Case studies on dairy-based innovators contributing at grassroots vis-à-vis ascertainment of their intelligence level

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ABSTRACT

The study was conducted to have knowledge about intelligence level vis-à-vis dairy-based innovations development process at grassroots level. For this particular study, the ‘case study’ method was adopted. Further, in order to measure the intelligence level of innovators, the Revised Bhatia’s Short Battery of Performance Tests of Intelligence for Adults” was used. In all, a total of nine innovators, especially those who had developed dairy-based innovations at grassroot, across different parts of India were selected, purposively, for this study. The results of this study revealed that majority of respondents had average level of intelligence. Thereby indicating that development of innovations may be undertaken by people possessing an average level of I.Q.

Key words: Dairy-based innovation, Grassroots, Innovators, Intelligence.

INTRODUCTION

Whenever farmers face any typical problem at their field level, they invariably try to find solutions on their own and, sometimes these solutions turn out to be ‘innovations in making’. The uniqueness of these types of innovations lie in the fact that they are based on the local wisdom as well as particular culture from which they emanate. That is the reason, why these innovations vary from place to place.

In any particular society, there are only few people who come with innovative solutions to the problems perceived by them and/or their fellow colleagues. But, then, the question arises: what makes those few people ‘innovative’ in nature!! Is it the ‘intelligence’… the power of learning, understanding and reasoning… that is, their mental ability!?! In fact, ‘intelligence’ happens to be one of the most important attributes of an innovator, since individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning in order to overcome obstacles. Although these individual differences can be substantial, they are never entirely consistent: a given person’s intellectual performance will vary on different occasions, in different domains, as judged by different criteria.

MATERIALS AND METHODS

In view of the nature as well as significance of the study, the “Case Study” method was employed for this purpose as the method of exploration. The cases were selected, purposively, on the basis of data-base compiled and documented by National Innovation Foundation (NIF), Ahmedabad. Other sources besides NIF were also used, viz. NGOs, Progressive Dairy Farmers Associations (PDFA) of states like Haryana and Punjab, personal interactions with Scientists and KVK staff working at the grass roots, etc. However, it may be categorically stated here, that only, those innovators were selected for this study, who developed innovations having relevance in the field of dairying. Finally, a total of nine such cases pertaining to dairy sector were selected for the study. “The Revised Bhatia’s Short Battery of Performance Tests of Intelligence for Adults” (Verma et al. 2007) was used for this particular study.

RESULTS AND DISCUSSION

For the purpose of this study, an attempt was made to explore the phenomena that how intelligence level of the respondents was responsible for creating an urge among them, vis-à-vis development of innovations, however, prior to that discussion, a brief description of the selected dairy-based, innovators has been given as below:

A. Description of Cases

Case-I

Mr. Raghav Gowda was born in a small village of Dakshina Kannada district of Karnataka state of India. His father was a primary school teacher. Since his early childhood, he used to go to the field for helping his father. He was oriented towards science since his school days. After completion of high school education, he was selected as a primary school teacher. After some time, he got married. His wife was also a teacher. After the school hours, he used...
to devote his time in farming, during his spare time. In the 90s, he started ‘honey-bee keeping’. He developed a special technique for feeding of honey-bees. In the year 2000, he developed one “hand-operated milking machine”; and in 2005, started commercialization of this hand-operated milking machine. At present, he sells three different types of milking machines, and is earning approximately Rs. 22 lakhs per year, while providing employment to 40-50 youth of the nearby locality.

Case-II

Mr. Divakaran was born in a farmers’ family from Kerala state. His father was a very sincere farmer. He learnt the attributes of sincerity from his father. Since his childhood, he was interested in farming. He left schooling after passing 12th standard. After his education, he was fully involved in farming. Initially, he started the cultivation of high-yielding variety of paddy (IR-8). He introduced many innovations in his farming. He also introduced rubber cultivation for the first time in his surroundings. He has done a lot for establishing the ‘Rubber Cooperative Processing Society’ in his village. He also started commercial dairy farming in his farm. He introduced a number of innovations in dairy farming. He developed an “advance technology of drinking water for animals”. So far, he has trained more than 200 farmers about his innovation. He got many awards at district, state and national levels from government as well as private organizations.

Case-III

Mr. Jangali was born in a small village of Rudraprayag district in the state of Uttrakhand. He completed his primary education from his village. For higher education, he joined a college in Gauchar. In his village area, there happened to be a very serious problem of availability of fuel and fodder, as the women used to spend whole day in collecting the fuel and fodder. In the year 1974, he decided to develop a forest where they can easily get fuel and fodder; and hence, whenever he used to come to his village during vacations from the Army services, he used to devote his whole time in development of that forest. In the year 1980, he took voluntary retirement from the Army. Subsequently, he got himself fully devoted in his forest. He conducted many experiments in his farm, like ‘stone technology’. With the help of stone technology he changed the micro-climate of his forest. He started growing high-altitude plants/trees in his forest. He got many recognitions and awards. He also received the prestigious award of “Aryabhatta” in field of science for his unique and creative work.

