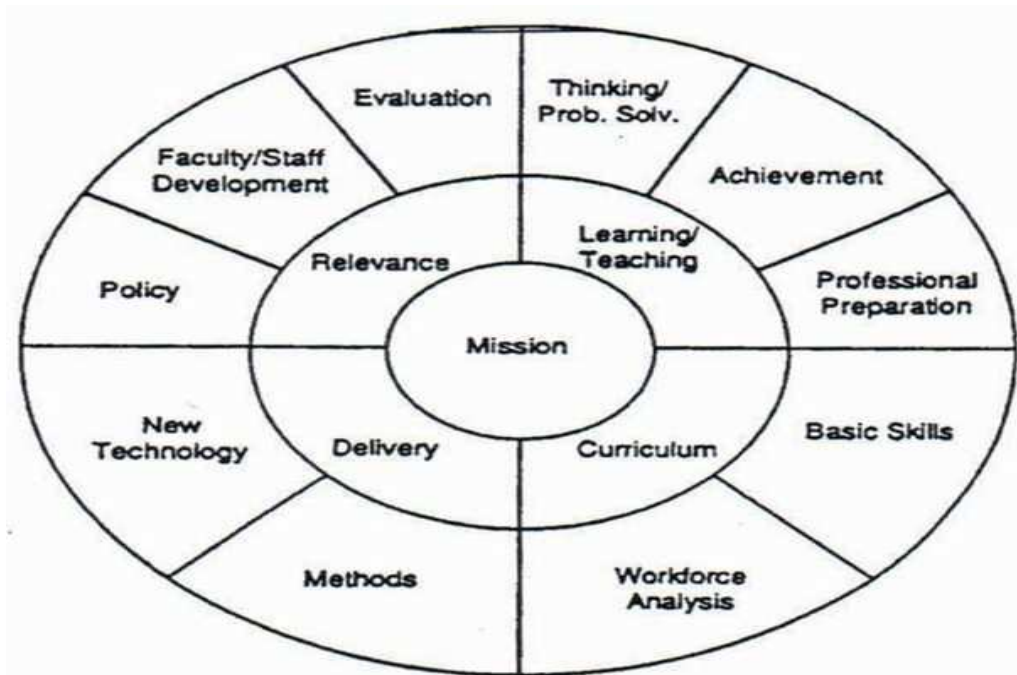


Figure 1: Structural Dimensions for Research in Agricultural Education by Buriak and Shinn (1993)

Edgar, et al. (2008a) found that the themes researched in articles published in the Journal of International Agricultural and Extension Education were on food, agriculture, natural resources, health, and family; needs assessment; instructional and programme delivery approaches; youth leadership and development; and evaluation. Also, Radhakrishna and Mbaga(1995) categorized researched themes in Agricultural Education as follows: adult or post-secondary, elementary agricultural programmes, evaluation, in-service education, philosophy, policy, programme development, recruitment, research method- ology, special needs, teaching methods among others. While, Miller and Madou-Bangurah (1993) presented the following as research category areas in Agricultural Education: administration or supervision; curriculum development, pedagogy or instructional methods; evaluation, youth or adult organizations; personnel staff development or in-service or pre-service; research or development activities; facilities or equipment and funding.

Silva-Guerrero and Sutphin (1990) identified the following researched categories in Agricultural Education: funding, evaluation, international Agricultural Education, urban programmes, curriculum and instructional development, Future Farmers of America, supervision and administration, manpower needs, teacher education or certification, adult education, research in Agricultural Education, occupational experience programme and post-secondary education. Similarly, Buriakand Shinn (1989) reported the following themes as consensus for research in Agricultural Education from deans and directors from the three groups of institutions in the U.S.A: concepts that can be effectively taught via technology; strategies to motivate teachers to teach effectively; innovative instructional, and evaluation of agricultural teaching or teachers, research base in critical thinking and problem solving; educational methodologies in teaching or learning, among others.

Crunkilton (1988) reported the following thematic research thematic areas in Agricultural Education: administration or supervision; curriculum development; pedagogy; special needs; instructional resources; supervised experience programmes; leadership and in-service; and evaluation. Schmidt, Lynch, and Frantz (1988) in vocational agricultural education identified the following research themes: programme development and improvement; policy studies; effectiveness; basic skills development; collaborative relationships; and personnel development.

