READINESS STUDY ON SRI FARMER USING TPB APPROACH

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Abstract

In order to start a new practice the transformation procedure has to undergo through various challenging factors. From a management perspective, these transformations will examine the theory of planned behavior in influencing the willingness of farmers in Kampung Lintang, Sik to change using SRI techniques in rice cultivation. This study employed an exploratory study for which data were collected through observation and interviews. The findings of this study show, the respondents have intention to practice SRI, where attitudes, subjective norms, and perceptions of behavioral control factors are influencing the readiness of respondents. This finding of this study will provide guidance to the researchers and other agencies to plan continuity programs related to rural farmers.

Keywords: technology readiness, SRI, rural area

1.0 Introduction

Economic development involving rice cultivation in a rural area has a major impact, particularly in the area of the Rice Bowl. Typically paddy cultivation in Kedah can be classified into two areas, under MADA monitoring and KEDA monitoring area. KEDA area is facing a number of problems, preferably scarcity of water. Consequently, the Kampung Lintang is the area under KEDA can grow paddy only once annually, whereas areas under MADA can grow paddy twice a year. This is because the cultivation is entirely dependent on weather.

Management of rice cultivation through SRI methods can have significant impact on the residents of the KEDA area. However, the factors which influence the willingness of the farmers to replace the conventional farming methods by new methods need to be identified, which is a difficult task. Support of various parties, especially government bodies and academia are expected to pose a major impact on farmers in this regard. In reality, in many countries this SRI method, academia, and government socialists joined forces to improve their quality of life. Therefore, this study intends to examine the extent to which the theory of planned behavior succeeds to explain the willingness of farmers in rural areas Sik, particularly Kampung Lintang to use SRI methods in their rice cultivation.

2.0 Literature Review

There are various theories and approaches to present the development that have been conducted in order to explain differences in human behavior. Fishbein and Ajzen (1975) have developed a framework to address the problem of the attitude-behavior relationship in the Theory of Reasoned
Action (TRA). TRA has been extended to improve the Theory of Planned Behavior, (TPB) by Ajzen (1985).

TPB predicts that the intended behavior is partly influenced by individual attitudes toward the behavior, subjective norms, and perceptions of their control over individual behavior (Ajzen, 1975). TPB model has expanded the TRA model by incorporating one additional variable, perceived behavior control. Ajzen and Fishbein (1980) have submitted a theory called TRA which is an extension of Theory Acceptance Model (TAM). Fishbein and Ajzen (1975) has been researching the relationship between beliefs, attitudes, and behaviors by developing a model of attitude structure. This theory is based on several assumptions, for instance human generally do things in a way that makes sense or people will consider all available information. It also considers the explicit or indirect human behavior to present the implications of their actions.

TRA state that people's attitudes affect their behavior utilizing a thorough and reasoned decision-making process. TRA also says that the decision is the best way to predict intentions. The intentions usually refer to the attitude and subjective norm. According to the TPB, confidence is influenced by the attitude towards a certain behavior, the subjective norms and behavioral control. These three components are interdependent and are determinants of intention which decides whether it will be done or not. Moreover, the TPB also directly affects the intention to perform a behavior and may also affect a situation where users intend to perform a behavior but is prevented from doing the action (Ajzen, 1985).

Attitude towards behavior is influenced by the fact that whether such behavior will result in desirable or undesirable situations. Confidence about what behavior is rooted in normative expectations of others and the motivation to act in accordance with the expectations is the factors which shape the subjective norms within the individual.

Referring to the TPB model, the behavior of an individual can be explained considering the behavioral intention which in turn is influenced by the attitude, subjective norms, and perceived behavioral control. Attitude refers to an individual assessment for implementation of a behavior, whether it is positive or not (Ajzen & Madden, 1986). Whereas, subjective norm refers to an individual's perception of the people surrounding who influence them in determining certain things to do (Ajzen, 1985).

Theoretical models of TPB contain many variables such as background factors, behavior, behavioral belief, normative beliefs, subjective norm, control beliefs, and perceived behavioral control.

2.1 System of Rice Intensification

SRI is a process to maintain organic cultivation. System Rice Intensification (SRI) was invented and promoted in Madagascar in 1983. Initially it was regarded as a revolutionary paddy cultivation method to achieve very high yields with reduced resources such as irrigation water, fertilizers and chemicals. In the study of Uphoff (2006), paddy farming application using SRI is depends on six main principles as follows: (1) When (if) transplanting, start with young seedlings (2-leaf stage); (2) Plants were set out carefully and gently in a square pattern, 25 x 25cm or wider if the soil was
very good. (3) Seedlings are transplanted singly; (4) Rice paddies are irrigated intermittently (minimum of water) rather than continuously flooded; (5) Weeding for at least twice and (6) using basic organic fertilizer or compost, any decomposed biomass.

The very concentration of sustainable agriculture in this study goes to the social innovation in management practice in sustainable agriculture. The management of sustainable agricultural practice in Malaysia paddy farming is yet not in advanced level but still in its initial stage (Othman, 2012). Recently, a renowned process in organic farming in Asia is SRI (Uphoff, 2011), started to be implemented in Malaysia since year 2009 at Bandar Baru Tunjong. It was afterward noticed in Kampung Lintang, Sik. In the aspects of SRI management, Lovely Farm at Sik, which is the areas in this study, is the first and only certified organic farm in Malaysia in 2013. Present issues in SRI management in West Malaysia were noticed in many papers and studies studies (Othman, 2012; Othman et al., 2012; 2013 and Musa et al., 2012).

