Students Perception on Enrolment Factors in Their Retention in Higher Agricultural Education

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Authors' contributions

This work is carried out in collaboration among all authors. Author CKP designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors KC and AP managed the analyses of the study. Author DP managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

India is the land of Agriculture. The role of the agricultural sector still important to Indian economy. However, despite the tremendous significance of agriculture in our country, there is disillusionment among students toward in higher agricultural education. Most of the school going students choose their career in medical and engineering and counts agriculture as boring and unattractive subject. Enhancing their perception and attitude toward agriculture as the fastest growing industry where they can start their own entrepreneurial and helping other to acquire knowledge and skill related to agriculture development will reduce dependence on government jobs and help youths to start their own agriculture start-up that will be beneficial to national economy. Thus the present study was carried out to assess students' perception on enrolment factors in retention in higher agricultural education. A Study was conducted in six colleges of Bihar Agriculture University, Sabour, Bhagalpur. Eighty students from these six colleges were chosen through stratified random sampling. The collected data were classified, tabulated and analyzed. The findings inferred that there are major Enrolment Factors (out of twenty) contributes in students retention is agricultural education, promote agriculture within the country (Rank I). The finding of the study will help extension policy makers and Governments to frame suitable polices for educating students and youths and enhance their knowledge towards agriculture and retention in higher agricultural education.

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1. INTRODUCTION

India is land of Agriculture [1]. The role of the agricultural sector still remains important to Indian economy. Seventy percent of its rural households still depend primarily on agriculture for their livelihood because agriculture is the main occupation and source of income of rural people. However, despite the tremendous significance of agriculture in our country, there is disillusion among students toward agriculture. Most of the school the going students choose their career in medical and engineering and counts agriculture as boring and unattractive subject. Enhancing their perception and attitude toward agriculture as fastest growing industry where they can start their own entrepreneurial and helping other to acquire knowledge and skill related to agriculture development will reduce dependence on government jobs and help youths to start their own agriculture start-up that will be beneficial to national economy. 'Dropout from Higher Education' by Tinto [2] was the initial seminal research work on student retention and attrition. The matter of retention is a relentless problem in higher education as half of all freshman entering higher education fail to realize their dreams and consequently leads to exodus of students from higher education. However, retaining students is a key factor in maintenance of institutional stability and reputation [3]. Beyond the financial issue [4,5], educators have deeper concerns about the reasons that students do not complete their study programs. It was noted that family background, individual attributes, pre-college schooling, initial commitments, external commitments, peer group interactions, interaction with faculty [6], E-Learning technologies [7] and development of professional identity [8] among students influenced in student retention in India. The factors in student retention are "good teaching," "quality of instruction" "helpful staff" and "faculty who are genuinely interested in students" [9], quality of relationships and a supportive atmosphere on campus, interaction with faculty Carini et al. [10], post secondary empowerment programme [11], individual counseling, fostering relationships among students and between students and faculty, and skills development led retention of the student [12].

In view of the above, the study intends to assess the students' perception on enrolment factors in relation in higher agricultural education. The objective of the study is to know factors associated with students retention in higher agricultural education. Specifically, the study intends to identify the students' personal awareness factors, and determine their level of interest toward higher agriculture education. This will help to formulate suitable polices, providing incentives and opportunity and designing educational training program that can help in attracting students for higher agriculture education.

2. MATERIALS AND METHODS

The study was conducted in six colleges of Bihar Agricultural University, Sabour, Bhagalpur. Total 80 respondents of fourth year of these six colleges were chosen for study because all colleges have not equal students population and as they were at the doorstep of entering into postgraduation study so it was important to know their awareness, perception, attitude toward higher agricultural education. The statements were framed to measure the students perception on enrolment in higher agricultural education. Data collection was done by pretested structure schedule. Proportional random sampling method was used for data collection. Principle Component Analysis was the statically tool used for analysis of data.The information collected was scored, tabulated, computed and analyzed to have necessary interpretation.

3. RESULTS AND DISCUSSION

Table 1 indicates respondents' perception on enrolments factor. Total 20 variables (factor) were taken to check respondents perception on enrolment factor. Gender wise rank position and overall rank of 20 variables of the 80 respondents were also given. Out of 20 variables (factor 17 Agricultural education is a good way to promote agriculture within the country) shows rank one both in gender wise rank position and overall rank. Factor no. 7 (I believe agricultural education will benefit me later in life) shows rank 2 in both overall rank and gender wise rank position. Followed by factor 6 (I believe agricultural education help students learn more about agriculture) indicates rank 3 in overall rank and rank 2 in gender wise rank position. Factor 14 (I believe agricultural education will benefit me later in life) and factor 20 (This academic programme helped me in better understanding to resolve the farmer's problems) shows overall

