J. Farm Sci. Spl. Issue, 34(5): (470-475) 2021

RESEARCH PAPER

Can India become Atmanirbhar without e-Mediation in agricultural education

BASAVAPRABHU JIRLI AND SUSHMITA SAINI

Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi
Division of Agricultural Extension, IARI, New Delhi

(Received: August, 2021 ; Accepted: December, 2021)

Abstract: The entire paradigm is being shifted towards e-Mediation. Many initiatives of GOI and various state governments are also yielding encouraging results. The ultimate beneficiaries are also realizing that e-Mediation is the panacea for the problems what various stakeholders are facing. The misconceptions regarding the profession of extension must be eradicated. The agricultural administrators must appreciate the difference between Extension Educationists and Extension Service Providers. The roles and responsibilities of both Extension Educationists and Extension Service Providers must be delineated and delegation should be on the basis of your domain area.

Key words: Atmanirbhar, Community, Self-reliant

Introduction

Atmanirbhar meaning "Self reliant" is basically a state of mind of an individual. When the number of such individuals increases in a family, family becomes "Self reliant", when number of such families increases in a community, the community becomes "Self reliant" and when number of such communities increases in a village, the village becomes "Self reliant" and it continues up to the nation. Now the question is what do you mean by "Self reliant"? it can be better understood as "No Dependency", if there is no dependency means, It reflects the philosophy of extension "Teaching people how to think not what to think". Means the extension education is practically following the principles of translating stakeholders into "Self reliant".

Now the question arises is, if it is so, why Indian farmer is still reliant on system for procurement of inputs, marketing of outputs and so on? The missing links can be attributed to ignorance of extension machinery about "In-Tensions of Ex-Tension". The extension machinery includes extension educationists and extension service providers. Let's focus on three important issues, who is an extension educationist? Who is an extension service provider? and what is "In-Tension of Ex-Tension" (De and Jirli, 2010).

Extension Educationist: is a professional with the background of education in agriculture and/or allied sciences and specialization in extension science and provides the knowledge and skills of extension and communication tools and techniques to the Extension Service Providers at regular intervals to bring the desirable changes in the behavior of Extension Service Providers and other stakeholders.

Extension Service Provider: is a professional with the background of education in agriculture and/or allied sciences and specialization in the disciplines of agricultural and/or allied sciences who is serving a public or private institution and meant for dissemination of the technological advances to the intended communities and institutions based on needs after acquiring the extension and communication tools and techniques from Extension Educationist.

In-Tension of Ex-Tension: "The degree to which the philosophy, content, ideas, objectives, principles, theory and models of 'Ex-Tension' have been internalized by the extensionists" (De and Jirli 2010).

The basic premise is retention and utilization of the fundamentals of extension education while planning, implementing, evaluating (for Extension Educators) delivering services (Extension Service Providers). The literal meaning of the term "Internalization" is associated with **'learning within and recalling'** what has been learned. In the context of sociology and psychology the term means integrating attitudes, values and opinions of others into ones discipline. In practice the discipline of extension education aims to achieve the desired status(Singh and Jirli 2018).

The specific roles to be played by the extension educationist and extension service provider are as under:

Protocols of Extension Educationist: The broader meaning of the term 'Protocol' is standard set of rules to facilitate communications among the elements of a system. The extension systems with number of elements with establish coordination within and yield the desired results for the end user system (Stakeholders). The elements of extension system as shown in the model need to be recognized and internalized by extension educationists as well as extension service providers. Then the process of interaction begins. Once the roles and responsibilities are delineated and work is initiated as per the protocols, bound to yield the anticipated results.

These protocols are neither chemical nor biological, as the set of rules to be followed are qualified individuals, there is need to be aware of and appreciate the set of roles to be performed as per the needs of stakeholders. The following model gives an overview of various roles to be played by Extension Educationist under a set of rules. Pedagogy of extension and embracing educating educational approach in extension service delivery are the imperative phases of extension protocols.

