Factors Associated with Knowledge of Teachers in the Agricultural University

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Abstract

Knowledge is a pre requisite for successful performance in teaching and competency development. The present research has been undertaken to assess the level of knowledge possessed by teachers in the Agricultural University and to find out the relationship between selected socio-personal and psychological characteristics and knowledge of the teachers. The study suggests that, to improve the knowledge of teachers, need based training must be imparted followed by proper evaluation, availability of modern instructional aids with skills in handling them. Associated job factors like achievement motivation, job satisfaction, job preference and favourable teaching attitude also need increased attention.

Introduction

In teaching, knowledge of subject matter and attitude towards teaching and students is very important. The role of a teacher in technological and advanced educational systems in general and agricultural education in particular has become challenging. Earlier, the teacher was the only source of information and had to guide and facilitate information tranfer. In the present era of information technology, in order to discharge his/her duties effectively as a generator, facilitator of knowledge and assimilator, the teacher is expected to produce dynamic graduates who have to work and compete in high tech areas with persons from other countries (Verma, 2002).

A teacher must understand the concept of teaching and learning; hence the knowledge possessed by a teacher assumes great importance to express competency. Hence, it was felt imperative to work out the knowledge of the teachers for imparting instruction to undergraduate students in an Agricultural University and the present research was therefore undertaken with the following specific objectives:

1. To assess the level of knowledge possessed by teachers in the Agricultural University.
2. To find out the relationship between selected socio-personal and psychological characteristics and knowledge of the teachers in the Agricultural University.

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Methodology

The research was purposively conducted in Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola and was confined to four colleges viz., College of Agriculture, Akola, College of Agriculture, Nagpur, Shri. Shivaji College of Agriculture, Amravati and Anand Niketan College of Agriculture, Warora. The study was confined to the academic staff viz., Associate and Assistant Professors imparting instruction in agriculture in the undergraduate degree programme. For the purpose of the study, a well-structured and pre-tested questionnaire was used. The questionnaire was personally given to 176 teacher respondents who were actually engaged in teaching and 111 filled in questionnaires received from respondent teachers constituted the data for the research. Exploratory and analytical research design was used for the present research.

The data obtained on the scale for knowledge indicator as per self rating was put forth for distribution and relational analysis to assess the knowledge of respondent teachers by applying suitable statistical tools viz. percentage, mean, standard deviation, correlation, path analysis, regression analysis etc.

Knowledge

Knowledge is the understood body of information and in teaching it refers to thorough information of subject matter, teaching and students' psychology by the individual to become proficient in the teaching profession (Lahariya, 2006). Knowledge is a pre requisite for successful performance in teaching and competency development.

Knowledge was one of the indicators of teaching competency scale developed, standardized and used to measure the teaching competency of academic staff. The knowledge indicator consisting of 04 positive statements has to be rated on a five-point response continuum namely very much (VM), much (M), fair (F), less (L) and very less (VL). The numerical scores assigned to these response categories were 5,4,3,2 and 1 respectively.

S. No.	Knowledge indicator and Items	Response Category				
		VM	M	F	L	VL
1.	**Knowledge**	-	-	-	-	-
i)	Possess basic knowledge of specialized subject					
ii)	Possess knowledge of current trends in specialized subject					
iii)	Possess knowledge of teaching					
iv)	Possess knowledge of student's psychology					

The knowledge score on this scale ranged from a minimum 4 to a maximum of 20. The knowledge score was calculated by summing up the scores obtained by respondents on all the items and considered as individual's score. The scores obtained as per self rating of respondent teacher on the entire five continuums for all the items were summed up and converted to knowledge index with the help of the formula given below:

$$\text{Knowledge Index} = \frac{\text{Obtained knowledge score}}{\text{Maximum obtainable knowledge score}} \times 100$$

The respondents as per self rating index score were then grouped into four categories on the basis of knowledge index as given below:

S. No.	Knowledge level	Index range
1	Poor	Up to 25
2	Average	26 to 50
3	Above average	51 to 75
4	Good	Above 75

Findings

1. Distribution Analysis

A teacher must understand the concept of teaching and learning; hence the knowledge possessed by a teacher assumes greater importance to express the competency. The results pertaining to the knowledge of respondents have been depicted in Table 1 given below:

Table 1. Distribution of Respondents according to Level of their Knowledge

S. No.	Level of Knowledge	Respondents	
		Number	Percentage
1	Poor	03	2.70
2	Average	14	12.61
3	Above average	70	63.07
4	Good	24	21.62
	Total	111	100.00