Moore (1987) identified the following themes in Agricultural Education: Agricultural Education professionals; teacher education; extension, international Agricultural Education, curriculum or planning, teaching, and agricultural mechanics. Also, Warmbrod (1987) advocated for a broader research agenda to include extension education, communications, and non-vocational education in agriculture, post-secondary education, and Agricultural Education in higher education.

Regarding under-researched thematic areas, Birkenholz (2013) found that leadership education was yet to be explored. While Shinn, Briers, Baker (2008, p122) noted that “there is a need to re-examine Agricultural Education in a future that has already happened.” Correspondingly, a need also arose for Agricultural Education researchers to understand where the discipline has been in order to focus future research (Edgar et al., 2008a). Also, there had been a call to examine the essence of research in Agricultural Education were made (Edgar, at al., 2008b). In Eswatini, Mathonsi (2000) reported that research was lacking in the following areas: teaching and learning; planning learning experience; administration of learning situation; evaluation and systems inquiry; educational technology; and extension.

A Delphi study on International Agricultural Education by Miller and Madou-Bangurah (1993) revealed that the following areas needed to be researched: role of technical assistance; non-formal programming factors; comparative studies; public/private linkages; effective institutional structures; developing nations’ resource constraints; linkages with

developing nations' agricultural universities; and international agriculture knowledge of secondary students. Miller and Madou-Bangurah further pointed at the need to investigate indigenous practices and new subject matter; primary Agricultural Education in developing nations; internationalizing curricula; experiential international Agricultural Education; human resource development; and international agricultural knowledge in degree programmes as being among research areas on international Agricultural Education that needed research.

Earlier, Drucker (1997) asserted that there was a need to identify major events that have already happened to predict effects in the future. Buriak and Shinn (1993) further asserted that a need was apparent for "researching to research." This was a suggestion to focus the profession on salient problems that are significant to the future of Agricultural Education (Buriak & Shinn, 1993). This is because generally, Agricultural Education research had been cited as too shallow to develop essential understandings, focused on ancillary areas, and often unrelated to what is already known (Brown, 1980; Mannebach, 1981; Miller & Warmbrod, 1982; Newcomb, 1978; Warmbrod, 1987). Consequently, Buriak and Shinn (1989) reported lack of research conducted in the following themes: teaching competence of high school and university faculty; adoption-diffusion of agricultural technology; educational programmes and their effectiveness; the efficiency of information delivery systems; special educational needs and effectiveness in instructional strategies and learning characteristics.

In Eswatini, Agricultural Education started in 1973 (Gooday, 1974); introduced at the University of Eswatini. The masters' and Ph.D. programme were introduced at the University of Eswatini in 1994 and 2011 respectively (University of Swaziland Calendar, 1994, 2011). Students enrolled for post-graduate programmes in Agricultural Education at this University are required to undertake a thesis (masters' students) and dissertation (doctoral students). All of these students' theses are available in the University's library as unpublished theses and dissertations. No study has been conducted focused on research themes and gap analysis for future Agricultural Education research in Eswatini. Therefore, a need arose to conduct a study that focuses on themes and gaps for future Agricultural Education research conducted by post-graduate students in Eswatini.

The purpose of the study was to identify themes and gaps for future research in agricultural education in Eswatini.

The objectives of the study were to:

Identify research themes covered by post-graduate agricultural education students' research conducted at UNESWA; and determine research gaps that exist in post-graduate agricultural education students' research conducted at UNESWA.

## **THEORETICAL / CONCEPTUAL FRAMEWORK**

The study was underpinned by the integration of the theoretical framework used by Edgar et al. (2008a) and the dimensions in Agricultural Education research by Buriak and Shinn (1989) (see Figure 2). Edgar et al. (2008a) postulated that Agricultural Education researchers [including students] are involved in scholarship or research and the research output is in the form of articles, reports and theses or dissertations. The research output may cover the thematic areas as presented by Buriak and Shinn (1989) and leave out others. Consequently, the gap may exist in the research output as also articulated by Edgar, et al. (2008a). The gap is a pointer to their search are as topics that are yet to be researched in Agricultural Education (Silva-Guerrero & Sutphin, 1990). Figure 2 presents the operational framework of the study. In this study, research thematic gaps were established by comparing the researched thematic areas as in Agricultural Education

undergraduate research projects at the University of Eswatini against the thematic areas [primary and secondary] adapted from the study by Buriak and Shinn (1989).