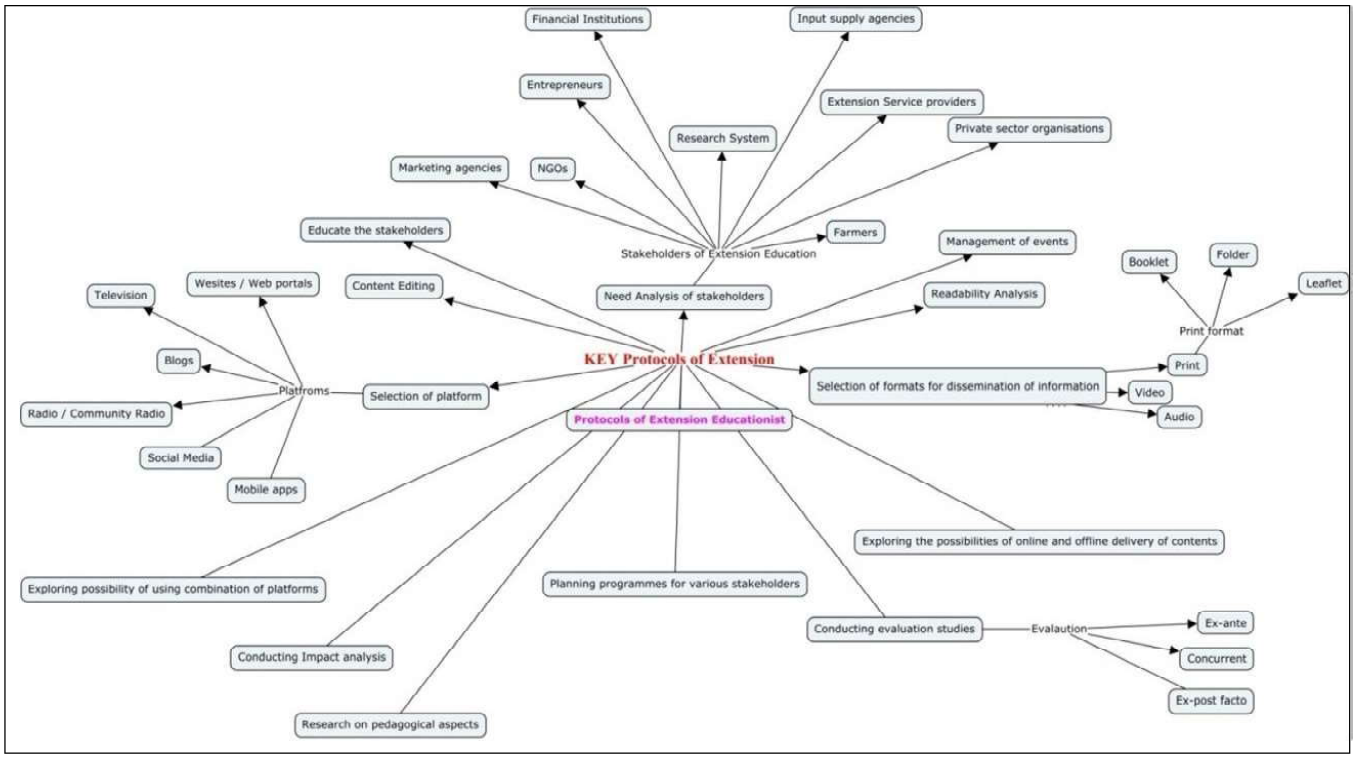


Fig-1: Protocols of Extension Educationist

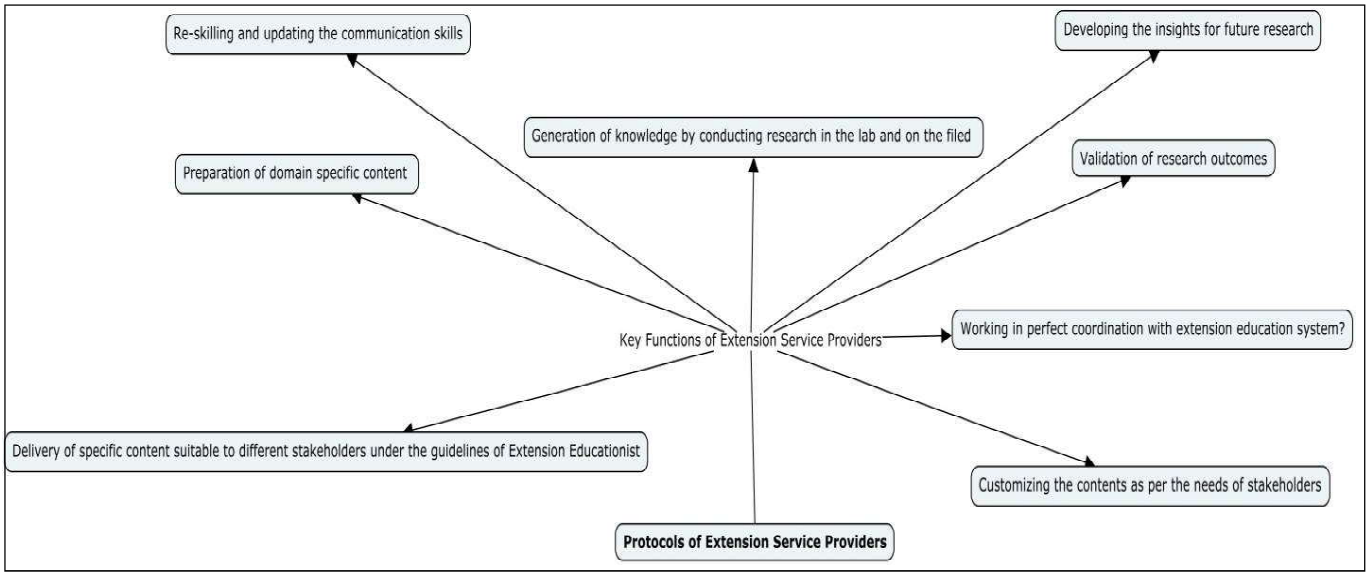


Fig-2: Protocols of Extension Service Providers

Protocols of Extension Service Providers: Delivery of extension services is a team work of extension service providers and extension educators. The misconception goes as "Extension Educationist" is responsible for transfer of technology. At this juncture we need to clarify about the misconceptions about extension education. Every extension service provider has a specific domain, so as extension educationist. The domain expert can address the issues in a more professional way. Hence it is appropriate time to recognize and respect the domains of every agricultural professional.

e-Mediation in Extension Education and Services

With the development of technology, the agricultural sector is customizing its needs and demands. Simplifying the processes for enhancing yield levels is one aspect. The hidden aspect in reaching the objective is supplying timely and appropriate information. The outputs of agricultural education and research are the inputs for the stakeholders of agriculture. The outputs of stakeholder of agriculture are the inputs for agricultural education and research. The ICTs are the key players in establishing the dynamic relationship between the systems of

information generation, information dissemination and information utilization. Hence the discipline of extension adopts holistic approach and operates in systems perspective. Ensuring and maintaining the dynamic relationship within the units is the prime responsibility of every stakeholder of the system. The deficiencies we observe are the products of non-involvement of any of the stakeholder of extension system. If one unit is not active or does not participate, the outputs are going to be not as desired and the chain continues. To overcome such lacunae, extension makes all possible efforts. The interventions planned and executed reveal the encouraging results. One of such interventions is providing alternate marketing channels to the primary producers. Apart from e-NAM, there are many such agri-tech startups which are facilitating the process of agricultural trading. An effort has been made to analyze how these efforts' are being received by the farming community.

