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***“Strengthening Institutional Capacity, Extension Services  
and Rural Livelihoods in the Central Dry Zone and  
Ayeyarwaddy Delta Region of Myanmar”***

***(ASEM-2011-043)***

***How to Teach Effectively to Agricultural  
University Students: A Case Study in Yezin  
Agricultural University***

***Nang Ei Mon The and Ei Mon ThidaKyaw***

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# **How to Teach Effectively to Agricultural University Students: A Case Study in Yezin Agricultural University**

**Nang Ei Mon The and Ei Mon ThidaKyaw**

**May, 2017**





## Abstract

In Agricultural countries, agricultural industries and other services require new skills in order to cope with rapid technological changes. These new skills can be provided especially by using a variety of teaching strategies and effectiveness in agricultural education. There has been much concern expressed about quality teaching in education, while industries in the rapidly changing society have concerns about the well educated person. These concerns have led to a focus on teaching strategies and their effectiveness in the agriculture university. The central problem of this study was to identify the teaching strategies used by teachers of agriculture, and determine effectiveness in Agriculture University in Myanmar. The objectives of the study were 1) to review the effective teaching methods in Agricultural University, 2) To find out the current status in teaching and learning system of Yezin agricultural University, 3) Based on the analysis, to identify the effective teaching system for agricultural university students.

Yezin Agricultural University (YAU) existed in Yezin long before the area became the new Capital of Myanmar, Nay Pyi Taw which is 410 km north of Yangon city and 283 south of Mandalay city and it is the only one agricultural university as well as the only one university named after a humble village in Myanmar.

A Case Study in Yezin Agricultural University and analyze the current status in teaching and learning system of Yezin agricultural University based on students survey of a total of 98 respondents in July 2016 in Yezin Agricultural University. According to their answer about effective teacher, the 17 nominated teachers at each department were asked the effective teaching method in this university. The sampling method was purposive sampling method for class and gender and then respondents were selected by using random sampling method. The study compared and analyzed the similarities and differences among the students' gender and class for effective teaching methods.



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## 1. Introduction

Agricultural universities has a key role to play in ensuring that: a) critical knowledge and skills are imparted to teachers and students; and b) other rural development actors appreciate the role of agriculture and sustainable natural resource management, and working together to build human resource capacity. Agricultural universities have to act quickly to clarify the roles and missions, establish the legitimate place in the higher education system, and make the organizational and administrative changes necessary to make a meaningful contribution to both the professional and general stakeholders concerned with rural development. In this context, there is a critical need for Agricultural universities to initiate and lead in articulating a vision for the future that serves the needs not only of agriculture but also of all who inhabit the rural areas. Agricultural colleges and universities need to determine their unique functions and the special attributes that they can offer students and the agricultural community. Moreover, agricultural universities need to do a better job of carrying through with their unique ability to solve the agricultural problems of the rural communities. A holistic approach to teaching agricultural production through a multi-disciplinary systems perspective will increase the utility of both scientific and local knowledge.

Moreover, agricultural universities have the responsibility to provide teaching and learning opportunities for those who seek careers in the management of the rural development process or whoever at various levels, implement rural development activities and processes. This includes knowledge and skills for off-farm employment and the provision of lifelong learning opportunities. In addition to these education and training roles, agricultural universities may also be able to improve the quality of education and contribute to educational reforms in many ways.

As agricultural educators it is our responsibility to ensure adequate teaching and learning as necessary to meet the changing needs of the industry and the values of society. Teaching is the opportunity to help others to live their lives fully, which means we help to give to our learners' lives through their physical, emotional, intellectual and social growth.

The desire to clarify the qualities that make university teaching effective has been revitalized, as a renewed mandate to enhance teaching and learning appears predominately in the



strategic plans of many universities and colleges. The escalation in concern over the quality of university teaching has fostered a significant body of research that attempts to isolate characteristics of effective university teaching. Teaching is being seen as increasingly more important relative to the research goals of higher education. This renewed emphasis on teaching necessitates valid means of measuring effective teaching in the post-secondary setting. There is a growing body of literature pertaining to students' assessment of instruction in higher education and the relevance of course evaluation questionnaires as a way of communicating to instructors the strengths and weaknesses of their teaching. Problem-solving approaches to teaching have been a standard method in agricultural education programs and have changed very little from the early days of agricultural education.

Agricultural industries and other services require new skills in order to cope with rapid technological changes. These new skills can be provided especially by using a variety of teaching strategies and effectiveness in agricultural education. There has been much concern expressed about quality teaching in education, while industries in the rapidly changing society have concerns about the well educated person. These concerns have led to a focus on teaching strategies and their effectiveness in the agriculture university. The central problem of this study was to identify the teaching strategies used by teachers of agriculture, and determine effectiveness in Agriculture University in Myanmar.

## **2. Objective of the Study**

1. To review the effective teaching methods in agricultural University
2. To find out the current status in teaching and learning system of Yezin agricultural University
3. Based on the analysis, to identify the effective teaching system for agricultural university students



### 3. Research Methodology

To accomplish the purpose of this study, we conducted a review of various studies pertinent to effective teaching method, problem based and experiential learning theory, and student achievement, particularly literature that focused upon the use of problem based and experiential learning strategies.

#### 3.1 Data Collection Methods

Both primary and secondary sources of data were used in this study. The primary data were gathered by students and teacher interview. In the case of the primary data collection, structured questionnaires were used. Moreover, both qualitative and quantitative data comprised demographic characteristics of sample students, their perception of the most effective teacher in Yezin Agricultural University and their preference for each teaching and assessment method for student's questionnaire. Secondary data included the various published and unpublished documents from government agencies, journal articles, books, working papers and theses.