Mean index = 63.87 SD = 11.55

It is apparent from the data presented in Table 1 that, nearly two thirds of the respondents (63.07 %) expressed themselves to be above average in knowledge possessed i.e. mean below 'good', while 21.62 percent and 12.61percent of the respondents expressed their knowledge possessed to the extent of good and average level respectively. Only 2.70 percent of the respondents were poor in the knowledge possessed. In teaching profession even a small proportion of incompetent or below average teachers cannot be tolerated. It is thus inferred that over half of the respondents were above average in the knowledge possessed. In fact at higher educational levels teachers should strive for updating the knowledge about their subject. Continuous mentoring, monitoring and evaluation of teacher's performance by superiors from time to time is needed in this regard so that corrective measures can be taken to improve the knowledge level of the teachers. This is mostly lacking and hence a majority was just above average.

2. Relational Analysis

The results pertaining to the correlation and path analysis of knowledge of the respondent academic staff presented in the table are discussed as follows.

Relational analysis in Table 2 reveals that effect of teaching methods and use of aids, achievement motivation, job satisfaction, job preference and teaching attitude was positively and significantly related with the knowledge of the respondents, whereas post held, membership of periodicals, contribution in terms of publications, work load, availability of instructional aids and facilities and job involvement were non-significantly related with the knowledge of the respondents. The effect of age, educational qualification, total service experience, teaching experience and in-service experience was negative and non-significant with the knowledge of the respondents. The knowledge thus goes hand-in-hand with their teaching methods and use of aids, achievement motivation, job satisfaction, job preference and teaching attitude. It is therefore the teaching methods and use of aids, achievement motivation, job satisfaction, job preference and teaching attitude of the respondents that matter in determining their knowledge. In order to improve knowledge of respondents, it is essential to increase knowledge of teaching and related job factors, imparting need based training followed by proper evaluation. Availability of modern instructional aids with handling skill and actual use to express the knowledge, achievement motivation, job satisfaction, job preference and favourable teaching attitude, increased guidance, mentoring, monitoring and evaluation at superior's level need increased attention as well as self introspection at teachers' level is imperative.

Table 2. Path analysis of the Correlates of Knowledge of the Respondents

S. No.	Correlates	Coefficient of correlation 'r'	Path coefficients		
			Direct effect	Total indirect effect	Maximum indirect effect through other variables
1	Age (X_1)	-0.0828	0.0946	-0.1774	0.1039(X_3)
2	Educational qualification (X_2)	-0.0492	-0.1620	0.1129	0.0417(X_4)
3	Post held (X_3)	0.1228	0.3036	-0.1808	0.0324(X_1)
4	Total service experience (X_4)	-0.0986	-0.2927	0.1941	0.1088(X_3)
5	Teaching experience (X_5)	-0.0455	0.0645	-0.1100	0.0573(X_3)
6	In-service training. (X_6)	-0.0298	-0.0857	0.0559	0.0540(X_3)
7	Membership of periodicals (X_7)	0.0753	0.0897	-0.0143	0.0467(X_{11})
8	Contribution in terms of publications (X_8)	0.0557	-0.0994	0.1551	0.0566(X_{14})
9	Work load (X_9)	0.0538	-0.0075	0.0614	0.0873(X_3)
10	Availability of instructional aids and facilities (X_{10})	0.1656	-0.1526	0.3183	0.1069(X_{11})
11	Teaching methods and use of aids (X_{11})	0.3862**	0.2481	0.1382	0.0746(X_{14})
12	Job preference (X_{12})	0.2850**	0.1588	0.1262	0.0674(X_{14})
13	Job Involvement (X_{13})	0.1790	0.0114	0.1676	0.0353(X_{12})
14	Achievement motivation (X_{14})	0.3515**	0.3023	0.0492	0.0612(X_{11})
15	Teaching attitude (X_{15})	0.1974*	0.0919	0.1055	0.0753(X_{14})
16	Job satisfaction (X_{16})	0.2900**	0.1652	0.1248	0.0904(X_{11})

** Significant at 0.01 level of probability * Significant at 0.05 level of probability

The direct and total indirect effect of set variables in the present study on knowledge presented in the table indicate that, the post held has positive and maximum direct effect (0.3036) on knowledge; followed by achievement motivation (0.3023), teaching methods and use of aids (0.2481), job satisfaction (0.1652) and job preference (0.1588).

The total service experience (-0.2927), educational qualification (-0.1620) had maximum negative direct effect on knowledge. The effect of age, teaching experience, in-service training, membership of periodicals, contribution in terms of publications, workload, job preference, job involvement and teaching attitude was negligible. Thus it could be inferred that respondents with higher post, achievement motivation, teaching methods and use of aids, job satisfaction and job preference possessed higher knowledge.

