Policy Reforms for Quality Agricultural Education and Needed Changes in South India – A Review

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ABSTRACT

Education system in India was based on Gurukula system then to legacy of Britisher. Even today British system is in operation in many areas. However, Agricultural Education had its roots from Land Grant Colleges (LGCs) pattern of USA during 1960s In India. Today there are 30 plus agricultural universities offering Agriculture and Allied courses across the states. In this context, this paper is an attempt to trace the pre-requisites for quality Agricultural Education and to suggest remedies to overcome the pre-requisites: (1) Quality of Faculty (2) Quality of Students (3) Infrastructural Facilities (4) Course curriculum (5) Regulation of Examination (6) Teacher students interfaceand (7) Training needs of faculty on Education Technology.

The results reveal that, the qualified teachers with NET and Ph.D were not available for teaching, many a times faculty migration to other states are not common and inbreeding is the common phenomena noticed in agricultural universities. Further, the quality of students agricultural universities are getting are the bottom 40-50%. Creamy layer students opt for JEE, NEET and CLAT etc. The left over will join agriculture courses that too in urban colleges. The infrastructural facilities availability in urban area or colleges is more compared to rural colleges. Added to this, the curriculum should be need based and industrial oriented and should be updated from time to time. Examination and Evaluation should be regular and fair manner. Besides, the interface between teachers and students should be cordial. Many a time once the students completes his masters' or Ph.D he will be appointed and deployed to teaching which is not a good practice.rather new recruiters should be given induction training of one month and in the training the Anatomy of teaching methods and their usage should be made known to them, without proper grinding on use of education technology the trainings organizedare going to be futile exercise.

Pallavi(2011, Ashok 2004 and Naika 1999) cited that the quality of curriculum offered at University of Agricultural Sciences, Bangalore (UASB) in Karnataka was found to be 'useful' to the UG students in acquiring knowledge, Developing skills and overall personality development.Besides, The training needs of faculty on education and technology were in the order of application of learning therories, motivation techniques, lesson plan preparation, class room teaching methods etc. This paper also illustrates many suggestions and researchable prepositions which are interesting to the Administrators and policy makers in order to improve quality of Agricultural Education (Higher Education) in the years to come.

INTRODUCTION

Indian education was based on gurukul system. Subsequently educational Institutions like Takshashila, Nalanda and Vikramshila were established for expansion of Indian system of education. During British, regime, three universities namely Calcutta, Madras and Bombay were established. Even after independence in India we are following the legacy of British Government in the field of Education.

Post Independence system of Indian Education

1. Primary Education
2. Secondary and Higher secondary education
3. Higher Education
4. Professional education including Medical
5. Technical Education and
6. Agricultural Education

Agricultural Education in India

India has a strong network of National Education involving large number of Agricultural Universities and colleges. It has resulted in generating scientifically trained manpower for rapid development of agriculture and allied sectors. Yet, new challenges in Higher Education are emerging both in National and Global economic market. Today, the Challenge is to maintain

international competiveness in that context Higher Education and Research sector calls for a fresh look.There is urgency to focus on quality and relevance of Higher Education. The globalization of economy is a knowledge intensive process and warrants expertise in new areas of science and technologies.The developed nations have already taken a lead in the education market. The Agricultural Universities should take up the Noble mission of generating such human resources that serve as 'job creators, rather than job seekers'. There exists a vast scope for self employment of agricultural graduates in the country. For facilitating practical experimental and infrastructural facilities to be created and existing ones to be revamped

Pre-requisites for quality Agricultural Education are:

1. Quality of the faculty.
2. Quality of the students.
3. Infrastructure
4. Supporting staff.
5. Course curriculum
6. Examination and evaluation
7. Students-teacher interaction
8. Administration
9. Employment facilities and
10. Human resources and Training needs on education Technologies.

I. Quality of faculty

A good teaching faculty is a pre-requisite for quality education. In an agricultural university system, a teacher not only be a knowledgeable person having authority on the subject.He or she is specialized but also be a good researcher. He or she should give emphasis on such research work which would be aimed to solve the problems of Indian agriculture

Selection of Good Faculty

The veterinary, Animal science and Fishery universities in our country are limited. The students passed out of these Universities usually get job in different fields. Very few postgraduate students qualify NET examination. Many NET qualified students get jobs in ICAR and related Institutions through ASRB. Very few NET qualified students apply for teaching profession. Therefore

1. NET and Ph.D not always available at the entry points
2. Candidates from outside the state are very less in number among the applicants. Even if they get selected, they search opportunity to migrate to his/her comfortable destination from the very beginning.