In this study, survey method is second part of the research. There are two steps in survey. The first stage was preference for each teaching and assessment method by students in all class and also asked the most effective teacher in these university departments. According to their answer about effective teacher, the nominated teachers at each department were asked the effective teaching method in this university. The sampling method was purposive sampling method for class and gender and then respondents were selected by using random sampling method. The survey was conducted at all class in Yezin Agricultural University during July, 2016. The reviewed literature was gathered from Internet resources and search engines, agricultural education magazines and textbooks, peer-reviewed journal articles, and conference proceedings. We evaluated each article for its suitability in the present study through a thorough discussion and dissection of each literary item, ultimately reaching a consensus within the research team. This study utilized a descriptive survey design focused on the perceptions of agricultural education teachers about selected teaching-learning principles, teaching strategies, and their effectiveness.



The survey covered the information about the background of teachers and students, age, education, experience of teaching, teaching method, perception about the effective teaching method and reasons of choosing. The survey was carried out two parts and the data was gathered using a well-designed questionnaire. Firstly, 98 students were randomly selected from every class of Yezin Agricultural University, Zayarthiri, NayPyi Taw Region. According to result of the students, the second part of survey was conducted to 17 teachers who were selected from the students by using the structure questionnaire.

### **3.2 Data Analysis**

In this study, descriptive statistics such as the mean, percentages, and frequencies and compare means methods (t –test. F- test) were computed to describe the socio-economic characteristics (e.g., age, education, experience) of the respondents and to compare means of different perception methods.

## **4. Result and Discussion**

### **4.1 Review Teaching and Learning in Agriculture**

According to the Agriculture as a Rich Context for Teaching and Learning, and for Learning Mathematics and Science to Prepare for the Workforce of the 21st Century, the basic core of agricultural education instruction consists of three intra-curricular components: 1) classroom instruction, 2) experiential learning through supervised experiences, and 3) leadership activities. Supervised Agricultural Experiences (SAEs) bridge the gap between the classroom and work by providing students opportunities to apply what they have learned in the classroom and to transfer those knowledge and skills to a real-world situation (Swortzel, 1996).

Leadership activities conducted through the FFA provide opportunities for students to learn about teamwork, public speaking and debates, writing for communication of ideas, and other skills identified as important for the worker of the future (SCANS, 1991). Combined with record books used with SAEs, students have the maximum opportunity to practice and demonstrate real-world problem solving, communication skills, and application of classroom knowledge to a new situation.



Agriculture today is a highly intensive,technologically sophisticated industry. These factors led the National Research Council to recommend that agricultural education programs must update and integrate more agricultural science into their course content, a contention echoed by Martin, Rajesekaran, and Vold (1989).

Inquiry-based learning method emphasizes cognitive development, critical thinking, and intellectual growth in students. The purpose of this study was to develop an understanding of the emergence and current utilization of inquiry-based learning in School-based Agricultural Education (SBAE). We found that inquiry-based learning has been a long-standing staple in SBAE, particularly in terms of increasing the achievement of agricultural students' perceptions of agricultural courses have shown to be positive when instructed through inquiry-based instruction. In a study conducted by Thoron and Burleson (2014), 170 secondary agri-science students perceived their agri-science course with much enthusiasm when taught through inquiry-based instruction. Even though a quarter of the students found inquiry-based learning confusing, almost half of the students within the study preferred the inquiry-taught instruction and would welcome inquiry-based instruction within other classes (Thoron& Burleson, 2014). In a quasi-experimental study conducted by Thoron& Myers (2011), inquiry-based instruction was measured against the subject matter approach on student content knowledge achievement in 15 agri-science education classes in 7 different secondary schools throughout the United States. The students were divided into two groups; one utilized inquiry-based instruction and the second group utilized the subject matter approach. A pre-test and post-test were administered to both groups. Research concluded that the inquiry-based learning group had a higher content knowledge achievement than the subject matter approach group.

One of the most crucial factors in the system of teaching quality evaluation is the evaluation of teaching by students. Simultaneously, due to subjective nature of the students' evaluation, it can be regarded as an instrument enhancing feedback among universities, students and lecturers, whereas improvement of the teaching quality is a prerequisite. In order to determine the student's evaluations of teaching quality, it is more efficient to use a unified questionnaire and compare results across several universities. Students' surveys (aiming at evaluating the teaching quality) have to consider the most valuable factors of the teaching quality



and qualities of lecturers, which comprise knowledge transfer, knowledge evaluation, accessibility of a lecturer and his/her personality traits. In order to obtain quality results and compare them among various universities, a unified questionnaire should be applied when exploring the students' evaluations of teaching quality (Vevere.N, 2011).

#### **4.2 Review of Teaching Method in Agricultural School**

Salvador R. J. (1995) stated that forestry and an agronomy course at Iowa State University have incorporated problem-based team projects on real-world situations as a means of providing students with integrative and meaningful experiential learning. Teams pick their own problems, identify the subject matter competencies required to confront the problems, decide on team membership based on these competencies, and spend a significant portion of a semester in out-of class activities researching their problems and developing recommendations to confront the problems. Teams present their recommendations before an audience composed of class members and/or clients for whom they have developed their analyses and recommendations. Grades are assigned in a way that recognizes both the effectiveness of a team in meeting its assignment and the contribution of each individual to team activities. Student evaluations of these courses indicate that students recognize the integrative nature of the problem-based team activities and appreciate the practical value of this teaching approach.

In a flipped or inverted classroom, the teacher-centered activities from the Taxonomy of Learning Activities model (Roberts et al., 2010) are moved to an online format, in which students participate in the one-way transmission of information before attending a class session. Gardner (2012) documented flipping of an undergraduate agricultural economics course. The lectures in the course were recorded and posted as videos for students to watch before coming to class. In-class time was used for working on homework, quizzes, and other activities. Gardner reported students were satisfied with the flip, but the effect on learning outcomes was uncertain. Students in this course watched the online videos at different rates, with some students only watching 70% of the lectures. Gardner speculated student effort was a key variable in learning outcomes.