Table 1. Student's perception on enrolment factor

Sl. no.	Factors	Gender wise rank position (UG)		Overall rank n=80
		Male n_1=40	Female n_2= 40	
1	My friends suggested, I take agricultural education.	XIV (2.49)	XVII (2.38)	XV (2.38)
2	My parents or guardian suggested I take agricultural education.	VIII (3.32)	X (3.81)	X (3.57)
3	My school teachers/ administrator suggested I take agricultural education.	XIV (2.49)	XIII (3.03)	XIII (2.76)
4	Cost of agriculture education is less as compared to other professional courses. So, I choose this course.	XIII (2.57)	XVII (2.40)	XIV (2.49)
5	Most of my friends are in agricultural education.	XV (2.22)	XIX (2.14)	XVII (2.18)
6	I believe agricultural education help students learn more about agriculture.	II (4.19)	IV (4.08)	III (4.11)
7	I believe agricultural education will benefit me later in life.	IV (4.00)	II (4.27)	II (4.13)
8	I read agricultural education to cultivate my own land	XII (2.70)	XV (2.63)	XIII (2.66)
9	I read agricultural education to become an agri-entrepreneur	IX (3.30)	XII (3.54)	XI (3.42)
10	I read agricultural education because my parents/relatives enforced me to read this course.	XVI (1.97)	XVI (2.59)	XVI (2.29)
11	I heard the agricultural education courses were easy to get good grades in.	XVII (1.94)	XIV (2.78)	XV (2.38)
12	Agricultural education helps me become a better citizen.	VI (3.62)	IX (3.86)	VII (3.74)
13	Agricultural education will help me to prepare for a career in agriculture in future.	III (4.03)	III (4.24)	II (4.13)
14	Agricultural education has offered a variety of local activities that add to my education/experience.	V (3.91)	II (4.27)	IV (4.10)
15	Agricultural education develops leadership skills.	VII (3.54)	V (4.05)	VI (3.80)
16	Agricultural education has helped me build my self-confidence.	XI (3.16)	VIII (3.92)	V (3.81)
17	Agricultural education is a good way to promote agriculture within the country.	I (4.51)	I (4.54)	I (4.53)
18	Agricultural education has helped me become a better public speaker.	VI (3.62)	XI (3.73)	VIII (3.67)
19	Agriculture is the evergreen sector for job opportunities.	X (3.22)	VI (4.03)	IX (3.65)
20	This academic programme helped me in better understanding to resolve the farmer's problems.	II (4.19)	VII (4.00)	IV (4.10)

Table 2. Mean and SD of enrolment factors (Enrol fact) UG program

Factors	Mean	Std. deviation	No. of variables
EnrolFact17	4.5270	0.57868	13(Included in PCA)
EnrolFact6	4.1351	0.64795	
EnrolFact7	4.1351	0.92639	
EnrolFact13	4.1351	0.74621	
EnrolFact20	4.0972	0.75358	
EnrolFact14	4.0972	0.67469	
EnrolFact16	3.8108	0.87077	
EnrolFact15	3.7973	0.84367	
EnrolFact12	3.7432	0.87681	
EnrolFact18	3.6757	0.89302	
EnrolFact19	3.6486	1.19854	
EnrolFact2	3.5676	1.13573	
EnrolFact9	3.4189	.92168	
EnrolFact3	2.7568	1.29076	7(Discarded from PCA)
EnrolFact8	2.6667	1.08770	
EnrolFact4	2.4865	1.25232	
EnrolFact1	2.4324	1.08642	
EnrolFact11	2.3803	1.07393	
EnrolFact10	2.2877	1.13626	
EnrolFact5	2.1781	1.17074	

PCA - Principal Component Analysis

Table 3. Rotated component matrix of enrolment factor for under graduate students

Sl. no.	Components	1	2	3	New variables
1	Parent's suggestion in choosing agril. Education	0.183	0.757	-0.247	Parental influence and future scope
2	Scope to learn more about agriculture	-0.191	0.664	0.523	
3	Future benefits in life	0.063	0.753	0.404	
4	To become an agri-entrepreneur	0.366	0.479	-0.063	
5	To become a better citizen	0.396	0.561	0.375	
6	To prepare for a career in agriculture in future	0.443	0.197	0.448	Agricultural growth and career choice
7	Promoting agricultural growth in the nation	0.142	0.003	0.803	
8	Evergreen sector for job opportunities.	0.318	0.071	0.571	
9	Provide varieties of local activities that add to experience	0.736	0.191	0.047	Leadership development
10	Develops leadership skills	0.718	0.264	0.086	
11	Help in building self-confidence	0.854	0.161	0.228	
12	Help to become a better public speaker	0.757	0.032	0.167	
13	Better understanding to resolve the farmer's problems.	0.653	0.017	0.393	

