

# Research Topical Areas for Agricultural Education in Eswatini

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## Abstract

The need for a focused Agricultural Education Research Agenda in order to develop the discipline cannot be over-emphasised. Existing literature indicates Agricultural Education has been predominately directed towards primary and secondary themes; no study has been conducted on research topical areas. Hence, this study sought to identify research topical areas in Agricultural Education in Eswatini. This was a descriptive study employing desk review in data collection. Experts (n=5) from the Department of Agricultural Education and Extension (AEE), at the University of Eswatini (UNESWA) reviewed the instrument for validity. Data analysis was performed using frequencies and percentages. Findings of the study revealed that in Agricultural Education, topical areas are special education needs, professional malpractice, funding, dissemination of research findings, innovative instructional technologies, distance / online education, intervention to cater for upgrading students in School Agriculture Programmes, among others. The study concluded that research in Agricultural Education must be reoriented to cater for the topical research areas. It is therefore recommended that a five-year periodic research review in Agricultural Education must be established to assist in identifying emerging topical areas.

**Keywords:** Agricultural Education; research project; research thematic areas; primary themes; secondary themes; topical areas.

## 1. Introduction

Practitioners in the Agricultural Education should examine the knowledge base of the field to allow the profession to reflect upon actions and ultimately improve the discipline [1]. There is a need for Agricultural Education to know where it can and should go with research in its pursuit to develop empirical knowledge [2]. Furthermore, there is also a need for Agricultural Education research to become more focused, coordinated, and conducted passionately [3].

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Research in Agricultural Education discipline can be focused by examining its knowledge base, and by reviewing its literature, which calls for a holistic approach [4]. Numerous specific calls have been made to examine the essence of research in Agricultural Education; a need exist to understand where the discipline has been, in order to allow the profession to better understand where to focus research efforts in the future. A need arose to re-examine Agricultural Education in a future that has already happened [5]. Researchers are concerned about how to ensure where the discipline is headed with research, adequacy and appropriateness of the direction, and clarity where the discipline has been. Researchers need to understand research occurring in Agricultural Education in order to be able to determine the futuristic research to be conducted in the discipline [5]. Some researchers noted that a progress has been made in the technological and methodological aspects of research (in Agricultural Education) by comparable improvements in aspects of research such as the relevance, significance, and importance of problems and issues investigated [6,7]. Consequently, some studies recommended that the highest priority for continuing progress in research in Agricultural Education must be given to the significance and importance of the problems and issues researched [6, 7, 8]. A study on Agricultural Education profession with reference to teacher education found that teacher education was mainly concerned with curriculum development, funding, teacher education, teacher shortage, evaluation, and teacher certification. Also supervision and administration, adult education, man power needs, Future Farmers of America, post-secondary agriculture programme, urban programme development and administration were also among the concerns of the Agricultural Education profession [9]. Reference [11] found that technology or distance education research topic was the most frequently reported in the *Journal of Agricultural Education* and the proceedings of the National Agricultural Education Research Conference (NAERC) in the five-year period from 2000 to 2004. Birkenholz and Ewing also indicated that other popular research topics during the same period from the same publishing outlets included: extension or adult education or volunteer administration; pre-service and beginning teachers; research in Agricultural Education; curriculum/integration; youth organisations or rural youth; teaching/learning; teachers; and teacher education [11]. Reference [11] discovered that institutions of higher education in the United States of America researched on graduate student competence, student achievement or academic performance, assessment, student recruitment or retention, and women in Agricultural Education. Researchers also conducted research on innovative interventions for Supervised Agricultural Experience (SAE) [12]. The discipline needs to have a broader research agenda to include extension education, communications, non-vocational education in agriculture, post-secondary education, and Agricultural Education in higher education [13]. Among many topical research areas in Agricultural Education reported, the following were prominent: innovative instructional technologies, strategies to motivate teachers, evaluation or assessment of agricultural teaching, university admission, competencies needed for employment, teacher preparation, increase in student achievement, faculty development, longitudinal studies showing clear paths and accomplishments of students completing Agricultural Education programmes, teaching competence of high school and university faculty, special education needs and effectiveness of various instructional strategies and learning characteristics [6]. In a study that sought to identify subject matter topics researched in agricultural and extension education from 1986 to 1996 found the following as topics frequently researched: evaluation, learning styles or theory or cognition, adult education, in-service training, job satisfaction or morale or burn-out, secondary agricultural programmes, problem solving, research methodology, programme development or curriculum, instruction or teaching, staff retention or recruitment, professionalism, agricultural literacy, agricultural careers and so on [14].