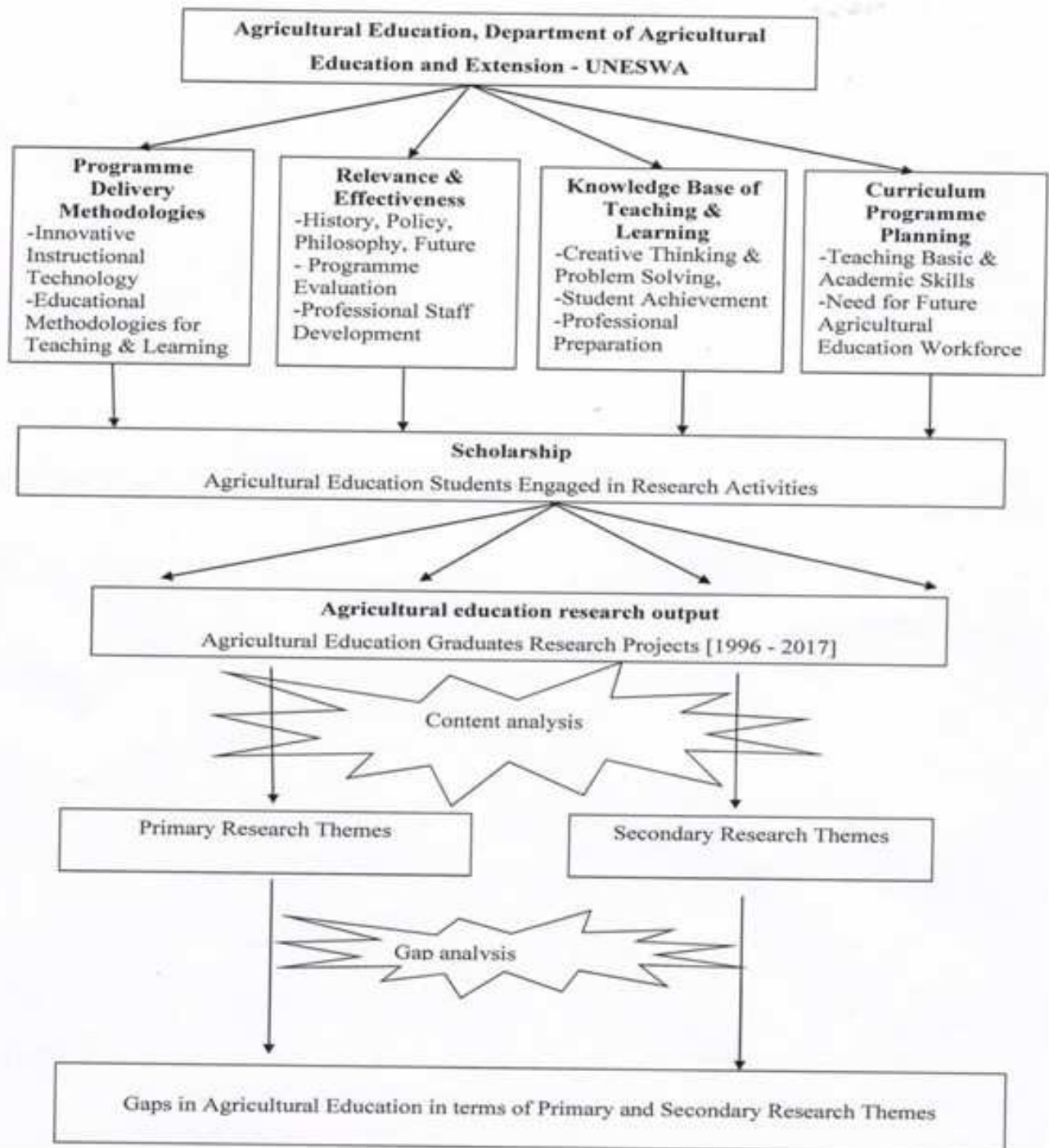


Figure 2: Theoretical / Conceptual Framework of the Study

## METHODOLOGY

This study was a desk review research. The conceptual framework of this study was adapted from a study by Dyer et al. (2003). This study was conceptually grounded in the past research indicating that research thematic areas (primary and secondary) are important in determining the current state of research (Buriak & Shinn, 1993). Data were collected using content analysis in January 2018. A census of Masters degree students' theses from 1996 to 2017 in the University of Eswatini-Department of AEE was used. A content analysis guide was used to solicit data from the Master's degree students' theses mainly on the research themes covered in agricultural education research. The content analysis guide instruments were validated by a panel of experts (n=5) from the Department of AEE of the University of Eswatini and two teacher training college lecturers. Data were analyzed using frequencies and percentages.