Extraction Method: Principal Component Analysis. Rotation Method: Vari max with Kaiser Normalization.
Variance Explanation: 60.27%

rank 4 and 5 in gender wise rank position respectively. Factor 15 (Agricultural education develops leadership skills) shows overall rank 6 and 7 in gender wise rank position. Followed by this factor 12 (Agricultural education helps me become a better citizen) indicates overall rank 7 and gender wise rank 6. Factor 18 (Agricultural education has helped me become a better public speaker) shows overall rank 8 and gender wise rank 6. Factor 19 (Agriculture is the evergreen sector for job opportunities) shows overall rank 9 and gender wise rank 10. Followed by factor 2 (my parents or guardian suggested I take agricultural education) shows overall rank 10 and gender wise rank 8. Factor 9 (I read agricultural education to become an agri-entrepreneur)

shows overall rank 11 and gender wise rank 9. Factor 3 (My school teachers/ administrator suggested I take agricultural education) shows overall rank 12 and gender wise rank 16. Factor 8 (I read agricultural education to cultivate my own land) shows overall rank 13 and gender wise rank 12. Factor 4 (Cost of agriculture education is less as compare to other professional courses. So, I choose this course) indicates overall rank 14 and factor wise rank 13. Factor 1 (My friends suggested, I take agricultural education) shows overall rank 15 and gender wise rank 14. Factor 10 (I read agricultural education because my parents/relatives enforced me to read this course) shows rank 16 in both overall rank and gender wise rank. Followed by this factor 5 (Most of my friends are in agricultural education) shows overall rank 17 and gender wise rank 15.

It is noted in Table 2 that 20 variables were considered for factor analysis, however all variables may not have important contributing in student retention in higher agricultural education, so variables wise mean and S.D. were calculated. Table 2 indicate that the main enrolment factor 17 (Agricultural education is a good way to promote agriculture within the country) shows highest mean 4.5270 and standard deviation .57868. Enrolment factor 6 (I believe agricultural education help students learn more about agriculture) shows mean 4.1351 and highest S.D. 0.64795. Enrolment factor 7 (I believe agriculture education will benefit me later life) shows mean 4.1351 and S. D. 0.92639. Enrolment factor 13 (Agriculture education will help me prepare for a career in agriculture in agriculture in future. Enrolment factor 20 (This academic programme helped me in better understanding to resolve the farmer's problems) shows mean 4.0972 and S.D .75358. Enrolment factor 14 (Agricultural education has offered a variety of local activities that add to my education/experience) shows mean 4.0972 and S.D. 0.67469. Enrolment factor 16 (Agricultural education has helped me build my self-confidence) shows mean 3.8108 and S.D. 0.87077. Enrolment factor 15 (Agricultural education develops leadership skills) shows mean 3.7973 and S.D. 0.84367. Enrolment factor 12 (Agricultural education helps me become a better citizen) shows mean 3.7432 and S.D. 0.87681. Enrolment factor 18 (Agricultural education has helped me become a better public speaker) shows mean 3.6757 and S.D. 0.89302. Enrolment factor 19 (Agriculture is evergreen sector for job opportunities) shows mean 3.6486

and S.D. 1.19854. Enrolment factor 2 (My parents or guardian suggested I take agricultural education) shows mean 3.5676 and/ S.D. 1.13573. Enrolment factor 9 (I read agricultural education to become an Agri-entrepreneur) shows mean 3.4189 and S.D. 0.92168. Enrolment factor 3 (My school teachers/ administrator suggested I take agricultural education) shows mean 2.7568 and S.D. 1.29076. Enrolment factor 8 (I read agricultural education to cultivate my own land) shows mean 2.6667 and S.D. 1.08770. Enrolment Factor 4 (Cost of agriculture education is less as compare to other professional courses. So, I choose this course) shows mean 2.4865 and S.D. 1.25232. Enrolment factor 1 (My friends suggested, I take agricultural education) shows mean 2.4324 and S.D. 1.08642. Enrolment factor 11 (I heard the agricultural education courses were easy to get good grades in) mean 2.3803 and S.D. 1.07393. Enrolment factor 10 (I read agricultural education because my parents/relatives enforced me to read this course) shows mean 2.2877 and S.D. 1.13626. Enrolment factor 5 (Most of my friends are in agricultural education) shows mean 2.1781 and S.D. 1.17074.