AbdulhamidAuwal (2013) studied the effect of two teaching methods (demonstration and discussion) on student's retention of Agricultural Science knowledge in secondary schools of Bauchi, Nigeria. The findings revealed that both the two teaching methods have significant effect on student's retention of Agricultural Science knowledge. Demonstration method was found to be more effective in making the students to remember Agricultural Science knowledge. It was therefore recommended that the demonstration method be used with confidence to teach Agriculture Science in Bauchi State secondary schools.

### **4.3 Review Education System of Yezin Agricultural University**

#### **4.3.1 Description of Study Area**

Yezin Agricultural University (YAU) existed in Yezin long before the area became the new Capital of Myanmar, Nay Pyi Taw which is 410 km north of Yangon city and 283 south of Mandalay city and it is the only one agricultural university as well as the only one university named after a humble village in Myanmar. The area where the university located later became a unique place in Myanmar which makes itself biological and environmental science space comprised of various institutes and universities. Located in the north of YAU are University of Veterinary Science and Forest Research Institute, in its east, University of Forestry and in the south, Department of Agricultural Research.

The vision of Yezin Agricultural University is the development and dissemination of agricultural science and technology by scaling up scientific endeavor through the development of its human resources in order to promote agricultural and rural development of Myanmar. So, its mission is stated as follow: (1) to provide the agricultural and rural development of resources for increasing agricultural production through green growth; (2) to provide carrier as well as business option and produce well equipped and professionally qualified agriculturists and (3) to contribute national agricultural research and extension constantly. Not only in Yezin, YAU's territory was expanded some years ago throughout the nation for effective area and technology development and better contact with local growers.



### 4.3.2 Education System of Agricultural University

Generally, YAU has 7 outreached campuses which are hosting the final year bachelor degree students who are doing their graduating research on respective specialization study. Aungban campus in Shan regional state is for hillside farming, Lungyaw campus in Mandalay regional division, Phaaug campus in Mon regional state and Nyaungpinthar campus in Bago regional division the three are collectively for industrial crop production, Magway campus in Magway regional division is for oil seed crops and pulses production, Hmawbi campus in Yangon regional division is for lowland rice production, Hlegu campus which is another campus within Yangon regional division is for crop protection while the main campus Yezin is for agronomy, soil and water management studies, crop breeding technology, plant biotechnology and agribusiness management studies, agricultural entomology and plant pathology. Being a center of academic and technology, teaching and training, research work and extension service are the major functions of YAU. As its curriculum, YAU is conferring five programs of degrees and the medium of instruction is English.

**Table 1 Program of Degrees in Yezin Agricultural University**

No	DEGREE	RESIDENCY (YEARS)	NO. OF STUDY PROGRAM
1	B.Agr.Sc.	5	10
2	Postgrad Dip.Agr.Sc.	1.5	7
3	M.Agr.Sc.	3	7
4	Ph.D.	5	7
5	M. Phil.	2	7

First year undergraduate students are selected by the university board of education through entrance examination and annually 400 students are admitted to the university. Starting from 1966, there has also been a golden opportunity for outstanding students and service



personnel holding diploma certificate of the State Agricultural Institutes in seven places across the country to join second year course in YAU and pursue their bachelor degree in agriculture.

In a way, YAU is also providing mid-career opportunity for the Ministry of Agriculture and Irrigation staff, the on deputation study type. As an academic institution, the production is mainly in human resource and annually, the university produces around 400 graduates for all degrees and up to this day, the university has already produced more than ten thousand bachelor degree holders together with numbers of postgraduate degree holders. As a whole the university is practicing the student centered technique in its teaching strategy, and representing itself as the international window for Myanmar agriculture and ultimately bringing the technology from the laboratory to the farm. The Ministry of Agriculture and Irrigation is comprised of the YAU alumni in majority for its functions and this is an example.

Yezin Agricultural University students also have the motivation in their study due to the university effort for them in working hard to be the center of well access to modern agriculture technology with its modernized and time in line curriculum, syllabus and infrastructures. There is an agricultural sustainability trend in the courses for the students to have interest in blending indigenous knowledge and modern technology. The students know that YAU will also be the knowledge hub and pro-farmers institute in the very near days. Presently, YAU has been in active international collaboration with KOICA, ACICR, JICA, ACARE and IRRI. Institutionally, for the development and improvement, some of the limitations and constraints are found out for YAU which can be solved together with the participation of friends and organizations internationally. On the other hand, it is also revising the current curriculum and brainstorming its development and improvement to be in line with other agricultural universities. As for curricular development, it involves IT application to agriculture, biotechnology application to agriculture, agricultural extension, distant learning and Food Science and Technology.



#### 4.4 Current status in teaching and learning system of Yezin agricultural University

##### 4.4.1 Distribution of student respondents (students) by gender and class

In this study, survey is second part of the research to analyze current status in teaching and learning system of Yezin agricultural University. In student survey, a total of 98 sample students were interviewed to obtain the primary data for students' perception. The respondents were both male and female. The number of respondents interviewed in each class is shown in Table 1. The number of selected respondents was 28 respondents in first year student, male respondents were 24% and female were 33%, 23 respondents in second year student, male respondents were 28% and female were 19%, 24 respondents in third year student, male respondents were 24% and female were 25% and 23 respondents in fourth year student, male respondents were 24% and female were 23%. In total, there were 51% in male respondents and 49% in female respondents (Figure 1 and 2).