It is more difficult to get teachers in higher positions. An Associate or a professor usually does not show interest to join in the similar post in other Universities; moreover they are not interested to apply for the post of professor from the post of Associate professor in other institutes.Actually a professor who has settled at a place and established a position in his/her own university/institute is not interested to migrate. Even an Associate professor who has earned reputation in a University/Institute does not show interest to migrate because they know in their own University they will get promotion to the post of professor. Moreover, they consider any kind of new establishment might be a risky. In most cases inbreeding becomes a kind of binding for selection of a faculty.

II. Quality of students

For quality education, quality students are also needed. In India most of the universities and reputed colleges are located in urban and semi urban areas. Very few good colleges are located in the villages. Even good students of the villages prefer reputed urban colleges instead of their nearest Institutions. Very few rural colleges get good quality students.Although,the teaching faculty of those colleges might not be less qualified than many urban colleges.

There are very few students from rural background with deep commitment to serve the

farming community. Since Government spends a considerable amount of revenue for making an Agricultural or Veterinary or Fishery graduate, if these people do not serve the nation it would be considered as wastage of national wealth. According to one estimate the ICAR is spending Rs.5 lakhs on each U.G student of B.Sc (Agri).

In the era of market economy, it is the money which controls the students' career. All over India there is a general tendency that majority of Plus+2 pass students sit for Joint Entrance Examinations (JEE) for Medical and Engineering courses and most of the successful students take Admission into Engineering Course. Top order students get admitted in IITs and Medical colleges, ISI, IISC, IISER and similar Institutions. Next grade of students take admission into various profession related streams in renowned colleges, next grade in science streams and they also prefer renowned colleges. Only a handful of very good students opt for Humanities. Students who opt for Commerce stream, some of them prefer CA, ICWA and similar courses for higher studies. Many meritorious students from different streams also try for management courses. Financial condition of the parents and guardians also compel many meritorious students to deviate from their preferred courses. (*Chakrabharathi 2010*)

III. Infrastructural Facilities

1. Funding should be available to the colleges/Institutes which suffer from financial crunch so that, they can make their infrastructure for up to the standard. Similarly, funds should also be equitably distributed to the developing and developed colleges/Institutes for further improvement of their standard.
2. Funds for new construction, repair and renovation of Laboratories, classrooms, Libraries, students hostel should be made available.
3. Supporting staff.
4. Establishment of need based educational Institution network in the country by the Central and state Government.
5. Government will provide permission to the private organization after proper verification of their credentials and the site should be selected as per specification of the Government.
6. Sincere, dedicated and disciplined non-teaching staffs are needed for running a good Institute.

IV. Course curriculum

For identical course curriculum is preferable. However, every university should have the right to modify at least 40 per cent of the syllabus on the basis of local variation.

1. Syllabus should be need based, up-to-date and accommodative.
2. Periodic revision of the syllabus is to be undertaken
3. For science based courses proper importance be given to the practical course curricula.
4. The syllabus should be job-oriented.

There are suggestions from some experts that syllabus should be made on the basis of the Need of the Industrial houses. Because, industries provide services to many qualified persons. However, there are opposite views also. In reality, need of the industries are not fixed and demand driven which a university cannot cater. University can make specialist but cannot make a super specialist which is the requirement of the industry. It is not very difficult to be a super specialist from a specialist after getting a job.

Pallavi (2011) has investigated the 'usefulness of 'Fourth Deans committee' recommended curriculum at University of Agricultural Sciences, Bangalore in Karnataka,she come to an interesting conclusion that U.G curriculum was useful in 'acquisition of knowledge'

developing skills and overall personality development of students in the order of 37.89 44.21and 46.32 per cent respectively followed by 30.53, 30.53 and 29.47 percent as 'useful' and 31.58, 25.26 and 24.21 percent reported U.G curriculum as 'more useful'.This shows that the present curriculum offered at UASB is found to be useful to the B.Sc (Agri) students. Similar findings were also reported by Naika(1999) and Ashok kumar(2004).