Implications of e-NAM

The diligent efforts of government are focused on pragmatic marketing reforms to help farmers to maximize the net income. The launch of National Agriculture Market (e-NAM)on 14th April, 2016 was fully funded by Central Government and introduced by Small Farmers Agribusiness Consortium (SFAC), a pan-India electronic trading platform and linking it with more than 1000 markets has been indicating promising results over a period of time. In order to improve the supply chain, the government has been encouraging creative marketing platforms, e-marketing etc and farmers are expected to earn fair income by offering additional marketing choices (SFAC, Annual report, 2018). e-NAM portal networks the currently established APMC (Agriculture Produce Marketing Committee) / Regulated Marketing Committee (RMC) market yards, Sub-market yards, private markets and other unregulated markets to consolidate all the nationwide agricultural markets by having a centralized online platform for agricultural commodity price exploration.

The key features of e-NAM include providing real time information on trade & price and better price discovery to sellers. Through e-NAM sellers & buyers irrespective of their states have access to more markets & provide common platform to them for selling and trading of heir produce. The physical presence of commodity in the mandis is not essential, it provides analysis of price trends, arrival, trading activities & forecast online, levies market fee at single point, helps in trading based on actual demand & supply of the commodity. e-NAM facilitates the inter mandi and interstate trading and maintains automatic digital book keeping of transaction.

The study was focusing on understanding the issues like reasons behind the delay in payment process for transaction of commodity, time taken to process e-bidding via online mode, unavailability of transportation facilities, assaying parameters are enough to decide the quality of lot generated, complex process of auction of commodity on e-NAM platform and sales agreement and gate pass available in English language only. To address these issues the study was conducted with the objectives to analyze the difference in price received in traditional market and e-NAM platform and to study the problems faced by respondents in e-NAM mandis.

Methodology

The study was conducted in the randomly selected state of Rajasthan. Two districts *viz.,* Dausa and Tonk were selected randomly. All mandis in Rajasthan (144) have adopted trading on e-NAM platform. For the purpose of study Two APMCs were selected randomly *viz.,* Mandawari mandi in Dausa district and Niwai mandi in Tonk district. Total number of respondents was 100 of which 50 were farmers and 50 traders. From Mandawari mandi 25 farmers and 25 traders and from Niwai mandi 25 farmers and 25 traders were selected randomly.

Results and discussion

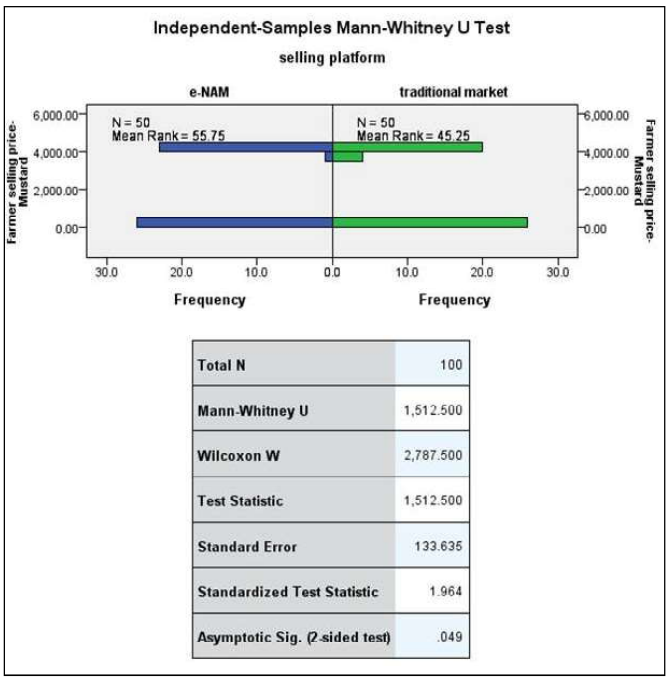
Comparison of traditional market and e-NAM platform with respect to commodity sold and remunerative price received.

Mann Whitney U test was used to test independent groups which have been drawn from the same population. It is one of the most powerful non parametric tests and most useful alternative to the parametric t-test. The reasons behind using the tests were sample size are small, not homogenous and data was expressed in term of difference.