## RESULTS AND CONCLUSIONS OF THE STUDY

### Research themes in Agricultural Education

Table 1 reveals that Programme relevance and effectiveness (n=26, 43.3%) and Knowledge-base for teaching and learning (n=24, 40.0%) were the primary themes that had been researched by Masters degree students in Agricultural Education at the University of Eswatini.

Table 1: Primary research themes conducted by students in Agricultural Education at the University of Eswatini (N= 60)

| Primary Themes                           | f  | %    |
|--|----|------|
| Programme relevance and effectiveness    | 26 | 43.3 |
| Knowledge base for teaching and learning | 24 | 42.1 |
| Curriculum planning                      | 8  | 14.0 |
| Delivery methodologies                   | 2  | 3.5  |
| Total / overall                          | 60 | 100  |

Table 2 depicts that 13 of the 60 theses (21.6%) were on the Faculty and staff development secondary themes. Evaluation of teaching or programmes (n=12, 20.0); and Individual achievement (n=9, 15.0%) were also among the leading research themes.

### Gaps in Agricultural Education

Table 3 presents the primary themes that were under-researched by post-graduate students in Agricultural Education. The figures were derived from Table 1 by computing the research deficit or surplus index. The data revealed that the most under-researched Agricultural Education primary themes by the post-graduate students in Eswatini were: Delivery methodologies (Deficit=13, 86.7%) and Curriculum programme planning (Deficit=7, 46.7%).

**Table 2: Secondary Research Themes Conducted by Students in Agricultural Education at the University of Eswatini**

| Secondary Themes  | f  | %    |
|---|----|------|
| Faculty and staff development <sup>d</sup>  | 13 | 21.6 |
| Evaluation of teaching or programmes <sup>d</sup>   | 12 | 20.0 |
| Professional preparation and competence <sup>a</sup>  | 10 | 16.7 |
| Individual achievement <sup>a</sup>   | 9  | 15.0 |
| Needs for future agricultural workforce <sup>b</sup>  | 6  | 10.0 |
| Creative thinking and problem solving <sup>a</sup>  | 5  | 8.3  |
| Teaching basic and academic skills <sup>b</sup>   | 2  | 3.3  |
| Educational methodologies for teaching and learning <sup>c</sup>  | 1  | 1.7  |
| Innovative instructional technologies <sup>c</sup>  | 1  | 1.7  |
| History, philosophy, future and policy in Agricultural Education <sup>d</sup>   | 1  | 1.7  |
| Primary themes: a= Knowledge base for teaching, b=Curriculum planning; c= Delivery methodologies and d= Programme relevance and effectiveness |    |      |

**Table 3: Primary Themes Under-Researched in Agricultural Education in Eswatini**

| Primary Themes                        | # of Theses Conducted | Deficit (-) / Surplus (+) | %    |
|---------------------------------------|-----------------------|---------------------------|------|
| Programme relevance and effectiveness | 26                    | +11                       | 73.3 |
| Knowledge base for teaching -         | 24                    | +9                        | 60.0 |
| Curriculum programme planning         | 8                     | -7                        | 46.7 |
| Delivery methodologies                | 2                     | -13                       | 86.7 |

Primary theme theses quota = 15 theses

Table 4 shows the results on secondary themes under-researched by post-graduate students in Agricultural Education. The figures were derived from Table 2 by computing the research deficit. Results revealed that secondary themes that were most under-researched by post-graduate students in Agricultural Education in Eswatini were: Educational methodologies for teaching and learning (Deficit=5, 83.3%); Innovative instructional technologies (Deficit=5, 83.3%); History, philosophy, future and policy in Agricultural Education (Deficit=5, 83.3%); Teaching basic and academic skills (Deficit=4, 66.7%); and Creative thinking and problem solving (Deficit=1, 16.7%).