Case-IV

Dr. Pillai was born in a farm family in Kerala. After completion of his post graduation in life sciences, he joined a ‘Fertilizer Company’. After three years of his job, he resigned from his job. Then, he joined as a technical assistant in Kerala University, and also came in touch with Vivekanand Kendrun (Kanyakumari). With the assistance of Vivekanand Kendrun, he started working on “Azolla as a bio-fertilizer”. In between, he also completed his PhD in Microbiology. Once he visited a convent school, and saw a pond. He requested the Principal of that school for growing azolla in the pond. At this point, the Principal queried about the use(s) of azolla, he replied that it can be used as bio-fertilizer. Further, the Principal asked again whether it has any other use also to which he had no answer. Subsequently, he carried out a lot of experiments on azolla as a ‘bio-feed’. In between, he got two projects from National Dairy Development Board and Department of Bio-technology for popularization of azolla as a bio-feed. In the year 2004, he resigned his job from Kerala University, and got himself fully involved in the popularization of “Azolla as bio-feed for animals” as well as poultry among the scientific community and farmers.

Case-V

Mr. Dharam Bir was born on 15 May 1963 at village Damla in Yamunanagar district Haryana state. His father Shri Ramswaroop was a farmer, who also operated a small flour mill and jaggery processing plant. His mother was a herbalist, with whom he was very close. Unfortunately he lost his mother during his childhood, albeit inherited the tract of inquisitiveness from her. He had a special liking for water, and used to play near wells and lakes catching frogs and snails. Not much interested in studies, he used to spend time bullying other children or making something or the other. While in class 7th, he used to make small heaters from old tin cans and coils, and use to sell them for Rs. 15 a piece. In December 1986, he went to Delhi in search of better means of income. Unfortunately, his stay at Delhi was cut short as he met with an accident in 1987. Severely injured, he was brought back to village; and it took a year for his family to nurse him back to health. After his recovery, he joined the ‘Village Development Society’, and went for a training programme in improving agricultural practices and organic farming techniques. During the six months of the programme, he interacted with different farmers and experts in the agricultural sector, and gained knowledge. Subsequently, he began his work as an organic farmer; and started conducting various experiments. In the year 1992, he developed one “spray machine” as his first innovation, followed by “weeding machine”, “cleaning machine” and “multi-purpose processing machine”. Recently, he has developed one “mobile irrigation system” on the request of Ex-President of India Smt. Pratibha Devi Singh Patil. At present, he is processing Aloe vera and aonla with the help of his multi-purpose processing machine. He has expanded his business, while manufacturing and supplying plant extracts gels, essence and herbal product mix. He got many awards/recognitions from ICAR, NIF, State government of Haryana and other agencies.
Case-VI

Mr. Jagdeep Singh was born in a small village Assal, near Ferozepur city in the state of Punjab. He completed his primary education from the village itself. Then, he joined the college in Ferozepur city. After the completion of 12th, he was selected in Punjab Police as a constable in the year 1990. His training centre was situated in Ludhiana, near the campus of Punjab Agriculture University. Therefore, whenever, he used to pass through PAU campus, he used to see many things about agriculture in the University. In the year 1997, he met one professor of horticulture at PAU, Ludhiana. The professor asked him “What are you doing?” He replied, “I am working as a Police Constable”. Then, the professor told him “If youth like you do the job, who will do the agriculture?” Then, he started thinking about agriculture. First, he got training about mushroom cultivation. In the year 2001, he left the job and took agriculture as a full time profession. All the villagers and relatives were very much apprehensive and/or critical of his decision. However, he was very firm about his decision, and continued farming. He got three more trainings in fields other than mushroom viz, bee-keeping, dairy and agriculture; albeit, he was relatively more successful in dairying. From the year 2004 onwards, he started commercial dairy farming vigorously. Initially, he faced a lot of problem(s) in marketing of produce(s). Finally, he came in contact with the Nestle India Ltd. Now, he has 300 cows. In fact, these days, he has become a ‘role model’ for dairy farmers of Punjab. He has developed his own ‘cost-effective milk parlour’. He is also educating dairy farmers about his innovations. He also participates actively in all the farmer-related programmes of National Dairy Research Institute, Karnal.

