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Social networking of innovative farmers through WhatsApp messenger for learning exchange: A study of content sharing

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Received: 25 September 2018; Accepted: 29 October 2018

Key words: Social Media, WhatsApp, Innovative farmers, Content

The growing importance of knowledge has led to the concept of knowledge management which is the process of capturing, developing, sharing, and effectively using knowledge. Extension manages knowledge in an agricultural innovation system to support the progress of farmers. In general, the uses of information technology communications tools support knowledge sharing (Eid and Nuhu 2011). The SECI (Socialization, Externalization, Combination, Internalization) model is a knowledge management model that explains how the different forms of knowledge are transferred or combined in an organisation. Social network or negotiation communication model considers information overload or fatigue which implies different approach for different issues and facilitative knowledge exchange (interactive partnership to share knowledge and experiences for decision making). Low-cost information and communication technology (ICT) tools possess the ability to deliver timely, relevant, and actionable information to farmers at lower costs than traditional extension services (Aker 2011, Cole and Fernando 2012, World Bank 2016). Social media has proved to be an important platform for pluralistic extension, bringing together all the actors in Agriculture Information System (AIS) and making them shareholders in development (Naruka *et al* 2017). Study on social interactions between online communities in online learning through mobile device, has found social presence to be a principal factor influencing motivations to engage in social interactions for constructing and sharing knowledge (Cheung *et al.* 2008). Comparison of the use of blogs and Facebook for supporting knowledge management activities of creation, sharing, and application found that both tools generally support knowledge management but Facebook has more capabilities and potential than blogs in support of knowledge sharing (Cheung *et al.* 2013).

Social networking through WhatsApp messenger and agricultural development

WhatsApp Messenger a cross platform messaging app which allows users to exchange messages, audio, video, photographs (Anonymous 2010) was started by Jan Koum and Brian Acton during 2009. This can be downloaded to a smart mobile phone with internet data access. Over 1.5 billion people are monthly active users of WhatsApp to stay in touch with colleagues, friends and family by December 2017 who are exchanging nearly 60 billion messages on a single day (Anonymous, 2017) and the chat app had 300 million daily active Status users worldwide (Anonymous, 2018). WhatsApp offers a communication approach that can be quite flexible, timewise as well as place wise. Beyond normal discussions, sufficient snippets of information dissemination can also be delivered through WhatsApp, even hesitant and shy farmers can participate through encouragement and support. User feedback is easier to receive, and it is prompt. One can communicate instantaneously through multiple ways in one to one, one to many and many to many ways. It is easier for farmers to communicate with peers, extension professionals and experts in real time. Many times, fellow farmers answer the queries of other farmers. This has the potential to build networking and trust among each other. Farmers in Punjab are getting immediate advice on crop health to seed procurement, soil health, use of fertilizers and pesticides, on WhatsApp. Shri Santhosh Kittur and Shri Abhijit Kamath, young farmers from Belgaum, Karnataka are using WhatsApp for marketing their vegetables in order to ensure a good range of produce, each grew different varieties of vegetables. Mr. K. Venkitesh, owner of Vijay Farms in Villupuram district in Tamil Nadu successfully sold his goats to a customer in Rajasthan on *Bakrid* with sharing of photo and text messages via WhatsApp. 'Baliraja' WhatsApp Group in Pune of Maharashtra has 20 groups of farmers, of which 17 are communicating in Marathi, one in Hindi, one for admins, one for organic cultivation of exotic vegetables, each group having 150-200 participants and multiple admins shouldering the separate responsibilities like advisory services on; weather, nutrient management, pest control, market advice, post-harvest services, moral support

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in case of stress etc. Through linkages and collaborations the group is creating impact in nearby districts like *Satara* and *Beed*. Another WhatsApp group *ShetkariMitra* (farmers' friend) is a WhatsApp group in *Yavatmal*, Maharashtra created by M S Swaminathan Research Foundation's village resource centre is sharing information on agriculture, marketing, animal husbandry and government schemes since 2016. Members, 130 in number share information on crop damage, new irrigation techniques, crop rotation, pesticide application, preventing crop diseases, increasing yield and care of domestic livestock. *Pashu Palan* (animal husbandry) group among Farmers of Rajasthan, Maharashtra, Madhya Pradesh, Uttar Pradesh, Haryana and Gujarat administered by Veterinarians. Krishi Jagran Group by Farm entrepreneurs in Rajasthan, Uttar Pradesh, Madhya Pradesh, Maharashtra are other successful examples of use of WhatsApp for agricultural development. (Kamal 2013 and Vora 2015). Department of Agriculture, Karnataka Government made it mandatory for agricultural development officials to have smartphones so that they could share information, messages, and circulars through WhatsApp (Khajane, 2016). Farmers are increasingly depending on WhatsApp now and they get immediate advice including from progressive farmers and agricultural experts (Thakur 2016). WhatsApp is rapidly transforming itself to becoming a support system for farmers.