The following topical areas were also reported to have been adequately researched: adult education, college faculties, curriculum, employment opportunities, research methodology or impact, special needs or population, teacher attitude and problems, teacher training, teacher effectiveness and method, and so on [16]. Recently, a couple of related research in Agricultural Education has been conducted in Eswatini. This research includes the following: research gaps in undergraduate research [17]; research gaps by post-graduate students [18]; and thematic areas that have been under-researched [19]. Unfortunately, there is no study that has been conducted in Agricultural Education to identify specific topics that should be studied in Eswatini. Therefore, this study focuses on research topical areas in Agricultural Education in Eswatini.

## **2. Purpose and objectives**

The purpose of the study was to identify research topical areas in Agricultural Education in Eswatini. The objectives of the study were to:

1. describe the demographic characteristics and background information of the survey respondents and Delphi technique participants.
2. identify under-researched topical areas in agricultural education in Eswatini
3. identify research topical areas in Agricultural Education as perceived by postgraduates from the University of Eswatini.
4. identify research topical areas in Agricultural Education using experts in Eswatini.

## **3. Theoretical Framework**

This study was framed by the General Systems Theory postulated by Kenneth Boulding in 1956 [19]. The General Systems Theory is considered as the skeleton of science in the sense that it aims to "provide a framework or structure of systems on which to hang the flesh and blood of particular disciplines and particular subject matters in an orderly and coherent corpus of knowledge" (p. 208). The General Systems Theory studies all thinkable relationships abstracted from any concrete situation or body of empirical knowledge. Systems theory deals with epistemological processes underlying knowledge acquisition [21]. The General Systems Theory seeks to develop something like a "spectrum" of theories - a system of systems which may perform the function of a "gestalt" in theoretical construction. "Gestalts" in special fields have been of great value in directing research towards the gaps which they reveal. The "system of systems" might be of value in directing the attention of theorists towards gaps in theoretical models, and might even be of value in pointing towards methods of filling them [20]. The demand for the General Systems Theory under one brand name or another cannot be denied. Something which might be called an "interdisciplinary movement" has been abroad for some time. The emerging of hybrid disciplines such as Agricultural Education is clear interdisciplinary movement advocated by the General Systems Theory. The General Systems Theory works to develop theoretical models having applicability to two or more of the integrated specialisations, such as Agricultural Education [21]. A growing dissatisfaction is apparent to be limited in theories within the discipline. This clearly indicates the need for interdisciplinary movement towards empirical work using the General Systems Theory. The General Systems Theory was relevant for this study as it is helpful in directing research in integrated specialisations such

as Agricultural Education. This is because the theory may perform the function of a "gestalt" in theoretical construction which has a great value in directing research towards the gaps which they reveal.