V. Regularity of Examinations and Evaluation

For smooth running of any academic system, examination is the most important Parameter. Evaluation is an inseparable part of Examination system. There may be several methods of examinations and evaluation. Every method has some merits and demerits. Methods which are time tested and more beneficial for the students should be adopted.

VI. Teacher-student interface (counselling)

Better understanding and co-ordination is needed between the teachers and the taught in addition to contact hours of the scheduled classes. Opportunities need to be developed for interaction between the teachers and the taught. This type of Teacher-Student interface would help the students to understand the problems in a better way and the teachers would be able to complete their teaching in time.

VII. Training Needs of faculty on Education Technology

The data presented in table 1 reveals that, classroom teaching method, techniques of motivation, learning theories as applied to teaching preparation and use of A.V.aids, Handling of A.v.aids, lesson plan preparation evaluation methods in classroom, construction of test items, followed by students counseling were the major areas the faculty reported they need more training (*Somashekara 1991*). As alluded, the RJ score states that lower the score more important and higher the score least important, this calls for organizing training program for newly recruited teachers on pedagogy (i.e the principles of adult learning) methods it could be interred that there appears to be less facility and poor encouragement for students counseling, lack of physical facilities, non-availability of teaching facilities like computers. A.V. aids, slides, PPT Added to this, the encouragement from Administrators and Heads of Departments is not forthcoming to use the advanced gad jets in class room teaching. Therefore, attempts should be made to equip the teachers knowledge and skills to use more modern methods in teaching. So that the young minds can be penetrated with new

Table 1
Training needs of faculty on education technology

Sl. No	Training area	Naika (1999)		Pallavi (2011)	
		RJ Score	Rank order	RJ Score	Rank order
1.	Theory of learning and their applications to class room teaching	176	1	322	5
2.	Students motivation techniques	176	1	312	3
3.	Preparation of lesson plans	182	2	299	2
4.	Class room teaching method	200	3	271	1
5.	Preparation and use of available	202	4	328	6
6.	Class room evaluation method	247	5	316	4
7.	Handling available equipments	257	6	343	8
8.	Guidance and counseling to students	257	6	337	7
9.	Use of digital cameras	-	—	359	9

research results in to the minds of people in general and students in particular.

It is paradoxical to note from the Table 2 that the training needs of faculty as reported by Naika 1999 were in the order of application of learning theories in teaching, students motivation techniques, preparation of lesson plans, class room teaching methods, use of a.v aids, evaluation methods followed by guidance and counseling methods. The training needs mentioned by somashekarappa et al during (1991) has reversed over the years.This implies, the explosion in teaching and population was augmented. Also possibly, the number of students enrolled per class might be more as a result the lack of physical facilities and resources might have influenced this situation. Later, Pallavi (2011) has investigated the training needs of teachers in the same university, perhaps including a mixture of old and newly recruited teachers as sample for her study during 2011. The result of table 2 speaks out that use of A.V.aids, emerged as importent area followed by teaching methods, motivation techniques, learning theories application in teaching, evaluation methods and use of digital camera in that decreasing order. This shows that, over the years the technology usage in teaching learning is getting priority. At the same time, the training needs of teachers on education technology has changed compared to Naika(1999) findings. By and Large, teaching is an art the effective teaching is bent upon the experience, exposure and integration of known ideas with unknown ideas. Known I mean here what the audience (students know) un-known meaning what the teachers expect his pupils to know or learn and understand. It is worthwhile to quote Ravindrantha Tagore saying" A lamp cannot lit another lamp unless it lit itself". Therefore, if the teacher new or old/experienced or inexperienced want to teach his audience, their knowledge must be updated on technology usage. Handling and maintenance, besides psychological principles in teaching and learning. Technology is a slave in the hands of user but, its integration that makes teaching more meaningful not technology itself or perse. Therefore, use of new gadjets in teaching is the need of the hours.Which calls for technology integration in teaching.

VIII. Following are the suggestions offered for qualitative up-gradation of Agriculture education system.

1. To develop world class higher education, feeder stages of education are required to be developed. Central Government should allocate substantially higher funds to state universities and colleges in order to achieve GRE ratio of 15 per cent in higher education by the end of 12th plan.