The score obtained by two independent samples were ranked together, giving rank 1 to the lowest score. The ranks received by the two sets of scores are then separately summed up. To determine the value of U, using the formula:

$$U_1 = \frac{N_1 N_2 + N_1(N_1 + 1) - \Sigma R_1}{2}$$

$$U_2 = \frac{N_2 N_1 + N_2(N_2 + 1) - \Sigma R_2}{2}$$



Total N	100
Mann-Whitney U	1,512.500
Wilcoxon W	2,787.500
Test Statistic	1,512.500
Standard Error	133.636
Standardized Test Statistic	1.964
Asymptotic Sig. (2-sided test)	.049

Fig. 3. Comparison between selling price of Mustard in traditional market and e-NAM platform by respondents.

Where, N_1= Number of items in the first group

N_2= Number of items in the second group

R_1= Sum of the ranks of the first group

R_2= Sum of the ranks of the second group

Table 1. Average price realized by the farmers in Traditional market and e-NAM platform N=50

Commodity	Traditional market (average price in rupees)	e-NAM market (average price in rupees)	Difference in price
Wheat	285.00	295.40	10.40
Mustard	1912.2	2003.62	91.42
Bajra	564.00	592.60	28.60
Seasame	516.00	478.00	38.00
Gram	423.60	504.12	80.52

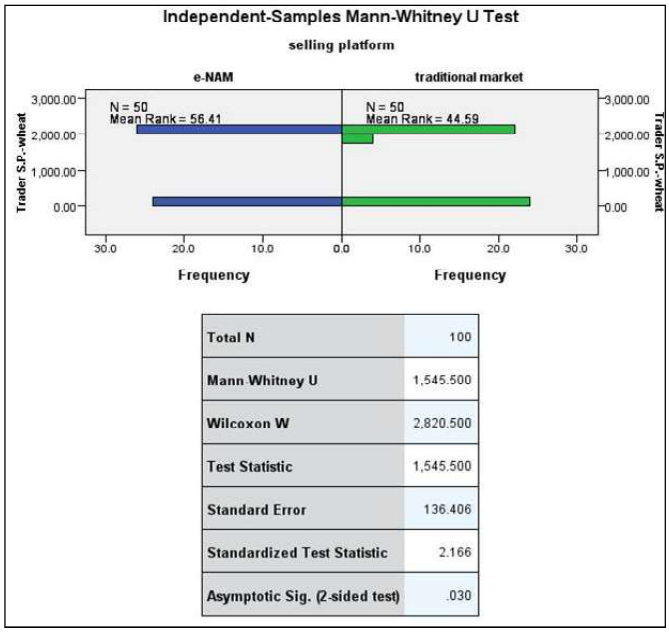


Fig. 4. Comparison of selling price of Wheat in traditional market

Table 2. Average price received by the trader in Traditional market and e-NAM platform N=50

Commodity	Traditional market (average price in rupees)	e-NAM market (average price in rupees)	Difference in price
Wheat	1038.30	1086.50	48.2
Mustard	1763.20	1786.43	23.2
Bajra	438.40	468.70	30.3
Seasame	375.88	361.86	14.0
Gram	240.40	265.41	25.0

The major five commodities sold and traded by the respondents were Wheat, Mustard, Bajra, Sesame and Gram. Mann Whitney U test was run to determine the significant difference between prices of five commodities sold by the respondents on e-NAM.

Selling price of the commodity by the respondents (Farmers)

Out of five commodities sold by the farmers, the selling price of Mustard on e-NAM platform was found significant with p- value 0.049.

It can be observed from the Table 1 that the price realized by the respondents is relatively high in all commodities. Of which Mustard had the significant difference over other crops. The finding is one of the motivating factors for rest of farmers to shift to platforms like e-NAM. The findings are supported with the studies conducted by Bisena and Ranjit (2018) and Nuthalapati (2020).

Selling price of the commodity realized by the respondents (Traders)

Out of five commodities traded by the traders, the selling price of Wheat on e-NAM platform was found significant with p- value 0.030.

