

## **RELATION AND CONTRIBUTION OF CHARACTERISTICS OF PARTNERS TOWARDS PARTICIPATION IN UNIVERSITY – INDUSTRY (U-I) RESEARCH LINKAGE WITH REFERENCE TO DAIRY AND POULTRY SECTORS IN ANDHRA PRADESH**

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**Abstract:** University-Industry (U-I) linkages are regarded as one of the widely used interactive best practices, a powerful tool for creating congenial environment for technological innovations and enhancing global competitiveness, ultimately promoting the interests of the firms and academia across the world. If the inter-organizational relationship between the University and Industry is not strong enough, the research results may not reach industry and also chances of poor feedback from industry to research. Keeping in view of the importance of R-I linkage this paper focused on assessing the characteristics of partners that influence the participation in University Research- industry (UR-I) linkage. Respondents of this study include scientific staff of the Sri Venkateswara Veterinary University (SVVU) and industry personnel from dairy, poultry and pharmaceutical sectors existed in AP. Majority of researchers (51.67%) and industry personnel (45%) had low extent of participation in U-I research linkage activities followed by medium and high levels. Among the profile characteristics of researchers designation, age, total job experience, total project handled, trainings received, role clarity and gender were found significantly related with extent of participation, whereas, in case of industry personnel characteristics like Age, total job experience and trainings received were found significantly related with extent of participation. Profile characteristics of researchers like age, trainings received and total job experience was found contributing significantly and positively towards extent of participation at 0.05 level of probability. Whereas, in industry personnel no single character was found to contribute significantly towards the variation in the extent of participation in U-I research linkages.

**Keywords:** Characteristics, Extent of participation, partners, Linkage, university research, industry.

### **Introduction**

The concept of “linkage” implies the communication and working relationship established between two or more organizations pursuing commonly shared objectives in order to have regular contact and improved productivity. University collaborations and industry

partnerships are rapidly becoming a common practice the world over and it has become increasingly clear that there is need for close university research-industry interactions as a means of national economic prosperity. Bramwell and Wolfe (2005) pointed out that universities have emerged as central actors in the knowledge-based economy since they are viewed as key drivers of innovation and major agents of economic growth. Moreover, collaboration between University Research (UR) and Industry encourages a higher-level of learning i.e., learning about methods of creating future technologies, the same as stated by Dodgson (1993). Mostly the developed technologies from the university research have been disseminated to small and marginal farmers. However, in the context of universities being viewed as key drivers of innovation and major agents of economic growth, needs and problems of livestock related industries need to be addressed by university. Moreover, the livestock industries need to collaborate with the university research to utilize technologies and knowledge developed by the university.

The 'extent of participation' in view of its importance in UR-I linkage operationalised as "the degree to which university researchers and industry personnel involved in and utilized various linkage activities". Birgit, Aschhoff and Wolfgang Sofka (2008) reported in their study on "Successful Patterns of Scientific Knowledge Sourcing –Mix and Match" that different types of interactions of a firm with universities and research institutions with the extent of participation of employees as Joint research (43.10%), Contract research (37.70%), Master/PhD thesis (62.20%), Licensing (15.60%), Training in research institutions (36%), Scientific consulting (53%) and Informal contacts (89%).

D'Este P and Patel P (2007) found that individual characteristics of researchers have a stronger impact than the characteristics of their departments or universities in explaining the variety and frequency of interactions with industries. Keeping in view of the importance of characteristics of partners in participation, profile characteristics, their association and contribution towards the extent of participation in R-I linkages has been studied.

### **Data and Methodology**

An ex-post-facto research design was adopted for the present study. In Andhra Pradesh state, Sri Venkateswara Veterinary University (SVVU) was selected as technology generating unit. Livestock industry with its three main sectors i.e., dairy, poultry and pharmaceuticals existing in the same state was selected as technology utilizing unit. Availability sampling procedure was followed to select 60 scientific staff from the university (academic institutions and research stations), whereas, purposive sampling procedure was

followed to select 40 industry personnel from the three industrial units. The respondents from both the university and industry were personally contacted by the investigator and interviewed with the help of the schedules constructed for the purpose. The data was presented based on percentage, frequency, correlation and regression analysis.