Five Point Likert(1932) Scale (Strongly Agree to Strongly Disagree with Undecided as Middle point) was used to receive the response of the respondents. In which middle value is 3(undecided). Accordingly, out of twenty variables/Factors those value below 3 were discarded from PCA. Hence, the seven variables (EnrolFact3, EnrolFact8, EnrolFact4, EnrolFact1, EnrolFact11, EnrolFact10, & EnrolFact5) were discarded from the PCA and remaining thirteen variables (EnrolFact17, EnrolFact6, EnrolFact7, EnrolFact13, EnrolFact20, EnrolFact14, EnrolFact16, EnrolFact15, EnrolFact12, EnrolFact18, EnrolFact19, EnrolFact2 & EnrolFact9) were included in PCA (Table 2).

Table 3 state about analysed variable whose mean was below three. Those variable whose mean was below 3 were discarded from Principle Component Analysis (PCA). Accordingly the variables were discarded and 13 were included in the PCA. The finding of the PCA is presented in Table 3. The 13 variables were loaded in 3 factors and the new nomenclature of the variables is given as a Parental Influence and Future Scopes which includes 5 variables. The next new variables is Agricultural Growth and Career Choice which includes 3 variables. Other new variables is Leadership Development in Agriculture Education which includes 5 variables.

Table 4. Spearman's correlation coefficient between enrolment factors (Dependent variables) and socio-economic variables (Independent var.)

Sl. no.	Independent variables	Spearman's correlation coefficient (ρ)
1	Age	-0.118
2	Marks obtained in 10+2	0.345**
3	Repeated Appearance to Entrance Exam.	0.105
4	Family Background	0.134
5	Parental Education	0.121
6	Family Income	0.214*
7	Caste	0.103

* Significant at 5% level ** Significant at 1% level

Age of the respondents was negatively related to enrolment factor. Marks obtained in 10+2 was positively and significantly related to enrolment factor. Repeated appearance to entrance exam was positively and significantly related to enrolment factor. Family background, parental education, family income was also positively and significantly related to enrolment factor.

4. CONCLUSION

Major Enrolment Factors (out of twenty) contributes in students retention are agricultural education promote agriculture within the country (Rank I). Other major consideration in retention were agricultural education helped in preparation for career in agriculture in future (Rank II), however, education helped them to learn about agriculture better way (Rank II). Other major retention factors were building self-confidence (Rank III), involvement of variety of local activities (Rank IV), resolve the farmer's problems (Rank V). Principal Component Analysis (PCA) was conducted on seven Factors, based on that factors were broadly categories into Parental influence and future scope, Agricultural growth and career choice and leadership development. It was also noted that enrolment factors were positively and significantly correlated with Marks obtained in Higher Secondary (0.345**). Based on the study it can be concluded that for more retention of the students in higher agricultural education aforesaid factors should be inculcated among the institutional ecosystem.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Limbore Nilesh V, Khillare Shrirang K. An analytical study of India agriculture crop production and export with reference to wheat. Review of Research Journal. 2015;4(6).
2. Tinto V. Dropout from higher education: A theoretical synthesis of recent research. Review of Educational Research. 1975;45:89-125.
3. Marshall C. The school of language and liberal arts writing program and retention at Fanshawe College. College Quarterly. 2008;11(2),25-35. Available:http://collegequarterly.ca/2008-vol11-num02-spring/marshall.html
4. Heagney M. Student success and student diversity. In G. Crosling, L. Thomas & M. Heagney (Eds.), improving student retention in higher education: The role of teaching and learning. New York: Taylor & Francis. 2008;17-28.
5. Seidman A. (Ed.). College student retention: Formula for student success. Newyork: Rowman & Littlefield Publishers; 2012.
6. Chandandeep, Singh S. Predicting student attrition and factors affecting attrition in higher education. International Journal of Engineering Research and Applications. National Conference on Advances in Engineering and Technology; 2014.
7. Baruah TB. Improving student retention through technology in India. Asian Journal of Distance Education. 2011;9(2): 15–25.

8. Konar S. Undergraduate research in physics: An Indian perspective. Current Science. 2016;111(12):1908-1910.
9. Hassel H, Lourey J. The death of student responsibility. College Teaching. 2005;53 (1):2-13.
10. Carini RM, Kuh GD, Klein SP. Student engagement and student learning: Testing the linkages. Research in Higher Education. 2006;47(1):50-85.
11. Keup JR. The impact of curricular interventions on intended second year Re-enrollment. Journal of College Student Retention. 2006;7(12):61-89.
12. Beatty Guenter P. Sorting, supporting, connecting and transforming: Retention strategies at community colleges. Community College Journal of Research and Practice. 2007;18(2):113-129.