#### **4. Methodology**

This study used pragmatism research paradigm, employing mixed-methods approach. The design of the study was convergent research; utilising a survey of post-graduates from the University of Eswatini (N=48) and Agricultural education experts (n=26) using the Delphi technique. Master's degree graduates who completed from 1996 to 2017 in the Department of Agricultural Education and Extension were respondents for the survey questionnaire. Purposive sampling was used to sample experts for the Delphi process. Participants of the Delphi process were as follows: three curriculum designers, one curriculum evaluator, two agriculture inspectors (including the senior inspector), four agriculture teachers (experienced HODs in the schools); nine lecturers from three teacher training institutions for Agricultural Education in Eswatini, two vocational instructors from Manzini Industrial Training Centre, two teacher training college principals, and school administrators and one examination manager from the Examinations Council of Eswatini (ECESWA). The self-administered questionnaire was developed from the literature to solicit data from Agricultural Education master's degree graduates. Section A of the questionnaire had two rating scales: level of research and level of priority. Both numerical rating scales had six points. The Numerical Rating Scale for level of research was: 1=Not researched; 2=Very little research; 3=Little research; 4=Moderately researched; 5=Adequately researched; 6=Well researched. The Numerical Rating Scale for level of priority was: 1=Not a priority; 2=Slightly low priority; 3=Low priority; 4=Moderate priority; 5=High priority; 6=Very high priority. Section B of the questionnaire was on demographic characteristics and background information. The questionnaire was validated by a panel of experts (n=5) from the Department of AEE of the University of Eswatini and teacher training college lecturers (n=2). Post-hoc reliability of the questionnaire was calculated using a Cronbach's Alpha which was found to be  $r=.981$  for level of research and  $r=.986$  for level of priority in Agricultural Education. The researcher used the Delphi technique to solicit the experts' consensus on the research that had been conducted and that which needed to be conducted in Agricultural Education. The Delphi process was in three rounds. In Round I, two open ended questions on level of research and level of priority in Agricultural Education were posed. Round II and Round III had statements rated by the experts using a six-point Numerical Rating Scale as presented in the questionnaire. Statements in which the experts reached consensus were obtained in these two last Rounds. A Self-administered questionnaire, with two sections was developed from Round I of the Delphi process. Section A had two six-point Numerical Rating Scales with the following arrangement on the level of research conducted in Agricultural Education: 1=Not a priority; 2=Slightly low priority; 3=Low priority; 4=Moderate priority; 5=High priority; 6=Very high priority. Section B addressed demographic characteristics and background information. The data collection using the questionnaire and the generation using the Delphi technique were done from December 2017 to January 2018. Ethical considerations were ensured by the signing of a Consent Form. The respondents and participants were assured of confidentiality, anonymity and privacy; and that their participation in the study was voluntary – that is, they could withdraw their participation without suffering any repercussion. Descriptive statistics such as means, standard deviation, frequencies and percentages were used to analyse the data from the questionnaire. Data from the questionnaire were also analysed using Weighted Discrepancy Score (WDS). On the other hand, data from the Delphi technique were analysed using means,

standard deviation, frequencies, percentages and consensus response rate.

## 5. Findings and Discussion of the study

### 5.1 Demographic characteristics and Background Information

**Table 1:** Demographic characteristics and background information.

	Survey		Delphi	
	f	%	f	%
<b>Sex</b>				
Female	18	37.5	6	23.1
Male	30	62.5	20	76.9
<b>Age</b>				
Less than 35 years	5	10.4		
36-40 years	10	20.8	6	23.1
41 – 45 years	7	14.6	4	15.4
46 – 50 years	12	25.0	10	38.5
51 – 55 years	6	12.5		
Over 55 years	8	16.7	6	23.1
<b>Home location</b>				
Rural	37	78.7	17	65.4
Urban	10	21.3	9	34.6
<b>Marital Status</b>				
Single	9	18.8	2	7.7
Married	39	81.3	24	92.3
<b>Educational qualification</b>				
Diploma	-	-	1	3.8
Masters Degree	47	97.9	7	26.9
Doctorate Degree	1	2.1	15	57.7
Doctorate Degree	-	-	3	11.5
<b>Graduation Year</b>				
Before 2000	9	18.8	8	30.8
2001 - 2005	4	8.3	3	11.5
2006 - 2010	6	12.5	2	7.7
2011 - 2015	23	47.9	11	42.3
2016 – present (2017)	6	12.5	2	7.7
<b>Occupation</b>				
Lecturer	7	14.6	11	42.3
Teacher	18	37.5	4	15.7
Principal / College administrator	11	22.9	2	7.7
Curriculum designer	1	2.1	3	11.5
Curriculum evaluator	1	2.1	1	3.8
Inspector, Regional education officer / Teaching Service	5	10.4	2	7.7
Instructor	-	-	2	7.7
Examination subject specialist	-	-	1	3.8
Member of Parliament	1	2.1	-	-
Private sector Administrator / Director	4	8.4	-	-
<b>Employer</b>				
Government	46	95.8	22	84.6
Private sector / Parastatal	1	2.1	4	15.4
Self-employed	1	2.1		

Table 1 presents the demographic characteristics and background information of the survey respondents and the Delphi technique participants. Both data collection methods were dominated by males (survey – n=30, 65.5%; Delphi technique – n=20, 76.7%). Generally, the respondents and the participants for the study were in the age bracket of 46 – 50 years (Delphi technique – n=10, 38.5%; survey questionnaire – n=12, 25.0%). Delphi technique participants (23.6%) were more matured than the survey questionnaire respondents (16.7%). The respondents and participants of the study were mostly from rural areas: survey questionnaire (n=37, 78.7%) and Delphi technique (n=17, 65.4%). Most of the individuals studied were married: Delphi technique (n=24, 92.3%) and survey questionnaire (n=39, 81.3%).