## **Results and Discussion**

### **Profile of researchers**

Majority (76.70%) of researchers were male and nearly half of the researchers belonged to Professor/Principal Scientist category. Majority (48.33%) of researchers were in middle age group. About one thirds (33.33%) of the scientists had 13-22 years of job experience and 31.67 per cent of the researchers had 3-12 years of job experience. More than three fourths (80%) of the researchers handled projects four or less than that and majority (63.33%) of the researchers received trainings about 1-4. Nearly three fourths of the researchers had medium level of job satisfaction and job motivation. More than half of the researchers were with medium role clarity. Nearly two thirds (68.33%) of the researchers felt that they were working under medium level of organisational climate and they were with medium knowledge in communication methods. Almost all researchers had medium achievement motivation.

### **Profile of industry personnel**

Most (90%) of the industry personnel were male and more than half (57.50%) of the respondents were post-graduates. Majority (60%) of industry personnel were in the age group of 29-44 years and nearly half of industry personnel had less than 15 years of job experience, about 60 per cent of respondents received trainings in the range of 1-5 in number. Majority (60%) of industry personnel had medium job satisfaction and more than three fourths (85%) were with medium level of job motivation. Nearly two thirds of the industry personnel had medium role clarity and felt that they were working under medium organisational climate. Majority (60%) of industry personnel expressed that they had medium level of achievement motivation.

## Extent of participation of partners in University Research-Industry (UR-I) linkage

**Table 1: Extent of participation of respondents in (UR-I) linkage**

S.No	Category	Researchers (n=60)		Industry personnel (n=40)	
		F	%	F	%
1.	Low	31	51.67	18	45.00
2.	Medium	18	30.00	16	40.00
3.	High	11	18.33	06	15.00
	Total	60	100.00	40	100.00

Findings (table 1) reveal that more than half (51.67%) of the researchers had low extent of participation in UR-I linkage activities. The university researchers might have pays more attention on research activities to serve the purpose of small scale farmers rather than industries' requirements. However, university should realize the importance of participation in research linkages with industries may result in mutual benefits i.e., efficient utilization of financial, technical and human resources that may lead to development of livestock sector.

In case of industry personnel 45 per cent belong to low extent of participation in UR-I linkage activities. This might be due to lack of awareness about the expertise and capabilities available with the university. Moreover, owning of advanced equipment and techniques of research as compared with the universities might have also resulted in low extent of participation. However, livestock industries should focus on strengthening of linkage with university to make available the human expertise from the university.

### **Characteristics associated with the extent of participation of partners**

#### **Relationship between characteristics and extent participation of researchers in R-I linkage**

Among the various characteristics like designation, age, job experience in research, total job experience, total projects handled, trainings received and role clarity were found significantly related with the extent of participation of researchers in R-I linkages at 0.01 level of probability, and only one characteristic i.e. gender was found to be significant at 5 per cent level of significance. Age coupled with the experience in research will empower the researcher and might have motivated to look for more research opportunities from industry sectors and to have more extent of participation in R-I linkages. Apart from higher academic degrees, the training programs will also make researcher to get acquainted with the technological advancements, modern techniques of research and present problems of industries.

It is also logical to explain that the researchers who handled many projects can be motivated for participation in research linkages with industries. More the clarity of researchers about their roles to be performed more will be the extent of participation, hence, this group can also be entrusted with the responsibility of technology dissemination and sharing of knowledge through provision of opportunities for participation in R-I linkages. Gender also significantly related with the extent of participation of researchers which might be due to representation by more male researchers who might be showing more inclination towards having R-I linkages and participating more as compared to female researchers. Female researchers also should be made aware of significance of participation in R-I linkages.