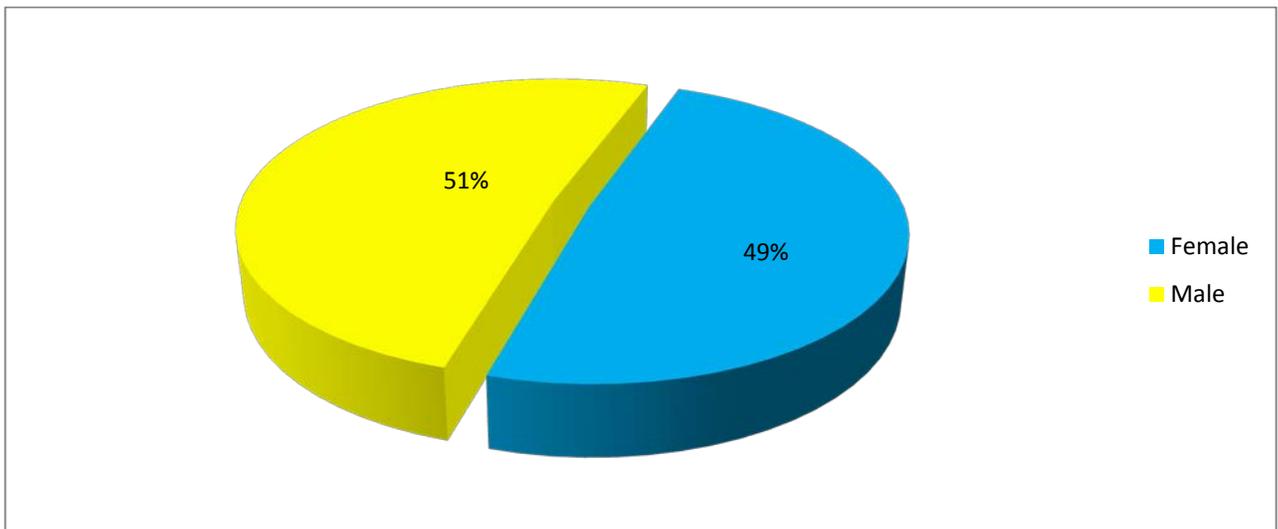
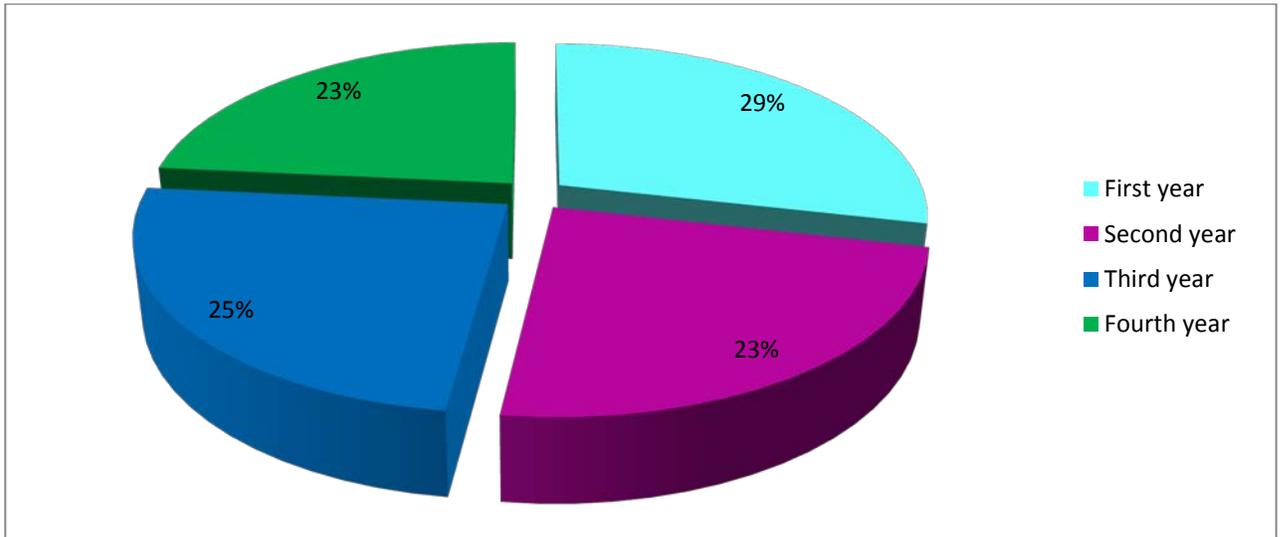


Figure 1 Distribution of student respondents (students) by gender



**Figure 2 Distribution of respondents (students) by class**



**Table 2** Students' Preference for each teaching and assessment method (%)

Methods	Very ineffective	In-effective	Neutral	Effective	very effective	Total
Demonstration	3	5	11	68	12	100
Laboratories	1	0	3	67	29	100
Lecture-discussion	0	6	8	61	24	100
Field trips	3	8	7	58	23	100
Chalk Board	5	19	19	50	6	100
Networks (World Wide Web, etc.)	3	8	24	47	17	100
Overhead projector	0	8	9	64	18	100
Films (movie, slides...)	0	7	9	58	26	100
Brainstorming	1	12	8	48	31	100
Conference	2	7	29	48	14	100
Pictures, posters, newsletters	4	7	16	55	17	100
Self-study	1	7	12	49	31	100
Internships	4	13	30	41	12	100
Survey	0	19	20	44	16	100
Lecture	5	16	6	63	9	100
Group study	2	3	4	62	29	100
Exam (Theory)	10	15	2	67	5	100
Exam (Practical)	12	19	4	59	5	100
Seminar	0	3	36	46	15	100
Assignments (reading, written)	2	12	5	67	13	100



#### 4.4.2 Students' Preference for each teaching and assessment method

Table 2 shows that respondents were asked to rate twenty perception statements dealing with selected teaching and learning methods in agricultural programs. The scale used was a 1 to 5 to agreement scale with each of the perception statements. The scale descriptors were: 1= Very ineffective, 2 = Ineffective, 3 = Neutral, 4= Effective, 5 = Very effective. The mean values were placed in descending order from the highest score to lowest score for each statement as shown in Table 3.

Five perception statements regarding selected teaching-learning principles had means ratings above 4.0. The highest mean score was 4.22 (SD = .60) for the statement, "Laboratories." The second highest mean score was 4.12 (SD = .79) for the statement, "Group study" The third highest mean score was 4.04 (SD = .76) for the statement, "Teaching with lecture-discussion." The fourth ranked mean score was 4.02 (SD = .79) for the statement, "teaching with films." Similarly, the mean score for the statement "self-study" was 4.01 (SD = .90). There other fifteen perception statements were means ranges from 3.26 to 3.95 which indicated respondents' tendencies toward effectiveness. The lowest mean score was 3.26 for the statement, "Exam."