Observation of Table 2 indicates that traders received significantly higher prices in case of Wheat and in other commodities the price realization was relatively high. The studies of Gupta and Badal (2018) and Meena *et.al.* (2019) reveal the encouraging factors of electronic trading platforms.

Analysis of problems faced by the respondents while trading through e-NAM platform Henry Garrett's Ranking Technique

Henry Garrett's ranking technique was used to evaluate the rankings given by the respondents. Ranks were converted in to scores by using the formula. To find out the most significant factor preferred by respondents, Garrett's ranking technique was used. As per this method, respondents were asked to assign the rank for all factors and the outcomes of such ranking have been converted into score value with the help of the following formula:

$$\text{Percent position} = \frac{100\,(R_{ij} - 0.5)}{N_j}$$

Where R_{ij} = Rank given for the i^{th} variable by j^{th} respondents

N_j = Number of variable ranked by j^{th} respondents

With the help of Garrett's Table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and the total value of scores

Table 3. Problems faced by the respondents while trading through e-NAM platform

Problems faced by the farmers and traders in e-NAM mandis	Frequency of Ranks				
	1st	2nd	3rd	4th	5th
Delay in data up gradation on portal	11	5	5	27	52
Less effective assaying process	3	17	53	143	14
Unavailability of transportation	8	20	18	38	16
Delay in payment process	62	13	8	6	11
Slow bidding process	14	46	19	14	7

Table 4. Percent Position and Garrett Value

Ranks	100 (R_{ij}-0.5)/N_{ij}	Percent position	Garrett value
1	100 (1-0.5)/5	10	75
2	100 (2-0.5)/5	30	60
3	100 (3-0.5)/5	50	50
4	100 (4-0.5)/5	70	40
5	100 (5-0.5)/5	90	25

followed by slow bidding process of e-NAM for auction of commodities which was ranked 2nd, followed by less effective assaying process of e-NAM which ranked as 3rd, followed by unavailability of transportation facilities with rank 4th and followed by delay in data up gradation on portal with rank 5th. The findings have implications on inviting more farmers on the platform. Hence the study suggests a set of protocols of extension system to achieve self reliance.

Table 5. Ranking of problems faced by the respondents while trading through e-NAM platform

Problems faced by the farmers and traders in e-NAM mandis	Ranks given respondents					Total	Average	Ranks
	1*75	2*60	3*50	4*40	5*25			
Delay in data up gradation on portal	825	300	250	729	1300	3404	34.04	5th
Less effective assaying process	225	1020	2650	351	350	4596	45.96	3rd
Unavailability of transportation	600	1200	900	1026	400	4126	41.26	4th
Delay in payment process	4650	780	400	162	275	6267	62.67	1st
Slow bidding process	1050	2760	950	378	175	5313	53.13	2nd