The table depicts that an overwhelming majority of the respondents of the survey questionnaire were master's degree holders in Agricultural Education (n=47, 97.9%) and only one respondent had a Doctorate degree (2.1%). Comparatively, the educational qualifications of Delphi technique participants varied. Most of the experts from the Delphi process had master's degrees (n=15, 57.7%). Seven of them possessed First degree (26.9%) while three of them had Doctorate degrees (11.5%). Only one participant (3.8%) had a Diploma qualification. Most of the master's degree students graduated between 2011 and 2015. Twenty-three respondents of the survey questionnaire (47.9%) and 11 participants of the Delphi technique (42.3%) graduated within this period. Almost half of the individuals who participated in the Delphi technique were educators (n=11, 42.3%) and two participants were at the University of Eswatini. Also, 18 respondents for the survey questionnaire were agriculture teachers (37.5%). Finally, the table indicates that most of the individuals studied were employed by the Ministry of Education and Training in Eswatini: Delphi technique (n=22, 84.6%) and survey questionnaire (n=46, 93.8%). Four participants of the Delphi technique (15.4%) and two survey questionnaire respondents (4.8%) were employed by parastatals such as the University of Eswatini, Southern Africa Nazarene University, Micro-projects and so on.

## 5.2 Under-researched topics in Agricultural Education

Table 2 revealed that very little research was conducted on special education needs in Agricultural Education; professional malpractice; funding in Agricultural Education; and communication scholarship. Findings of the study further revealed that little research was conducted on urban agricultural education programme; innovative instructional technologies new technologies practices and products adoption decisions; dissemination of research findings; professional workforce, other than teachers; public and policy maker understanding of Agricultural Education; viability of EGCSE agriculture syllabus; feasibility of distance education; student recruitment; and so on.

**Table 2:** Agricultural Education Topical Areas Under-researched in Eswatini (N=48).

Research topical areas	$\mu$	$\sigma$
Special education needs in Agricultural Education	4.69	1.22
Professional malpractice	4.67	1.08
Funding in Agricultural Education	4.65	1.28
Communication scholarship	4.60	1.28
Urban Agricultural Education programmes	4.47	1.10
Innovative instructional technologies	4.46	1.18

Research topical areas	$\mu$	$\sigma$
New technologies practices and products adoption decisions	4.44	1.29
Dissemination of research findings	4.42	1.43
Professional workforce other than teachers	4.42	1.13
Public and policy maker understanding of Agricultural Education	4.41	1.28
Periodic reviews of publications of the profession	4.40	1.23
Viability of EGCSE agriculture syllabus	4.34	1.29
Feasibility of distance education	4.33	1.33
Student recruitment	4.33	1.17
Young farmers	4.30	1.20
Audiences in Agricultural Education	4.29	1.20
Graduate profile	4.27	1.18
Youth leadership and development	4.25	1.23
Inclusive education	4.23	1.22
Graduate tracer studies in Agricultural Education	4.21	1.38
International Agricultural Education	4.21	1.09
Parent or guardian involvement	4.19	1.14
Report writing skills	4.19	1.36
Students' welfare	4.19	1.16
Teacher associations	4.17	1.26
Information delivery systems in agriculture	4.13	1.36
Elementary primary Agricultural Education programme	4.13	1.23
Science content of agriculture	4.13	1.35
History of Agricultural Education	4.11	1.43
University admission standards in Agricultural Education	4.10	1.13
Policies affecting Agricultural Education	4.08	1.32
Agriculture teacher recruitment	4.08	1.09
Educational trends in Agricultural Education	4.08	1.29
Agricultural mechanism and engineering	4.08	1.27
Career guidance and counselling	4.06	1.29
Gender and workforce	4.06	1.23
Critical thinking	4.04	1.05
Women in Agricultural Education	4.02	1.18
Agriculture teacher turn over	3.98	1.21
Information and Communication Technology skills	3.98	1.48
Children and Youth Development Programme	3.96	1.18
Cooperating teacher	3.94	1.04
Lifelong learning	3.94	1.44
Staff retention	3.92	1.25
Professionalism	3.92	1.29
Appropriateness of Agricultural Education	3.90	1.40
Communication technology	3.90	1.13
Community development	3.88	1.38
Programme improvement	3.88	1.31
Student Agricultural Education careers	3.87	1.21
Departmental projects administration	3.87	1.21
Documenting programme effectiveness	3.85	1.38
Philosophy in Agricultural Education	3.83	1.37
Collaborative approach to research	3.81	1.33
Collaborative relationships in or with Agricultural Education	3.81	1.20
Effective educational programmes	3.81	1.25
Efficient educational programmes in Agricultural Education	3.81	1.21
Agricultural communication	3.79	1.41
Qualitative research	3.79	1.67
Post-graduate education	3.77	1.15
Programme development	3.75	1.21
Agricultural literacy	3.73	1.41
Vocational agriculture instructors	3.73	1.53
Curriculum innovation	3.71	1.24
Prerequisite experience for Agricultural Education	3.70	1.35

