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Gender Equality in Agricultural Education

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ABSTRACT

Women play an important role in Agriculture, especially in developing countries. Promoting gender equality is crucial for agricultural development and food security. Agricultural extension services have a long tradition of working predominantly with men and only 15 percent of the world's extension agents are women. World Bank has suggested "Increased women's enrollment in agricultural courses" as one among the strategies when addressing gender issues in the education and training components of agricultural development projects. In this context the study was carried out to ascertain the representation of women and their academic achievement in agricultural education. The study revealed that almost equal representation was found for women in agricultural course and they were also provided better quality education in their schooling, in the form of English medium education and education in private schools. Recent trends for the past four years showed a higher percentage of enrollments of women in agricultural course than men. The growth rate was also higher for the female students. Women also showed a significantly higher percentage of academic achievement than men. These positive indicators provide sufficient signals for equality of women in agricultural course and have positive implications for development of the agricultural sector in future.

Women play an important role in Agriculture, especially in developing countries. Numerous studies have emphasized the need to empower women, providing them access to land, fertilizer, education and financial services. Promoting gender equality is crucial for agricultural development and food security. Gender equality is a state in which women and men enjoy equal rights, opportunities and entitlements in civil and political life. Women comprise nearly 50 per cent of India's population. Agricultural extension programmes ensure that information on new technologies, plant varieties and cultural practices reaches farmers. Agricultural extension services have a long tradition of working predominantly with men.

A recent FAO survey showed that female farmers receive only five percent of all agricultural extension services worldwide and that only 15 percent of the world's extension agents are women. "If women had the same access to productive resources as men, they could increase yields on their farms by 20 to 30 percent. This could raise total agricultural output in developing countries by 2.5 to 4 percent, potentially reducing the number of hungry people in the world by 12 to 17 percent," (FAO, 2011).

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The third of the United Nations Millennium Development Goals (MDGs) is to "Promote gender equality and empower women". It sets a target of eliminating gender disparity in all levels of education by 2015. Achieving the goal of equal participation of women and men in decision making will provide a balance that more accurately reflects the composition of society and is needed in order to strengthen democracy and promote its proper functioning. Without the active participation of women and the incorporation of women's perspectives at all levels of decision-making, the goals of equality, development and peace cannot be achieved (Fourth World Conference on Women, Beijing, 1995).

For a gender analysis, all data should be separated by sex in order to allow differential impacts on men and women to be measured. FAO, ESA working paper No 11, 2011, has concluded that accurate, current, regionally specific information and analysis is necessary for good gender-aware agricultural policy making. Data are needed to better understand gender roles in agriculture and how they change over time and in response to new opportunities.

In many parts of the world today, there is an increasing trend towards what has been termed as feminization of agriculture. As men's participation in agriculture declines, the role of women in agricultural production becomes ever more dominant. World Bank (2013) has suggested "Increased women's enrollment in agricultural courses" as one among the strategies when addressing gender issues in the education and training components of agricultural development projects.

Investment in the education of girls and women is one of the most effective means of raising the general level of development and promoting sustainable development, according to several studies by international agencies, including the World Bank, UNESCO and the United Nations Development Programme (United Nations, 2010).

In this context the study was carried out with the following specific objectives:

- To study the representation of female students in Agricultural education and the growth rate.
- To study the medium of instruction of female students and the type of school attended for their Higher Secondary Course (HSC).
- To study the academic achievement of female students.
- To study the relationship between the academic achievement of male students and female students.

METHODOLOGY

The study was taken up during the year 2013 - 2014. The students of B.Sc. Agricultural course at Adhiparasakthi Agricultural College, Kalavai, Vellore district, Tamil Nadu formed the subjects of the study. The institution was purposively selected because this was the first private agricultural

college in Tami Nadu affiliated to Tamil Nadu Agricultural University. The list of students who were admitted in the college between 1999 and 2013 were taken from the college registers.