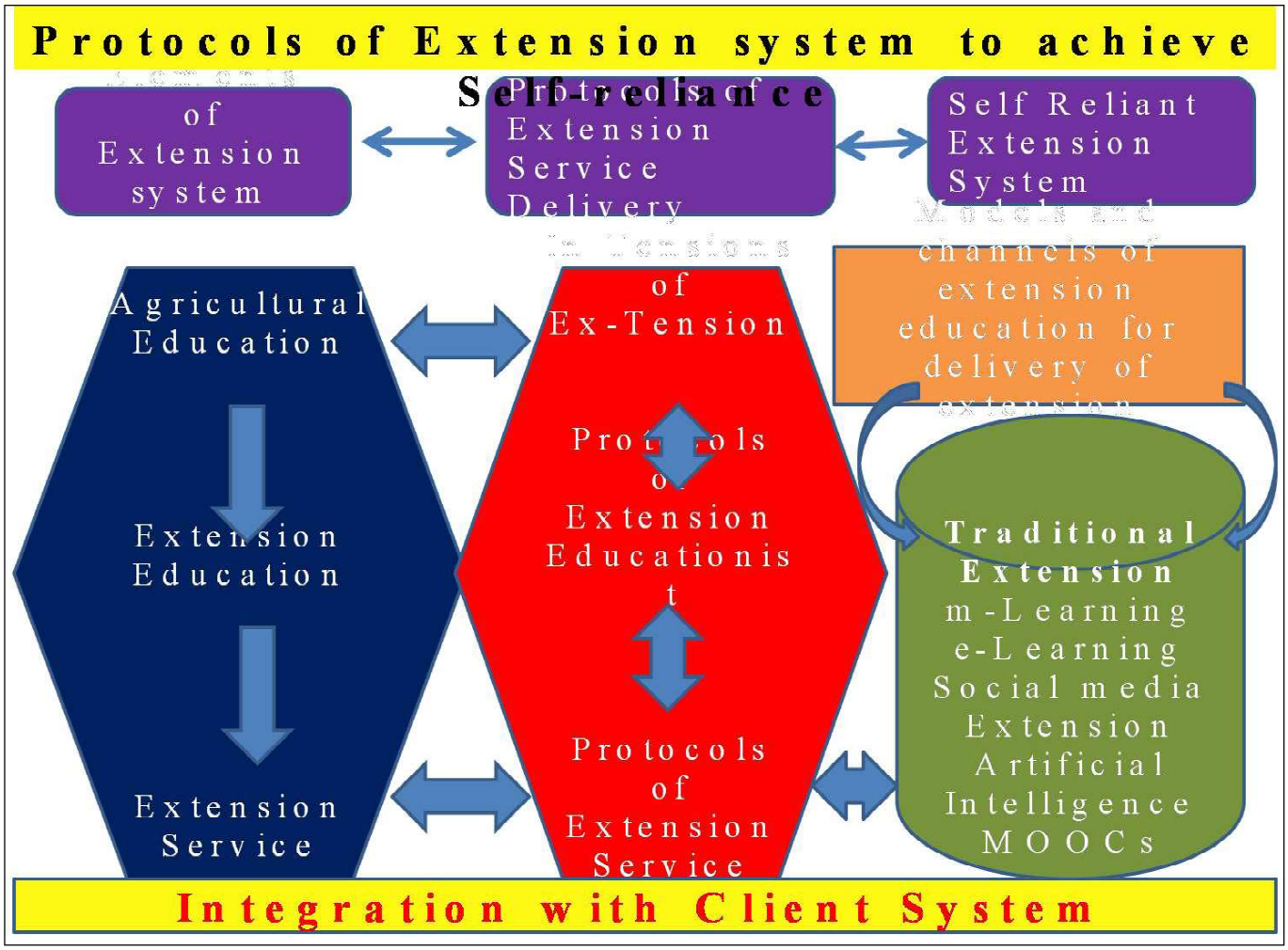


Fig. 5. Protocols of extension system to achieve self reliance

and mean values of score is calculated. The factors having highest mean value is considered to be the most important factor.

The Table 5 illustrates the major problems faced by respondents while trading through e-NAM mandis include delay in payment process which was calculated as 1st rank,

The e-Mediated extension efforts discussed is only indicative and demonstrating the potentials and for extrapolating the implications on stakeholders. When a farmer (so called illiterate, lethargic, traditional, laggard, etc) can enjoy entertainment channels via social media, why not trading of agricultural produce? information on agriculture and allied

sciences? But are we providing them the access to relevant information? When the same respondent can access various mobile apps, why not agricultural apps? Policy makers, researchers and service providers need to give serious thought on the issue. When the aspirations of the stakeholders are raised, it should be complimented and supplemented with appropriate access (Rai *et. al.* 2016).

Conclusion

The entire paradigm is being shifted towards e-Mediation. Many initiatives of GOI and various state governments are also yielding encouraging results. The ultimate beneficiaries are also realizing that e-Mediation is the panacea for the problems what various stakeholders are facing. The misconceptions regarding the profession of extension must be eradicated. The agricultural administrators must appreciate the difference between Extension Educationists and Extension Service Providers. The roles and responsibilities of both Extension Educationists and Extension Service Providers must be delineated and delegation should be on the basis of your domain area.