Research topical areas	$\mu$	$\sigma$
Competencies for employment in the field of agriculture	3.69	1.49
Basic skills development in Agricultural Education	3.67	1.45
Application of learning theories in Agricultural Education	3.65	1.28
Curriculum planning and development	3.65	1.36
Curriculum and instructional development	3.65	1.21
Teacher education or certification	3.65	1.39
Problem-solving	3.63	1.39
Agricultural technology	3.63	1.20
ICT in agriculture or Agricultural Education	3.62	1.21
Theory assessment such as tests and examination	3.60	1.45
Evaluation of agricultural education programme	3.60	1.40
Beginning agriculture teachers	3.60	1.23
Agriculture teacher motivation	3.58	1.43
Agricultural Education in higher education	3.56	1.47
Student teachers	3.56	1.24
Practical assessment in Agricultural Education	3.54	1.43
Information sources	3.53	1.23
Evaluation of agricultural teaching or teachers	3.52	1.37
Environmental sustainability	3.52	1.30
Learning styles	3.52	1.27
Learning characteristics	3.51	1.20
Student motivation	3.50	1.29
Agriculture teacher job satisfaction or morale	3.50	1.46

**Cut off point** –  $\mu$ :  $\leq 1.45$  [1]=well researched; 1.45-2.44 [2]= enough researched; 2.45-3.44 [3] = moderately researched; 3.45-4.44 [4]= little researched; 4.45-5.44 [5]= very little researched; 5.45-6.00 [6] =not researched.  
 $\sigma$ :  $\leq 1.44$  – consistent rating,  $>1.44$ -inconsistent rating.

It can be noted that some topics reported to be under-researched in this study, such as funding and curriculum development / alignment were also reported by a study that ought to identify research topics on International Agricultural Education [23].

Similarly, topics such as funding and curriculum development, and post-secondary agriculture programme reported to be under-researched in this study were also reported by Stewart, Shinn and Richardson [9].

The findings on innovative instructional technologies, and creative thinking and problem-solving as under-researched areas in Agricultural Education were confirming those by Mathonsi [10]; who reported that research was lacking in the education technology and extension, and evaluation and systems inquiry.

Birkenholz and Ewing [11] concluded that technology and distance education were the most frequently reported research topics in the *Journal of Agricultural Education* and the proceedings of the National Agricultural Education Research Conference.

### 5.3 Research topical areas as perceived by postgraduates

Table 3 presents research topical areas that are priority in Agricultural Education.

Only two-digit weighted discrepancy scores (10 and above) were presented in the table. Findings of the study revealed that the topical areas that needed urgent research were: funding in Agricultural Education



(WDS=17.15), special education needs in Agricultural Education (WDS=16.26), dissemination of research findings in Agricultural Education (WDS=15.23), innovative instructional technologies (WDS=14.71), professional malpractice (WDS=13.81), new technologies practices and products adoption (WDS=13.81), periodic reviews of publications in Agricultural Education (WDS=13.44), inclusive education (WDS=13.25), graduates tracer studies (WDS=11.78), primary Agricultural Education programme (WDS=11.54), career guidance and counselling (WDS=11.53), among others.