A one way analysis of variance test was applied to identify if significant differences existed in the level of effective or ineffective with statements regarding selected principles of teaching methods when respondents were grouped by selected demographic characteristics of gender and class. Table 4 reveals that the analysis of variance indicated no significant differences among the respondents when grouped by teaching experience and analyzed with the perception variables. Means and standard deviations based on ratings of male and female respondents' perceived use of teaching methods and tools were shown in Appendix 1.



**Table 3 Means and standard deviations of perceptions held by the respondents (students) regarding selected teaching-learning principles in Yezin Agricultural University (n=98).**

Methods	Mean	Std. Deviation
Demonstration	3.82	0.829
Laboratories	4.22	0.601
Lecture-discussion	4.04	0.759
Field trips	3.91	0.953
Chalk Board	3.33	1.023
Networks (World Wide Web, etc.)	3.67	0.961
Overhead projector	3.93	0.777
Films (movie, slides...)	4.02	0.799
Brainstorming	3.95	0.988
Conference	3.65	0.886
Pictures, posters, newsletters	3.74	0.967
Self-study	4.01	0.902
Internships	3.44	1.006
Survey	3.57	0.984
Lecture	3.55	1.037
Group study	4.12	0.79
Exam (Theory)	3.42	1.13
Exam (Practical)	3.26	1.195
Seminar	3.73	0.754
Assignments (reading, written)	3.78	0.903



**Table 4 Means and standard deviations of students' preference for each teaching and or assessment method by gender (n=98)**

Methods	Male (N=50)		Female (N=48)		t-value	Prob.
	Mean	SD	Mean	SD		
Laboratories	4.40	0.535	4.04	0.617	3.075	0.003*
Lecture-discussion	4.22	0.737	3.85	0.743	2.447	0.016*
Field trips	4.22	0.764	3.58	1.028	3.49	0.001*
Networks (World Wide Web, etc.)	3.90	0.863	3.44	1.009	2.442	0.016*
Overhead projector	4.12	0.746	3.73	0.765	2.561	0.012*
Brainstorming	4.14	1.069	3.75	0.863	1.982	0.05*
Conference	3.82	0.873	3.48	0.875	1.929	0.057*
Self-study	4.22	0.764	3.79	0.988	2.406	0.018*
Survey	3.80	0.948	3.33	0.975	2.403	0.018*
Group study	4.34	0.717	3.9	0.805	2.886	0.005*
Seminar	3.98	0.742	3.48	0.684	3.471	0.001*
Assignments (reading, written)	4.02	0.82	3.52	0.922	2.834	0.006*

\*Significant at 0.05 level

Table 5 presents the means, standard deviation, t-values and probabilities for the ratings of male and female respondents perceived use of selected teaching methods. It was observed that twelve teaching methods were perceived to be used to a different extent by male and female respondents. Male groups rated all methods as being used to a higher degree than females.

Table 5 indicates that there was a significant statistical difference found on the extent to which the following methods and tools were used by different groups of students when grouped by class: Field trips, Overhead projector, Seminar. In the case of field trips, perception for effective of first year students was significantly higher than the other class. Teaching with overhead projector and seminar were significantly higher than the rest of the group in third year



and fourth year students. The higher the class the more use seminar and teaching with overhead projector. Therefore, third year and fourth year students was higher mean score and significantly different for this two methods. The analysis of means, standard deviations and F test of all methods by class was shown in Appendix 2.

**Table 5 Means and standard deviations of students' preference for each teaching and or assessment method by class (n=98)**

Methods		First Year	Second Year	Third Year	Fourth Year	F-ratio	prob.
		(N=28)	(N=23)	(N=24)	(N=23)		
Field trips	mean	4.07	3.87	3.42	4.26	3.757	0.013*
	S.D.	0.466	1.325	1.06	0.619		
Overhead projector	mean	3.61	4.09	4.04	4.04	2.349	0.077*
	S.D.	0.875	0.288	0.908	0.767		
Seminar	mean	3.75	3.26	3.96	3.96	4.939	0.003*
	S.D.	0.701	0.619	0.751	0.767		

\*Significant at 0.05 level

#### 4.4.3 Reasons for choosing by Students

As the result of the students' survey, there were so many reasons for choosing the best teachers. However, it can be divided by two majors groups as teaching methods and manner of the teacher. Nearly 90% of the students chose due to liking the teaching methods such as explaining by using the relevant examples and practical experiences, being experts in their field, using the sample ways to understand the students, teaching slow and steady, demonstrating the lecture by projector and video clips, discussing each other and explaining by using the experimental plot. Concerning with the manner, teaching clearly and loudly voice, caring the requirement of students and staying with the students as a family were the important facts in choosing the teacher.