## CONCLUSIONS AND RECOMMENDATIONS

The conclusion drawn is that the primary themes covered in agricultural education students' research was on Programme relevance and effectiveness; and Knowledgebase for teaching and learning of the programme. Another conclusion drawn is that main secondary research themes covered in agricultural education post-graduates student researches were Faculty and staff development secondary themes; Evaluation of teaching or programmes and Individual Achievement. Also, Agricultural Education post-graduate student research in Eswatini was lacking in Delivery methodologies and Curriculum programme planning primary themes. The research output was also lacking in the following secondary themes: Educational methodologies for teaching and learning; Innovative instructional technologies; History, philosophy, future, and policy in Agricultural Education; Teaching basic and academic skills; and Creative thinking and problem-solving.

**Table 4: Secondary Themes Under-Researched in Agricultural Education**

| Secondary Themes  | # of Theses Conducted | Deficit (-) / Surplus (+) | %     |
|---|-----------------------|---------------------------|-------|
| Faculty and staff development <sup>d</sup>                                      | 13                    | +7                        | 116.7 |
| Evaluation of teaching or programmes <sup>d</sup>                               | 12                    | +6                        | 100.0 |
| Professional preparation and competence <sup>a</sup>                            | 10                    | +4                        | 66.7  |
| Individual achievement <sup>a</sup>   | 9                     | +3                        | 50.0  |
| Needs for future agricultural workforce <sup>b</sup>                            | 6                     | 0                         | 0.0   |
| Creative thinking and problem solving <sup>a</sup>                              | 5                     | -1                        | 16.7  |
| Teaching basic and academic skills <sup>b</sup>                                 | 2                     | -4                        | 66.7  |
| Educational methodologies for teaching and learning <sup>c</sup>                | 1                     | -5                        | 3.3   |
| Innovative instructional technologies <sup>c</sup>                              | 1                     | -5                        | 83.3  |
| History, philosophy, future and policy in Agri- cultural Education <sup>d</sup> | 1                     | -5                        | 83.3  |

Primary themes: a= Knowledge base for teaching, b=Curriculum planning;c= Delivery methodologies and d= Programme relevance and effectiveness

The used dimensions by Buriak and Shinn (1989) to establish gaps in thematic areas researched in Agricultural Education post-graduate research in Eswatini imply that other countries in the world can follow suit. The results of the study imply also that the future of Agricultural Education in Eswatini depends on the development and application of new knowledge generated through the thematic research areas (Dyer et al., 2003; Silva-Guerrero & Sutphin, 1990). Moore (2006) noted that some agricultural educators spend their time “dabbling in esoteric research that does not have much relevance to the real world” (p. 1). Also, Agricultural Education research has been cited as too shallow to develop essential understandings, focused on ancillary areas, and often unrelated to what is already known (Silva-Guerrero & Sutphin, 1990). The study points at the need for post-graduate research to become more focused and coordinated. A need arose also to understand where the discipline has been, to allow the profession to better understand where to focus research efforts in the future. Edgar et al. (2008b) noted that there was a need to re-examine Agricultural Education in a future that has already happened. In Eswatini, focusing and directing Agricultural Education research is good for its proper growth as the discipline is still young (Goody, 1974).

The following recommendations emanated from the study:

Institutions offering post-graduate agricultural education programmes are encouraged to conduct a similar study so

The following recommendations emanated from the study:

- Institutions offering post-graduate agricultural education programmes are encouraged to conduct a similar study so that they can refocus their research.
- A need to periodically (that is, every 5 years) analyze research-based on the research themes that are covered in Agri- cultural Education is evident.



- Researchers in Agricultural Education needs to double their efforts toward research on the following secondary research themes: Educational methodologies for teaching and learning; Innovative instructional technologies; History, philosophy, future and policy in Agricultural Education; Teaching basic and academic skills; and Creative thinking and problem-solving.
- Researchers in Agricultural Education also need to focus their research on Delivery methodologies and Curriculum programme planning primary themes.
- The Department of Agricultural Education and Extension at the University of Eswatini needs to have a search agenda that will ensure balanced research in Agricultural Education

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