**Table 3:** Ranking of Topical Areas that Need to be Researched in Agricultural Education (N=48).

Rank	Research topical area	Mean priority level	Mean research level	DS	WDS
1	Funding in agricultural Education	5.48	2.35	3.13	17.15
2	Special education needs in Agricultural Education	5.35	2.31	3.04	16.26
3	Dissemination of research findings in Agricultural Education	5.40	2.58	2.82	15.23
4	Innovative instructional technologies	5.31	2.54	2.77	14.71
5	Professional malpractice	5.06	2.33	2.73	13.81
6	New technologies practices and products adoption	5.21	2.56	2.65	13.81
7	Periodic reviews of publications in Agricultural Education	5.19	2.60	2.59	13.44
8	Inclusive education	5.28	2.77	2.51	13.25
9	Graduate tracer studies	5.10	2.79	2.31	11.78
10	Primary Agricultural Education programme	5.13	2.88	2.25	11.54
11	Career guidance and counselling	5.17	2.94	2.23	11.53
12	Young farmers	4.98	2.70	2.28	11.35
13	Critical thinking	5.15	2.96	2.19	11.28
14	Professionalism in Agricultural Education	5.23	3.08	2.15	11.24
15	Feasibility of distance education	4.92	2.67	2.25	11.07
16	Problem solving in Agricultural Education	5.42	3.38	2.04	11.06
17	Public and policy maker understanding of Agricultural Education	4.86	2.59	2.27	11.03
18	Appropriateness of Agricultural Education programme	5.21	3.10	2.11	10.99
19	Programme improvement	5.23	3.13	2.1	10.98
20	Information delivery systems in agriculture	5.04	2.88	2.16	10.89
21	Youth leadership and development in Agricultural Education	4.92	2.75	2.17	10.68
22	Professional workforce such as inspectorate	4.79	2.58	2.21	10.59
23	Efficient Agricultural Education programmes	5.21	3.19	2.02	10.52
24	Community development in Agricultural Education	5.13	3.13	2	10.26

DS – Discrepancy scored – Weighted Discrepancy Score (WDS)

Inconsistency was observed between the findings of this study and that from Birkenholz and Ewing [11]. Birkenholz and Ewing identified the following research topical areas in Agricultural Education: pre-service and

beginning teachers; research in Agricultural Education; curriculum or integration; teaching and learning; teachers; teacher education; agricultural literacy; assessment; student recruitment or retention; student achievement or academic performance; job satisfaction; careers; historical; and graduate student competence. However, innovative technology reported in this study as a research priority was also reported by Birkenholz and Ewing as a priority in Agricultural Education [11].

Stewart and his colleagues [9] found that teacher education was concerned with funding, among other things, while Birkenholz and Ewing (2005) found that technology or distance education were topical areas in the *Journal of Agricultural Education* and the proceedings of the National Agricultural Education Research Conference.

#### **5.4 Research topical areas as perceived by experts**

Table 4 revealed that the following topped the under-researched topical areas in Agricultural Education: distance / online education (Mdn=5.5, IR=1, 96%); intervention to cater for upgrading students in School Agriculture Programmes (Mdn=5.5, IR=1, 92%); funding options for higher education in Agricultural Education such as PhD (Mdn=6, IR=1, 88%); teaching learners with special education needs, such as physical disabilities (Mdn=6, IR=1, 88%); connection between teacher training colleges agriculture programme and UNESWA programme (Mdn=5, IR=1, 88%); PhD by research versus PhD by course work (Mdn=5.5, IR=1, 88%); international agricultural education (Mdn=5, IR=1, 84%); mushroom production in schools (Mdn=5, IR=1, 80%); benchmarking from other countries on Agricultural Education (Mdn=5, IR=1, 79%); use of indigenous knowledge (Mdn=5, IR=1.25, 77%); impact of climate change in the teaching of agriculture (Mdn=5, IR=1.25, 77%); health implications of mushroom production (Mdn=5, IR=1.25, 77%) and Agricultural Education refresher courses (Mdn=5, IR=0.5, 77%). The findings of the study are in harmony with existing literature.

Stewart and his colleagues (1977) found that teacher education was concerned with funding, among other things [9]. Birkenholz and Ewing (2005) found that technology or distance education were topical areas in the *Journal of Agricultural Education* and the proceedings of the National Agricultural Education Research Conference (NAERC) [11]. Special education was reported as topical research areas in Agricultural Education [6].

Another study reported that research agenda in Agricultural Education should include post-secondary education and Agricultural Education in higher education among the research topics [13].

Silva-Guerrero and Sutphin (1990) found that funding for Agricultural Education, evaluation, and international Agricultural Education were among the research priorities in Agricultural Education [15].