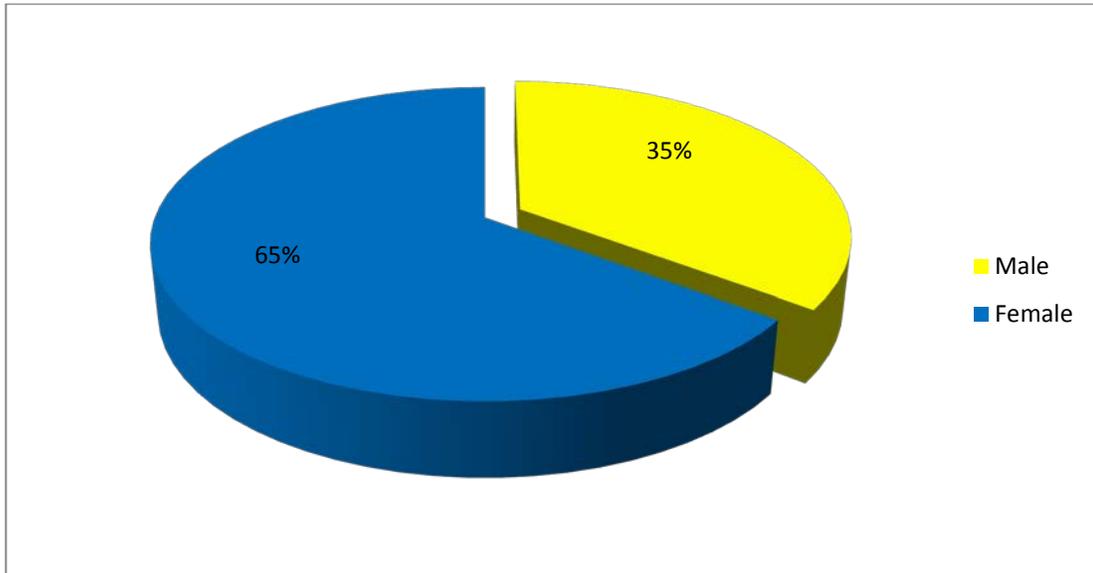


### **Comments of the Students for Education System of Yezin Agricultural University**

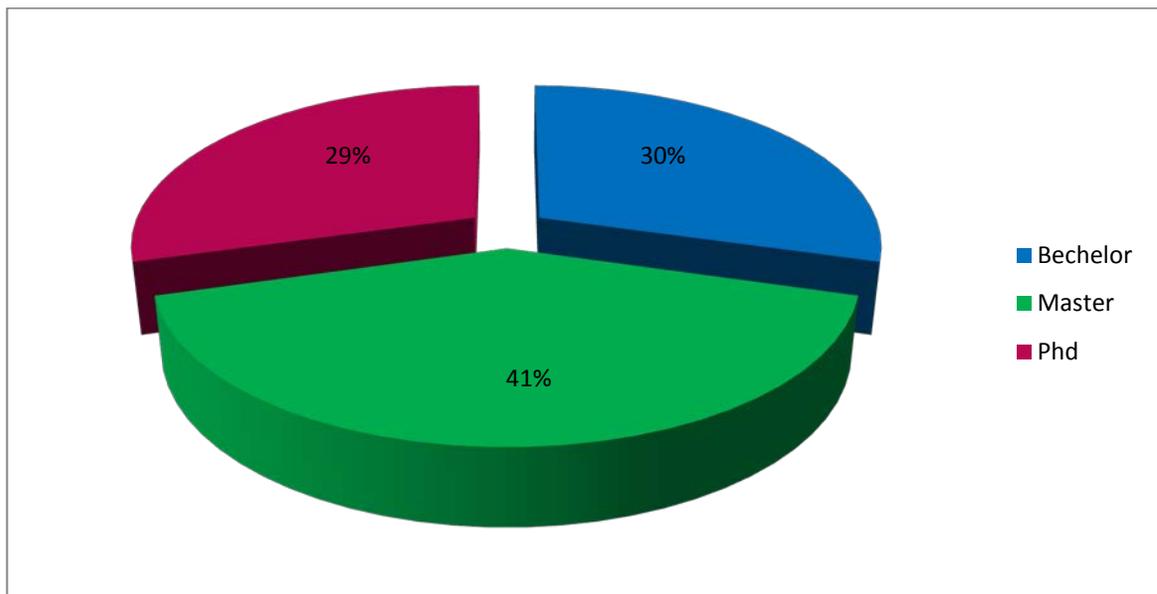
1. Teachers should teach practically and practice the thinking habit of the students so it is needed to discuss each other in the class. Teachers should emphasis understanding rather than course completion. ( fourth year student, first year student)
2. At the field practical, teacher should explain the fact definitely and field survey should be conducted for the practical problem. Furthermore, lecture time should be less than practical time.(fourth year, third year)
3. Students do not like the current exam system and question so they want to ask as a close type question is very .suitable. Assignment should not be copy from the book so the question type should be changed. Students do not like 75% roll call system. Moreover, they did not get enough time in examination. (fourth year, second year, third year)
4. Concerning with the teaching material, students like the demonstration by projector rather than black board. (first year, second year)
5. Students want to learn together in the same class room ( second year, third year, fourth year)
6. Should open recreation center such music class, painting class and so on. (first year, second year, third year)

#### **4.4.4 Distribution of student respondents (teachers) by gender and education level**

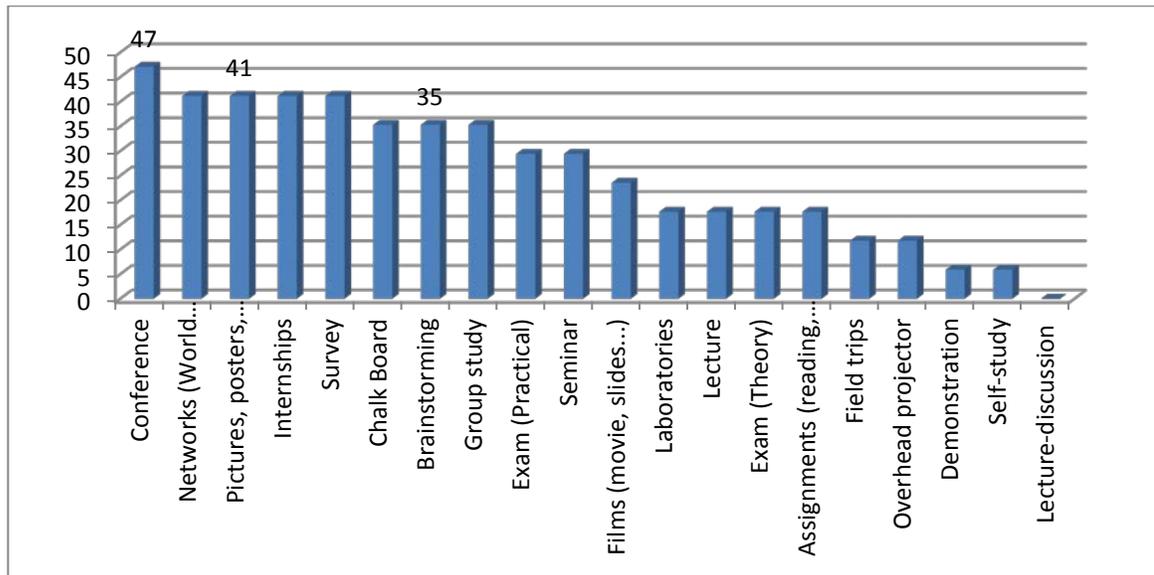
According to the students' answer about effective teacher, there were 17 teachers in all departments. In figure 3, the selected teachers were both male (35 %) and female (65%). Figure 4 presents the distribution of respondents by their highest level of education attained. Seven respondents (41%) had a high master degree as their highest degree; 5 respondents (30%) had attained doctoral degree; 5(29%) respondents out of 17 had obtained the bachelor degree.