Information regarding gender, medium of instruction in Higher Secondary Course, school last studied were collected. The OGPA was collected for the students who had completed their course by 2013. Statistical analysis like Frequency, Percentage analysis, R squared growth rate, Correlation Coefficient and Independent sample t test was carried out.

FINDINGS AND DISCUSSION

Representation of female students in Agricultural course

Worldwide, there is a gap of 10 percent between women's literacy rates and those of men. In some regions of the world, this gap is more than 25 percent. Women's participation in higher agricultural studies is significantly lower than that of men. The number of women in higher agricultural education as compared to men is lowest in precisely those regions where women constitute the majority of food producers (UNESCO, 2000).

The study revealed that there was almost equal representation of both male and female students in the course for the past fifteen years. The study further reveals that the difference in percentages was less than 2 per cent.

The year wise distribution of students over the past fifteen years showed that, in the last four years the representation of female students were higher than the male students. This is evident from Table 1.

The higher enrollment in the past four years is a positive signal that more and more women are coming into agricultural course and in future there is a possibility that they will occupy positions in decision making capacities and extension activities, benefitting the women farmers.

R Squared Growth Rate

The growth rate calculated showed that the growth rate in the representation of male students' was 10.31% with R square value of 0.257 and that for the female students' was 11.10% and the R square value was 0.399 (Table 1).This shows that the female students had a higher growth rate in representation compared to boys and the R square value was found to be higher conforming more closely to the regression line.

Medium of instruction in Higher Secondary Course (HSC)

The medium of instruction followed in HSC is either Tamil or English in Tamil Nadu. English in India is learnt and used as a second language. We call it a second language and not a foreign language because it has become the medium of instruction in higher education and also in schools. The medium of instruction in Tamil Nadu colleges is English. Thus students from Tamil medium very often complain that they struggle to learn and to get good marks in the subjects.

Table 1.
Year wise Distribution of Students based on Gender

Year	Male Students		Female Students		Total
	Freq.	Per cent	Freq.	Per cent	
1999	30	55.56	24	44.44	54
2000	28	51.85	26	48.15	54
2001	30	68.18	14	31.82	44
2002	32	62.75	19	37.25	51
2003	34	61.82	21	38.18	55
2004	32	58.18	23	41.82	55
2005	39	53.42	34	46.58	73
2006	19	79.17	5	20.83	24
2007	44	64.71	24	35.29	68
2008	40	64.52	22	35.48	62
2009	66	54.10	56	45.90	122
2010	36	39.56	55	**60.44**	91
2011	47	43.93	60	**56.07**	107
2012	36	34.29	69	**65.71**	105
2013	40	31.50	87	**68.50**	127
Total	553		539		1092
Growth Rate		10.31%		11.10%	
R Square Value		0.257		0.399	

The study reveals that majority (60%) of the female students had English as the medium of instruction in their higher secondary course, whereas 57 per cent of the males had Tamil as the medium of instruction. This provides better competency on the part of the student to perform in their academic. Jancirani *et.al* (2012) found from their study that there is significant difference in the scientific attitude of students according to the medium of instruction. English medium students have high level of scientific attitude than Tamil medium students. English is perhaps best when it is the medium of instruction and it will improve the language skills and scholastic achievement among the students which is the main basis of admission and promotion into higher class (Karthikeyan and Nirmala, 2012).

Type of school in Higher Secondary Course (HSC)

Kwesiga (2002) states that school has an effect on the academic performance of students but argued that school facilities determine the quality of the school, which in turn influences the achievements, and attainment of its pupils. Crosne, *et al.*, (2004) found that school ownership (that is schools owned by private individuals and those owned

Table 2.
Categorization of Students based on HSC Marks

Category	Female students Mean Percentage: 73.12SD:8.999		Male students Mean Percentage:73.31 SD:9.667	
	Frequency	Percentage	Frequency	Percentage
Lower	46	19.17	56	17.34
Medium	155	64.58	223	69.04
Higher	39	16.25	44	13.62

by the government) is an important structural component of the school. Private schools, they argue, tend to have both better funding and small sizes than public schools.