Case-VII

Mr. Gurtej Singh was born in a farmer’s family from Punjab. He completed his education only up to 5th standard. His father was involved in farming as well as repairing of machines. Since his childhood, he always wanted to do something innovative. From a very young age he was involved in agriculture as well as repairing of machines. He learnt machine repairing skills/techniques from his father. In the year 1990, he developed a ‘threshing machine’. Then, he developed ‘stalk harvester’ subsequently, ‘straw collector and ‘chaany tree saw’. In the year 2009, a group of dairy farmers requested him to develop a ‘silage machine’. In 2010, he designed ‘silage making machine’. Then, he started thinking of opening an enterprise to market the machines developed by him viz: Stalk Harvester, Forage Harvester, Straw Collector and Chaany Tree Saw; however, he could not do so, as he did not have sufficient amount of money to do it. He sold his land and started the “Channy Enterprise”, which is a success story now.

Case-VIII

Mr. Arvinder Singh was born in farmer’s family from Haryana. He completed primary education from his village Singhra and ‘intermediate’ from Nissing. For graduation he joined S.D. College, Chandigarh. After graduation, he worked as contractor in the field of stone-breaking in Chandigarh. After 1998, he started farming. From the year 2002, he started commercial dairy farming. In the year 2004, he started his own outlet in Karnal, because he was not getting remunerative prices for his milk. When he realized problems related to ‘manual milking’, he developed his own ‘cost-effective milk parlour’. He is also educating dairy farmers about his innovations. He also participates actively in all the farmer-related programmes of National Dairy Research Institute, Karnal.

Case-IX

Mr. J. R. Dhanraj is from Kalkurchi (P.O.), via: Belukurchi, Distt- Namakkal, Tamil Nadu. He is a farmer by profession. He has 10 acres of land and is growing Tapioca, Sugarcane, Coconut, Mango, etc in his field. In addition to agriculture, he has three Jersey cows also. Dairy cows especially cross-bred animals with exotic strains, such as Jersey (/HF) as well as some of the old animals are unable to stand up due to calcium or other nutritional deficiency in the body and/or due to accidents. In the year 1998, Mr. Dhanraj also faced the same problem, when his jersey cow fell down. Anyhow, he arranged for a few people to help the cow stand up. But, the cow got injured further, and again fell down. Finally, he lost at cow. He kept thinking about a solution to this problem. In the year 1999, he came up with a solution to this serious problem. He developed an ‘animal lifter’. Once the cattle are lifted, they are able to stand on their own and walk further within few minutes.

Intelligence level of innovators

Intelligence has been defined as the ability of an individual to cope with his environment (Thorndike, 1927). Gottfredson (1997) mentioned the definition of intelligence via “Mainstream Science on Intelligence” (1994), an editorial statement courtesy fifty-two researchers: A very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book-learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings— “catching on,” “making sense” of things, or “figuring out” what to do. However, for the purpose of this study, the ‘intelligence’ was operationalized as the ability of an individual to understand, reason, and perceive as well as quickness in learning; mental alertness; ability to grasp relationships, etc. The “Intelligence Quotient” (I.Q.) scores of selected respondents have been given in Table 1 where in the results revealed that the I.Q. of seven out of nine innovators were more than 100, which in turn reflected that majority of the innovators’ mental age happened to be higher than their actual age.
Results in Table 2 revealed that the majority of innovators (6) had ‘average’ level of I.Q., thereby proving that only on average level of I.Q. is required for development of innovations, which is in consonance with the opinion of Maslow (1967), who stated that ordinary people of average intelligence were able to solve problems and come up with inventive, novel and unconventional solutions.

Recent researches on ‘creativity’ research view intelligence and creativity as distinct traits that are only modestly related (Kim, 2005; Batey & Furnham, 2006; Kauman, 2009; and VanTassel-Baska, 2010). Illustrious psychologist Guilford (1957) made distinction between convergent and divergent thinking. Classical researchers argued that divergent thinking reflects an associative process in which obvious, accessible ideas & cues connected new and innovative ideas, which in turn connected further ideas, and so on. It clearly shows that development of innovations required creativity and average level of intelligence. These studies have further strengthened the finding of this study.

CONCLUSION

After going through the results, it can be concluded that average intelligence is sufficient for problem-based and solution-oriented innovation development. So, farmers need not to be necessarily “very superior” in terms of I.Q. for coming up with inventive, novel and unconventional solution to their day-to-day problems. Nevertheless, the results of this particular study need to reach the farmers across our country, so that they could overcome the psychological inhibition of not trying for a solution for their problems, just because they feel that they are average in intelligence. After all, an “Average intelligence” is all that is needed to be innovative.

REFERENCES