It is observed from Table 2 that, availability of instructional aids and facilities had exerted positive and maximum indirect effect (0.3183) on knowledge, followed by total service experience, job involvement, contribution in terms of publications, teaching methods and use of aids, job preference, educational qualification and teaching attitude which exerted substantial positive total indirect effect on knowledge in descending order of magnitude. The indirect effect of post held, age and teaching experience was recognizable but negative. The indirect effect of membership of periodicals, workload and achievement motivation was negligible.

Further it is seen that out of various variables, total service experience, availability of instructional aids and facilities, age and job satisfaction had exerted maximum indirect effect on knowledge through post held and use of teaching methods. Thus the post held had not only produced maximum direct effect but also served as a vehicle for the production of indirect effect of other variables of knowledge and emerged as an important determinant for knowledge.

The results pertaining to regression analysis of knowledge of the respondent academic staff is presented in the table below.

Table 3. Regression Analysis of Knowledge of Respondents

S. No.	Characteristics	Partial regression coefficient 'b'	Standard error SE) of 'b'	't' value
1	Age	0.0219	0.0605	0.3626
2	Educational qualification	-0.2586	0.1484	1.7424
3	Post held	1.5893	0.5253	3.0257**
4	Total service experience	-0.0582	0.0520	1.1198
5	Teaching experience	0.01578	0.0267	0.5923
6	In service training.	-0.1146	0.1259	0.9101
7	Membership of periodicals	0.1206	0.1350	0.8936
8	Contribution in terms of publications	-0.0119	0.0128	0.9346
9	Work load	-0.0018	0.0236	0.0766
10	Availability of instructional aids and facilities	-0.0671	0.0456	1.4713
11	Teaching methods and use of aids	0.1362	0.0556	2.4512*
12	Job preference	0.2816	0.1678	1.6778
13	Job Involvement	0.0040	0.0335	0.1185
14	Achievement motivation	0.1510	0.0493	3.0613**
15	Teaching attitude	0.0324	0.0350	0.9242
16	Job satisfaction	0.0241	0.0154	1.5626

** Significant at 0.01 level of probability R^2=0.3570

* Significant at 0.05 level of probability F-value = 3.26

The results of regression analysis presented in Table 3 reveal that, the effect of achievement motivation (t=3.0613), post held (t=3.0257) and teaching methods and use of aids (t=2.4512) was significant in explaining the variation in knowledge. It implies that these three variables contributed significantly towards the variation in knowledge. The influence of other variables was not significant. All the variables fitted in a regression equation accounted for only 35.70 percent variation in knowledge, (R2 = 0.3570) with the value of 'r' ratio 3.26, which was not significant.

Conclusion

Distributional analysis concluded that, nearly two thirds of the respondents (63.07 %) were above average in knowledge possessed i.e. mean below 'good', while 21.62 percent of the respondents expressed that, their knowledge possessed was good.

With respect to relational analysis, the Correlation analysis concluded that, effect of teaching methods and use of aids, achievement motivation, job satisfaction, job preference, teaching attitude was positively and significantly related with the knowledge of the respondents. The path analysis revealed that out of a set of variables, the post held exerted positive and maximum direct effect on knowledge and also produced maximum indirect effect of other variables on

knowledge. It was an important determinant of knowledge. Regression analysis revealed that, achievement motivation, post held and teaching methods and use of aids contributed significantly towards variation in the knowledge of the respondents to the tune of 35.70 percent.

The outcome pertaining to knowledge of the respondent teachers concluded that, the respondent teachers who were above average and average in knowledge, need improvement and to improve the knowledge of the teachers, it is essential to impart need based training followed by proper evaluation, availability of modern instructional aids with skills in handling them and actual use to express the possessed knowledge. Associated job factors viz. achievement motivation, job satisfaction, job preference and favourable teaching attitude need increased attention, guidance, mentoring, monitoring and evaluation at superior's level. Self development initiative needs to be inculcated amongst the teachers. Self introspection at teachers' level is crucial to bring the knowledge level up to the mark.

References

Lahariya K.T. (2006) Teaching competency of academic staff. Ph. D. Thesis (Unpub), Dr. PDKV, Akola.

Somesekharappa. N.R, N.R.Gangadharappa and M. Manimeghalam. (1988) Achievement of educational objectives as perceived by teachers in the agricultural university, Indian J. Extn.Educ, 24 (1&2): 37-44.

Verma, Romesh. (2002)Teacher in Twenty First Century, Uni. News, 40 (4): 2-8.