References

Basavaprabhu Jirli, 2020a, Enhancing farm profitability through entrepreneurship. In Doubling Farmers income through appropriate agricultural technologies and extension approaches, Eds: Bhanu Prakash Mishra, Brijesh Kumar Gupta, Dhheraj Mishra and Pankaj Kumar Ojha, Biotech Books, New Delhi, PP: 63-72.

Basavaprabhu Jirli, 2021, agMOOCs: an impressive digital application in agricultural education, In Surya Rathore, Vijayalakshmi B. and VV Sumanth Kumar (Eds) Digital Technologies in Agriculture, Biotech Books, New Delhi.

Basavaprabhu Jirli, 2020b, Priorities and Trends in Agricultural Research and Extension, In *Emerging Trend of* Research Dimensions, Eds: Ramesh Chandra Tripathi Bharat Mishra, Namya Press, New Delhi, PP: 1-18.

Bisena Jaiprakash and Ranjit Kumar, 2018, Agricultural marketing reforms and e-national agricultural market (e-NAM) in India: a review. Agricultural Economics Research Review, 2018, 31 (Conference Number), 167-176.

De Dipak and Jirli Basavaprabhu, 2010, A Hand Book of Extension Education. Agrobios. (India). Behind Nasrani Cinema, Chopasani Road, Jodhpur-342 002. Pp:426.

Dipak De, Basavaprabhu Jirli and Shaik N. Meera, 2011, ICTs: Digital Opportunities in Agricultural Extension. Agrobios. (India). Behind Nasrani Cinema, Chopasani Road, Jodhpur-342 002. PP: 516.

Gupta S and Badal P S, 2018, E-national Agricultural Market (e-NAM) in India: A Review. BHU Management Review, 48.

Mahara Girijesh Singh, Basavaprabhu Jirli and Ashok Rai, 2013, m-Learning: An educational approach for Change in Hills of Uttarakhand. *Journal of Global Communication*. Vol 6 No. 2. Pp: 144-150.

Meena G L, Burark S S, Singh H and Sharma L, 2019, Electronic-National Agricultural Market (e-NAM): Initiative towards Doubling the Farmers' Income in India. International Archive of Applied Sciences and Technology Int. Arch. App. Sci. Technol; Vol 10 (2) June 2019, pp: 162-171.

Nuthalapati Chandra Sekhara Rao, Yogesh Bhatt and Susanto K Beero, 2020, Is the Electronic Market the Way Forward to Overcome Market Failures in Agriculture? Institute of Economic Growth, University Enclave, University of Delhi, Working Paper No. 387.

Rai Ashok and Basavaprabhu Jirli, 2013, Information Technologies for e-Readiness. *Journal of Communication Studies*. Vol. 31, pp: 28-33.

Rai Ashok, BasavaprabhuJirli and Abhishek Singh, 2016, e-Readiness 4D: An Analysis *Journal of Global Communication*. Vol. 9 No.1 pp: 22-31.

Rai Ashok, Basavaprabhu Jirli and Abhishek Singh, 2018, e-Readiness: Its Relational Perspectives with Profile of Extension Functionaries. *Journal of Global Communication* Vol. 11, No. 1, January-June 2018: 65-75.

Ravi K N and Basavaprabhu Jirli, 2020, Research Productivity of Agricultural Scientists in India: Present Status and Way Forward, In Research Trends in Agricultural Extension, Ed: L. M. Ahire, Integrated Publications, New Delhi Book, pp: 117-125.

Singh Akanchha and Basavaprabhu Jirli, 2018, Changing Perception and Awareness towards ICT along with Changing Roles of Stakeholders in Agriculture. *Research Journal of Agricultural Sciences,* Vol 9(6): pp. 1412-1416.