**Table 2: Correlation and regression analysis between characteristics and the extent of participation of partners**

S.No	Independent variables	Researchers		Industry personnel	
		'r' value	'b' value	'r' value	'b' value
1.	Gender	0.259*	1.426	0.052	-0.657
2.	Designation	0.442**	-0.057	-0.008	-1.120
3.	Age	0.506**	0.391**	0.426**	0.135
4.	Total job experience	0.423**	-0.332**	0.438**	0.013
5.	Total projects handled	0.471**	0.327	.....	.....
6.	Trainings received	0.547**	0.549*	0.323*	-0.001
7.	Job satisfaction	0.127	0.231	-0.029	-0.043
8.	Job motivation	0-.032	-0.247	-0.029	0.275
9.	Role clarity	0.429**	0.261	-0.109	-0.190
10.	Organizational climate	0.110	-0.119	-0.025	-0.242
11.	Achievement motivation	0.045	-0.086	0.167	0.496
12.	Knowledge on communication methods	0.066	-0.197	.....	.....

**Rs=** \*Significance (p<0.05), \*\*Significance (p<0.01), R<sup>2</sup>:0.560, F (calculated):4.505\*\*

**Ip=** \*Significance (p<0.05), \*\* Significance (p<0.01), R<sup>2</sup>: 0.318, F (calculated):1.353

### **Contribution selected characteristics of researchers to the extent of participation in UR-I linkage activities**

Findings (table 2) revealed that the profile characteristics like age, trainings received and total job experience were found contributing significantly and positively towards extent of

participation at 0.05 level of probability. It can be logically inferred that the extent of participation was influenced by age, number of training received and total job experience of researchers. It can be inferred that it is the tendency of the researchers with more age, experience and trainings received apart from the higher academic changes to show more inclination towards knowledge sharing through various possible communication methods and hence these characteristics might be contributing towards positive extent of participation in UR-I linkage activities. It was also stated by P. D'Este and P. Patel (2007) that individual characteristics of researchers have a stronger impact than the characteristics of their departments or universities in explaining the variety and frequency of interactions with industries, moreover, university also should focus on the researchers of young and middle age group who are handling research projects for more research related trainings so that with the confidence and empowerment this group can also participate more in linkage activities, as in this study it was observed that appreciably good number of Scientists/Assistant Professors were with research experience in the university. However, all independent variables put together could explain variation in the dependent variables i.e., extent participation of researchers towards UR-I linkages to the extent of 56 per cent. The 'F' test had shown that variation was significant at 5 per cent level of significance.

### **Relationship between characteristics and extent participation of industry personnel in R-I linkage**

Findings (table2) revealed that the characteristics like age and total job experience were found significantly related at 0.01 level of probability, whereas, trainings received was found significantly related at 0.05 level of probability and the remaining characteristic like gender, educational qualification, job satisfaction, job motivation, role clarity organizational climate and achievement motivation were not significantly related. It can be logically inferred that the age and experience of industry personnel in research could make them to widen their contacts with university researchers and also to develop an interest in participation of UR-I linkages. Results also revealed that the number of trainings in research area also shows significant relation with the extent of participation. More exposure to trainings might made industry personnel to be aware of accuracy in research results, standards of processing and production and product promotion and hence, motivated the industry personnel to participate in UR-I linkages.

### **Contribution of selected characteristics of industry personnel to the extent of participation in UR-I linkage**

Though some of the characteristics was found to associated with the extent of participation of industry personnel, no single characteristic was found to contribute significantly towards the variation in the extent of participation in UR-I linkages. The reason that could be attributed to the participation of industry personnel in the UR-I linkages might be an organisational decision but not an individual decision. But all characteristics put together could explain variation in the dependent variables i.e., extent participation of industry personnel towards UR-I linkages to the extent of 31.80 per cent. The 'F' test had shown that this variation was found significant at 5 per cent level of significance.

### **Conclusion**

It was found that both the main partners of livestock development i.e university researchers (technology generators) and industry personnel (technology utilisers) had low extent of participation in UR-I linkage activities. Among the characteristics of researchers designation, age, job experience in research, total job experience, total project handled, trainings received, role clarity and gender were found significantly related with extent of participation, whereas, in case of industry personnel age, total job experience and trainings received were found significantly related with extent of participation. The characteristics of researchers like age, trainings received and total job experience was found contributing significantly and positively towards the extent of participation at 0.05 level of probability. So this paper determined that the characteristics of partners had considerable impact on the extent of participation in U-I research linkages rather than the organisational characteristics. Hence it is responsibility of both the organisations to focus on human resource development for sustainable development in livestock sector.

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