Table 2
Hierarchy of training needs on education technology

Sl. No	Training needs	Somashekarappaetal (1991)	
		RJ Score	Rank order
1.	Methods of classroom teaching	448	1*
2.	Techniques of motivation	468	2
3.	Learning theories and their application to teaching	533	3
4.	Preparation and use of A.v.aids	621	4
5.	Handling A.v.aids	626	5
6.	Preparation of lesson plans	682	6
7.	Construction of Teaching and test items	698	7
8.	Methods of teaching	712	8
9.	Students counseling	882	9

$W = 136^{X2} = 132.21^{xx}$ Significant at – 1%

2. The universities and colleges situated in backward areas should get more annual grants to attract more students for quality education at their door step. There is need of judicious mix of accountability and autonomy in institutions.
3. Institutions should have proper missions, resources and purposes. Introduction of effective administration and managerial reforms are a prerequisite for better command and control.
4. Only merit should be the basis of all selections. **Transparent promotion policies for the academic staff and similar merit based selection of students should be enforced.**
5. Teaching of skill development courses by practicing professionals and continuous up-gradation of curricula with latest development in technologies are required.
6. Teaching-learning should be learner-centered. Teaching-learning resources are to be networked for enriching the knowledge base of the teachers.
7. There should be extensive and optimal use of information technology and internet networks.
8. The course should be so designed that the use of these technologies is made an integral part of the teaching programmes and classroom activities.
9. Internship should be made compulsory in all professional courses. Curricula must contribute towards development of soft skills together with logical and analytical mind.
10. Education has to be tailor-made to the expectations of the employer. The primary focus should be on making available scholarships or soft loans to economically weaker students or needy student in professional institutions. Curricula must contribute towards development of student personality.
11. Indian agricultural Universities should attract foreign students and also open campus abroad as per their strategic strength.

Further, a number of **Initiatives and reforms** have been put in motion to revamp quality of agricultural education in India by ICAR as cited by Ray (2010) which includes

1. Establishment of Accreditation Board for Quality Assurance
2. Faculty competence improvement through training (Induction training, refresher courses) and faculty exchange both within and outside country
3. Measures for reducing inbreeding among faculties
4. National Eligibility Test mandatory for faculty recruitment
5. Best Teacher Award institution
6. Setting up of norms (workload and faculty strength etc.), standards (OGPA etc.) and Academic Regulations for U.G. and P.G. programmes
7. U.G. and P.G programmes for increased practical and practice contents through inclusion of RAWE/In Plant training/Experimental Learning (earn while you learn), etc
8. Inclusion of frontier areas of related sciences: (Biotechnology, Bio-informatics, Precision farming, Remote sensing, Hi-tech agriculture, Information & communication Technologies, etc) in course curricula
9. Effective methods of curriculum delivery through development of Model class rooms with modern audio visual facilities establishment of "Education Technology Cells" in each college to facilitate quality teaching.
10. Examination reforms (internal and external system of evaluation)
11. Strengthening of library including automation/e-library

12. Institution of scholarships and fellowships for meritorious students to lessen their financial hardships
13. Infrastructure support for hostels to accommodate more of girl students, hostel provision for International students
14. Inter institutional linkages to take advantage of the strengths of different institutions for mutual benefit and SAUs should increase the access to higher agricultural education by opening more constituent colleges rather that affiliating private colleges. It is also proposed to undertake evaluation/ranking of SAUs for enhanced national and global visibility. This will lead to better acceptability, transferability and employability of the pass-outs.

CONCLUSION

it is axiom to note thatThese reforms will bring in desired change in the quality of agricultural education to create befitting human resource in agriculture to suite to the need of both private and public sector. Further,the training needs of faculty of Agricultural University in two epochs. Calls for a concerted effort on the part of policy makers, Administrators and Teachers themselves with an open mind for learning. The evaluation of teaching seems to endanger alarm apprehension and even a certain level of fear. Therefore, teachers who are in Teaching must abreast themselves on recent advancement in their respective areas and practice sincerity and dedication in modeling the behavior of students in the years to come to take the glory of teaching to the higher level.

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