Literature prominently report longitudinal studies showing clear paths and accomplishments of students completing Agricultural Education programmes, and special education needs were necessary as topical research areas in the discipline [6].

**Table 4:** Research Topical Areas Under-researched in Agricultural Education (n=26).

Research topical areas	n	Mdn	Inter-quartile Range [IR]	Consensus [CRR]	Response Rate
				f	%
Distance / online education	26	5.50	1.00	25	96
Intervention to cater for upgrading students in School Agriculture Programmes	26	5.50	1.00	24	92
Funding options for higher education in agricultural education such as PhD	26	6.00	1.00	23	88
Teaching learners with special education needs such as physical disabilities	26	6.00	1.00	23	88
Connection between college agriculture programme and UNESWA programme	25	5.00	1.00	22	88
PhD by research versus PhD by course work	24	5.50	1.00	21	88
International agricultural education	25	5.00	1.00	21	84
Mushroom production in schools	25	5.00	1.00	20	80
Benchmarking agricultural education programme to other countries	24	5.00	1.00	19	79
Use of indigenous knowledge (e.g. snuff powder and aloe in controlling diseases)	26	5.00	1.25	20	77
Health implications of mushroom production	26	5.00	1.25	20	77
Impact of climate change in the teaching of agriculture	26	5.00	1.25	20	77
AE refresher courses	26	5.00	0.50	20	77
Comprehensive exams in PhD	25	6.00	1.50	19	76
Teacher accreditation	25	5.00	1.50	19	76
Religion and Agricultural Education	25	5.00	1.50	19	76
Contribution of SAP to agricultural production	24	5.00	1.75	18	75
Special education	26	5.00	1.25	19	73
Agricultural communication	26	5.00	1.25	19	73
History of AE in Eswatini	26	5.00	1.00	19	73
Link between B. Sc. in AE and EGCSE syllabus	26	5.00	1.00	19	73
Impact of modern agriculture on graduates' home community	26	5.00	1.25	19	73
Teaching strategies for inclusive education in agriculture	25	5.00	2.00	18	72
Relevance of post-graduate AE programme in Eswatini	26	5.00	1.00	19	73

**Cut off point** –Median [Mdn]≥5.00, Inter-quartile [IR] ≥1.5, CRR=70%. – consensus reached

## 6. Conclusion and Implication

The conclusion drawn was that the following topics were under-researched; thus research was necessary: special education needs, professional malpractice; programme(s) funding, communication scholarship, urban agricultural education programme, and innovative instructional technologies. Research priorities were also on dissemination of research findings, new technologies practices and products adoption, periodic reviews of publications, inclusive education, graduates tracer studies, primary Agricultural Education programme, career guidance and counselling, distance / online education, intervention to cater for upgrading students in School Agriculture Programmes, connection between teacher training college agriculture programme and UNESWA programme, Doctor of Philosophy [PhD] by research versus PhD by course work and research, international agricultural education, mushroom production in schools, benchmarking from other countries, use of indigenous

knowledge, impact of climate change on the teaching of agriculture, use of indigenous knowledge, curriculum alignment, the use of ICT in the teaching of agriculture, and Agricultural Education refresher courses.

The implication of the findings of the study is that research must towards the topical areas that have been identified to have been under-researched and a priority in Agricultural Education. It is critical for practitioners to examine the knowledge base of the field to allow the profession to reflect upon actions and ultimately improve the discipline [1]. Similarly, Crunkilton [2] pointed at the need for Agricultural Education to know where it can and should go with research in its pursuit to develop empirical knowledge [2]. Furthermore, Newcomb [3] found that there is a need for Agricultural Education research to become more focused, coordinated, and conducted passionately [3]. Understanding research occurring in Agricultural Education will enable researchers to determine what futuristic research should be conducted in the discipline [5].

## **7. Recommendations**

The researcher recommended from the findings that:

1. Research in Agricultural Education in Eswatini should be focused on the topical areas identified to be research priorities.
2. Agricultural Education researchers also need to pay attention to the topical areas that have been under-researched in Agricultural Education.
3. A five-year periodic review of research in Agricultural Education is imperative; to identify and address contemporary and emerging topical areas.
4. Agricultural Education as a discipline in Eswatini must have a Research Agenda; which will ensure that the research conducted in Agricultural Education is focused and directed. This will also ensure that pertinent Agricultural Education problems are identified and solved, and challenges tackled timeously.

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