Innovative farmer led extension approach through social networking and content sharing

Farmers being creative are evolving innovations under specific agro-climatic and socio-economic conditions. Farmers' innovations incorporate farmers' wishes, makes use of cheap and locally available material and the technology is easy to adopt and to spread. Farmer led innovations (FLIs) having advantage to tackle second generations' problems require different set of capacities on the part of farm innovators to scale their innovations in addition to be innovative (Nain *et al* 2018). It can empower individual farmer and rural communities, strengthens link between farmers, extension worker and researcher in such a way that farmer experimentation directs the research agenda and the participatory technology development ensures sustainability of technology. Provision of comparative experiences through knowledge management systems, conflict management approaches, facilitation of multi stakeholder negotiations, building alliances with private sector, marketers and NGOs need to be stressed upon. Farmers need to initiate group action in production process, the mechanism for better remuneration need to be ensured for the extra efforts and the institutional arrangements for networking of stakeholders need to be devised to translate the challenges into opportunities. In order to enhance awareness of the innovative capacities of the farmers, to identify farmer-led innovations having potential to be adopted for larger impact and to share the experiences of farmers-led innovations in the field of agriculture and allied sector and to set the ground for networking of farm innovators, research institute and agricultural marketing agencies for dissemination of farmers'

innovations as well as institutional innovations among larger population ICAR-Indian Agricultural Research Institute, New Delhi has taken lead to organise 'Farm Innovator Meet', initially at its headquarter and later in different zones. Also a social networking group of innovative farmers through WhatsApp is in operation since January 2016 with the objective of creating platform for Innovative *Farmer Led Extension Approach* for dissemination of sector specific farm technologies.

The studies on utilization (Naruka *et al* 2017), perceptions of users on various facets of WhatsApp messages (Kamani *et al* 2016), impact on learning (Aicha 2014) have been attempted where measuring the extent of the four categories of WhatsApp use, viz chatting and discussion, content creation, files sharing, and enjoyment and entertainment has been the prime focus. Conceptually, chatting and online discussion as an activity, through which ideas, concepts, assignment issues, practice, etc., are thrown around, reflected upon and negotiated among a group of individuals using one or more Social Networking Sites (Majchrzak *et al.* 2013), whereas *Content Creation* as an activity through socialization, personal ideas, experiences, assignment issues, etc. written down and/or video recorded, and published by individuals using one or more Social Networking Sites (SNS) (Nonaka and Takeuchi 1995). *File sharing* is an activity through which knowledge contents saved in files and exchanged by learners using one or more SNS and the *Enjoyment and Entertainment* as an activity through which games are played individually or in groups, and photos or videos saved in files and shared by individuals using one or more Social Networking Sites. The Table 1 attempts to describe the content analysis of the message sharing via WhatsApp group messenger namely 'Farm Innovators' administered by ICAR- Indian Agricultural research Institute, New Delhi scientists of Agricultural Extension Division and participated by awarded innovative farmers since January 2016. On an average 13.06 messages per week were shared by innovative farmers out of which 75.66% of the messages were related to agricultural purposes including the comments. Videos, news items and new stories dominated the content.

SUMMARY

Farm Innovators are regularly exchanging information and their experiences using WhatsApp messenger on their mobile phones. Most of the content shared was knowledge intensive with a mix of personal farming experiences. As Social constructivist learning theory seeks to improve social interactions to construct and share knowledge and the social networking through WhatsApp has proved to be potential to construct knowledge. Learning being the outcome of interactions between cognitive and psychological and the WhatsApp being the potential source for socialization and internalization promoted the creation of social wealth in the form of discussion forums of Innovative farmers for learning exchange. The extension mechanism for purposeful farmer to farmer learning exchange has been created which in turn

Table 1 Content analysis of the information sharing on social network (January 2016 to December 2017)

| Aspect | Messages in number | Average per week | Percentage |
|---|--------------------|------------------|------------|
| Total number of messages | 1358 | 13.06 | |
| Unrelated | 332 | 3.19 | 24.44 |
| Comment on Agriculture related messages (for extra information, likes, thanks etc.) | 174 | 1.67 | 12.81 |
| Agriculture related messages | 852 | 8.19 | 62.73 |
| Success story/ photographs | 189 | 1.82 | 22.19 |
| News story/ News item (technology, government scheme, plant protection, new methods, seeds, availability of planting/seed material, organic production, marketing information, cultivation practices of different crops etc.) | 299 | 2.88 | 35.10 |
| Hyperlinks | 62 | 1.19 | 7.28 |
| Videos (machinery, process, working) | 302 | 2.90 | 35.45 |

is a step towards innovative farmer led extension delivery mechanism. The potential of not only WhatsApp but other social media need to be exploited to bring location specific and commodity oriented transformative changes in the agriculture extension delivery system. The experimentation with innovative farmers is not only helping in scaling the farmers' innovations but also institutional innovations at large. As all human resources (labour, management, innovation, creativity) are products of social relationships, no one can reach maturity without the help of personally caring people, including their families, friends, neighbors, and communities. Farms and agricultural enterprises also depend on the ability of people to work together toward the common goal of ecological, social, and economic sustainability through social networks.

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