**Figure 3 Distribution of respondents (teacher) by gender**



**Figure 4 Distribution of respondents by Educational Level**



**Figure 5 Teachers’ Perceptions of the Methods, Techniques and Tools used, and Perceived to be Effective**

#### 4.4.5 Teachers’ Preference for each teaching and assessment method

Figure 5 shows teachers’ perceptions of the methods, techniques and tools used, and perceived to be effective on these teaching methods. According to the survey data, 47 % of respondents who revealed that, “teaching with conference” is the most effective method followed by networks, pictures, posters and internship (41% each). The most effective method was found in “teaching with conference”

Teacher respondents were asked to rate thirteen perception statements dealing with selected teaching and learning methods in agricultural programs. The scale used was a 1 to 5 to agreement scale with each of the perception statements. The scale descriptors were: 1= Very ineffective, 2 = Ineffective, 3 = Neutral, 4= Effective, 5 = Very effective. The mean values were placed in descending order from the highest score to lowest score for each statement as shown in Table 6.

Two perception statements regarding selected teaching-learning principles had means ratings above 4.5. The highest mean score was 4.82 (SD = .39) for the statement, “Agricultural education teachers connect the new element to be learned with something in previous experiences.” The second highest mean score was 4.59 (SD = .50) for the statement,



“Student activities are essential to all lesson plans in agricultural education. Moreover, eight perception statements were means ranges from 4 to 3.47 which indicated respondents' tendencies toward effectiveness” The third highest mean score was 4.47 (SD = .51) for the statement, Agricultural education teachers understand that the student's learning style is related to the teacher's teaching style.”The last two perception statements were 3.88 and 3.71 which indicated respondents' tendencies toward effectiveness. The lowest mean score was 3.71 for the statement, “Using a variety of evaluation procedures is essential in agriculture students.”

**Table 6 Agriculture Teacher's Perceptions of Principles of Teaching-Learning**

No	Items	Mean	SD
1.	Teaching methods can be varied according to the students	4.06	0.748
2.	Using a variety of evaluation procedures is essential in agriculture students.	3.71	1.263
3.	Explaining objectives of lessons clearly to the students is a basic teaching process.	4.35	0.493
4.	Agricultural education teachers develop some proficiency with computers.	4.24	0.752
5.	Agricultural education teachers provide career guidance as necessary in teaching agricultural science.	3.88	0.697
6.	Agricultural education teachers prepare instructional plans to provide desirable learning experiences	4.35	0.606
7.	Agricultural education teachers use student-centered approaches when appropriate.	4.35	0.493
8.	Agricultural education teachers understand that the student's learning style is related to the teacher's teaching style	4.47	0.515
9.	Agricultural education teachers must be patient and sympathetic toward students.	4.18	0.636
10.	Agricultural education teachers connect the new element to be learned with something in previous experiences.	4.82	0.393
11.	Student activities are essential to all lesson plans in agricultural education.	4.59	0.507
12.	Working with students in real experiences provides good motivation to enhance learning	4.24	0.970
13.	Feedback is important for student learning	4.18	0.809



#### **4.4.6 Opinion of Teacher for Effective Teaching Method**

As the result of study, teachers mentioned effective teaching methods such as explaining the theory by relevant facts, update examples and the practical problem in the field. Depending on the interested of students, appropriate teaching methods were used like using power point, video clip, chalk board and demonstrating. Sometime group discussion and individual discussion were applied to test the understanding. Practical is very important for understanding so that problem solving by using the laboratory was the one of effective teaching method. Some of the teacher explained the objective of the chapter at the starting a new chapter and summarized at the end.

#### **Comments of Teachers for More Effective Teaching**

1. Big class size may be the difficulty of teaching and students' interesting reduced.
2. Selection of students for the entrance of the Yezin Agricultural University should be changed because the quality of students is very important of effective teaching method.
3. Upgrading the quality of teacher is needed for effective teaching method.
4. Concerning with discipline of the students, the student who disturb the rule should be punished definitely according to the rule and internet connection especially social media should be restricted at the lecturer time.

### **5 .Conclusion and Recommendation**

#### **5.1 Conclusion**

This study was an attempt to review how to teach effectively to agricultural university students: A Case Study in Yezin Agricultural University and analyze the current status in teaching and learning system of Yezin agricultural University based on students survey of a total of 98 respondents in July 2016 in Yezin Agricultural University. According to their answer about effective teacher, the nominated teachers at each department were asked the effective teaching method in this university. The sampling method was purposive sampling method for class and gender and then respondents were selected by using random sampling method. The study



compared and analyzed the similarities and differences among the students' gender and class for effective teaching methods.

The students were both male and female and include in all classes. In the case of students' perception on teaching methods, laboratories method is the most effective methods follow by "Group study and Lecture-Discussion". In students' gender analysis; male students rated all methods as being used to a higher degree than females. Seminar and overhead projector methods were effective in third year and fourth year students whereas laboratories method was effective in first year students according to the distribution of students' class analysis.