Majority of the female students (81.26%) had studied in private schools, which shows that female students have been provided better opportunity even at school level so that they can be fully equipped for their higher studies. Thilagavathy (2014) revealed that the government and private school students significantly differ in their mental health scores. The students of private schools have secured greater mean score than the students of government schools.

Academic achievement of female students

Academic achievement can be defined as the extent to which a learner is profiting from instructions in a given area of learning i.e., achievement is reflected by the extent to which skill or knowledge has been imparted to him. In our society academic achievement is considered as a key criterion to judge one's total potentiality and capability. Hence academic achievement occupies a very important place in education as well as in the learning process. The academic achievement is measured by means of marks obtained while completing the degree. Although the literacy rate is more among boys than girls; it is quite interesting to observe that girls are securing better ranks than boys in almost all the academic examinations. There is a lot of variability and dispersion. Gender has been found to play an important role in influencing student's academic activities.

Academic achievement in HSC

Analysis of the percentage of marks obtained by the students in HSC revealed that there was not much difference between the achievement of the marks between the male and female students. The average percentages of marks obtained by both the categories were around 73 per cent (Table 2). The categorization of the students into lower, medium and high based on mean and SD also did not show much difference.

Academic achievement in B.Sc. (Agriculture)

Academic achievement is represented as Overall Grade Point Average (OGPA) in the case of B.Sc. (Agriculture) program. In this

Table 3.
Categorization of Students based on OGPA

Category	Female studentsMean OGPA: 8.28SD:0.5265		Male students Mean OGPA: 8.11SD:0.5885	
	Frequency	Percentage	Frequency	Percentage
Lower	41	17	66	21
Medium	151	63	198	61
Higher	48	20	59	18

study, it was found that the mean OGPA of female students was 8.28 out of 10. The Standard Deviation (SD) was found to be 0.5265. Using mean and SD, the students were categorized into three viz., Lower, Medium and High on OGPA. It was found that majority of the female students (63%) were found in the medium category, followed by 20 per cent of the female students who were found to be high on OGPA (Table 3).

In the case of male students the mean OGPA was found to be 8.11 out of 10 and the SD was 0.5885. Majority (61%) of the male students belonged to the medium category with regard to OGPA, followed by 21 per cent in the lower category (Table 3).

Relationship between HSC marks and OGPA of female students

In order to study whether there exist any relationship between the marks obtained by the female students in their HSC and the OGPA obtained by them on completion of the Degree course, Correlation between the two marks were carried out. The coefficient of correlation was found to be 0.348, which means that there is 34 percent relationship between HSC marks and OGPA and since the correlation value is found to be positive it could be incurred that students with high HSC marks obtained higher OGPA in their degree programme. The correlation value was found to be highly significant at 1% level of significance.

Relationship between the OGPA of Male and Female students

Independent Samples t Test to compare the mean OGPA of female and male students, revealed that there is a significant difference in mean OGPA of female and male students. Female students had secured higher OGPA than male counterparts even though the difference between mean values was not much. The difference between the mean values was found to be highly significant. This is in line with the studies of Vijayalaxmi and Natesan (1992), Dlamini et al., (1997), Anitha (2001), and Girma Berhanu (2011).

CONCLUSION

The study revealed that females had almost equal representation in the agricultural course and had higher advantage than the males regarding language of instruction and the school they studied. These provided them with

better advantage over the males, when it came to scientific attitude, language capabilities and scholastic achievement. Recent trends reveal that the percentage of women entering the agricultural education is higher than the men, which is a positive indicator for development of agricultural sector. The growth rate in the representation of the female students was also found to be higher. In case of academic achievement, female students out performed male students showing a significant difference in the mean scores they obtained. This shows that gender equality is present in agricultural education with respect to representation, resource utilization and academic achievement. This is a positive indicator for development in agricultural sector in developing countries, where farming is currently feminized with majority of agricultural activities performed by women.

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