In the case of teacher survey, "teaching with conference" was the most effective method follows by "teaching with networks, pictures, posters" and "internship". According to the analysis of agriculture teacher's perceptions of principles of teaching-learning, two perception statements regarding selected teaching-learning principles had highest mean scores. The highest mean score was 4.82 (SD = .39) for the statement, "Agricultural education teachers connect the new element to be learned with something in previous experiences." The second highest mean score was 4.59 (SD = .50) for the statement, "Student activities are essential to all lesson plans in agricultural education.

## 5.2 Recommendation

1. Concerning with the teaching system, new teaching methods such as problem based, inquire based and experiential based teaching and learning system should be changed instead of lecturer only.
2. In field practical, the students should be trained to be a professional so that field trip, field survey and job training system should be more emphasis.
3. According to the student feedback, the exam system and exam question must be based on the understanding.
4. By using the teaching material (projector, microphone, and computer) is more effective for teaching so that it must be upgrade continuously.
5. Teacher upgrade program for example training the teachers would be the essential and should collaborate the international association and for further study.



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**Appendix 1 Means and standard deviations based on ratings of male and female respondents' perceived use of teaching methods (n=98)**

Methods	Male (N=50)		Female (N=48)		t-value	Prob.
	Mean	SD	Mean	SD		
Demonstration	3.92	0.804	3.71	0.849	1.267	0.208
Laboratories	4.40	0.535	4.04	0.617	3.075	0.003
Lecture-discussion	4.22	0.737	3.85	0.743	2.447	0.016
Field trips	4.22	0.764	3.58	1.028	3.49	0.001
Chalk Board	3.44	1.072	3.21	0.967	1.122	0.265
Networks (World Wide Web, etc.)	3.90	0.863	3.44	1.009	2.442	0.016
Overhead projector	4.12	0.746	3.73	0.765	2.561	0.012
Films (movie, slides...)	4.16	0.738	3.88	0.841	1.784	0.078
Brainstorming	4.14	1.069	3.75	0.863	1.982	0.05
Conference	3.82	0.873	3.48	0.875	1.929	0.057
Pictures, posters, newsletters	3.92	0.829	3.56	1.07	1.853	0.067
Self-study	4.22	0.764	3.79	0.988	2.406	0.018
Internships	3.54	1.014	3.33	0.996	1.017	0.312
Survey	3.80	0.948	3.33	0.975	2.403	0.018
Lecture	3.58	1.108	3.52	0.967	0.281	0.779
Group study	4.34	0.717	3.9	0.805	2.886	0.005
Exam (Theory)	3.28	1.23	3.56	1.009	-1.241	0.218
Exam (Practical)	3.32	1.203	3.19	1.197	0.547	0.586
Seminar	3.98	0.742	3.48	0.684	3.471	0.001
Assignments (reading, written)	4.02	0.82	3.52	0.922	2.834	0.006



**Appendix 2 Analysis of variance of means/standard deviations based on respondents perceptions by Class (n=98).**

Methods		First year	Second Year	Third Year	Fourth Year	F-ratio	prob.
Demonstration	Mean	4.07	3.78	3.5	3.87	2.167	0.097
	SD	0.766	0.671	0.933	0.869		
Laboratories	Mean	4.18	4.43	4.21	4.09	1.417	0.243
	SD	0.476	0.507	0.833	0.515		
Lecture-discussion	Mean	3.96	4.09	3.92	4.22	0.747	0.527
	SD	0.637	0.848	0.929	0.6		
Field trips	Mean	4.07	3.87	3.42	4.26	3.757	0.013
	SD	0.466	1.325	1.06	0.619		
Chalk Board	Mean	3.11	3.48	3.42	3.35	0.656	0.581
	SD	1.133	0.79	0.974	1.152		
Networks (World Wide Web, etc.)	Mean	3.82	3.3	3.75	3.78	1.527	0.213
	SD	0.819	1.063	0.847	1.085		
Overhead projector	Mean	3.61	4.09	4.04	4.04	2.349	0.077
	SD	0.875	0.288	0.908	0.767		
Films (movie, slides...)	Mean	3.82	4.04	4.25	4	1.26	0.293
	SD	0.983	0.638	0.737	0.739		
Brainstorming	Mean	3.57	4.13	4	4.17	2.109	0.104
	SD	1.103	1.1	0.933	0.65		
Conference	Mean	3.54	3.83	3.75	3.52	0.713	0.546
	SD	0.637	0.887	0.989	1.039		
Pictures, posters, newsletters	Mean	3.75	3.74	3.83	3.65	0.134	0.939
	SD	0.518	0.915	1.09	1.301		
Self-study	Mean	3.71	4.04	4.33	4	2.111	0.104
	SD	0.763	0.825	0.868	1.087		
Internships	Mean	3.75	3.22	3.29	3.43	1.457	0.231
	SD	0.799	0.736	1.16	1.237		
Survey	Mean	3.46	3.3	3.62	3.91	1.655	0.182
	SD	1.036	0.974	0.97	0.9		
Lecture	Mean	3.79	3.3	3.67	3.39	1.201	0.314
	SD	0.686	1.105	1.09	1.234		
Group study	Mean	4.25	4.04	4.04	4.13	0.397	0.756
	SD	0.518	1.065	0.908	0.626		
Exam (Theory)	Mean	3.82	3.35	3.25	3.17	1.797	0.153
	SD	0.819	0.935	1.327	1.337		
Exam (Practical)	Mean	3.43	3.57	3.25	2.74	2.222	0.091
	SD	1.136	0.843	1.26	1.389		
Seminar	Mean	3.75	3.26	3.96	3.96	4.939	0.003
	SD	0.701	0.619	0.751	0.767		
Assignments (reading, written)	Mean	3.82	3.87	3.62	3.78	0.323	0.809
	SD	0.772	0.694	1.096	1.043		



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