3.0 Methodology

This study uses a case study of rural farmers. Six respondents have been interviewed regarding rice cultivation using SRI methods and techniques. Respondents were the farmers who have attended training courses at the National Organic SRI Center in Indonesia or obtained training, courses and coaching at the SRI Lovely Farm in Sik.

Detailed description of respondents comprised of demographic information, i.e. name, age and employment. The next three dimensions of attitudes, subjective norms and perceptions of behavioral control based on TPB theory were presented in the interview questions. The main research question relates to the dimensions of attitudes and subjective norms. Conversely the perception of control behavior can be divided into two categories: the self-effectiveness and state of the facilities.

A pilot study was conducted on 24 December 2012 while data collection and analysis for this continued from February 13, 2013 until 14 September 2013. The methodology of the analysis of Strauss and Corbin (1990) and Saat (2009) was used to analyze the data. Data from the interview were recorded and transcribed for coding and categorizing items based on TPB theory. Processing of qualitative data involves several stages for analysis. These include the following tasks: i) Data Transcription ii) Data Organization iii) Coding and Data category iv) Theme v) Saturation Level Data and vi) Report.

4.0 Findings

The findings of the study can be divided into several sections; profile, attitudes, subjective norms and behavioral control.
4.1 Profile

The study involved six SRI paddy farmers. Five of the respondents possessed part time jobs as three rubber tappers, a Cooperative Manager (1) and a tractor driver (1). Ages of the respondents were between 26 and 55 years. Most of the respondents (5) were married, and all of them are men.

<table>
<thead>
<tr>
<th>Item</th>
<th>Information</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job</td>
<td>Farmer (paddy field)</td>
<td>6</td>
</tr>
<tr>
<td>Part time job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Rubber tapper</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ii. Cooperative manager</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ii. Tractor driver</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26-35</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>36-45</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>46-55</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Academic Qualification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School (UPSR)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Malaysian Certificate of Education</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>College/University</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Source of income</td>
<td>RM1000 and below</td>
<td>6</td>
</tr>
<tr>
<td>Rice growing period</td>
<td>1-5 years</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>6-10 years</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>11-15 years</td>
<td>2</td>
</tr>
<tr>
<td>Paddy land ownership</td>
<td>Yes</td>
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</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>Rental or lease of land</td>
<td>Yes</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1: Profile of Respondents

Further, Table 1 shows one respondent qualified Primary School Assessment Test (UPSR), four respondents qualified Malaysian Certificate of Education (SPM) and also qualified from college and university. In terms of planting experience, four respondents had experiences ranging from 11 to 15 years, while two respondents had less than 5 years of experience in planting rice. Income level of all respondents is below RM 1,000 per month. Table 1 also shows that only one of the respondents had his own rice-field soil of a niche, but the rest of the respondents did not have the land; they cultivated rice in the paddy land leased by the cooperative.

Findings indicated that the willingness to use and accept the SRI method can be determined by attitude, subjective norm and perceived behavioral control.

4.2 Attitude
Attitude towards the behavior refers to the assessment which includes the implementation of a behavior, whether it is good or bad. Factors which influence the attitude of readiness to use SRI methods are relative advantage, compatibility, complexity and usability.

Individual beliefs influence individual attitudes and eventually form the intention to produce behavior. This factor has been found to influence the attitude of farmers to readily adopt SRI. Farmers are also encouraged this method because it is cost effective, simple and have similarities with the teachings of their religion which tells them to protect the environment and ecology.

The findings regarding attitudes can also be associated with demographic factors. The findings show respondents who have farming experience can resolve the challenges faced in SRI method. One of the challenges is that SRI method requires the use of labor in the management of weeding. However, all respondents perceived that the weeding problem can be solved by mechanization of the equipment. This will be achieved after causing the existing technologies from other countries to adapt in Malaysian environment.

All respondents agreed that SRI method can be easily implemented. R4 and R6 say that SRI will be easier if the farmers can understand the method. This can be seen as an interview with the fourth respondent:

"SRI is for me... If you do not learn, do not know what one. .... Farmers must ... Give the knowledge. Learn not one, two days... Courses and hands-on, meaning the field. .... He touches down himself, he touches down and then he feels himself, and he knows what to do."

(Respondent 4, personal communication, 14 September 2013)

The study also showed that all the respondents have attended training courses on SRI, feel comfortable with the techniques and methods learned and also they are ready to execute. If the farmers were given adequate support in terms of finance and infrastructure, especially from the government the intimidation to apply the techniques of SRI can be minimized.

4.3 Subjective Norms

Subjective norm refers to the human perception of the fact that other man is important to him and think whether or not the perpetrator should behave the same (Fishbein & Ajzen, 1975). This relates to human actions based on perceptions which imply that they should do what the others think. In terms of subjective norms, it is found that all respondents have the motivation to implement SRI practices from fellow farmers who adopt the same method under cooperative system. Subjective norms which exist in the form of the influence of consumer groups did not significantly influence the willingness to accept the SRI method fully. This is because the respondents got information from organizations such as KEDA and training centers which reduced dependency on friends, neighbors or family.

4.4 Perceived Behavioral Control
While considering the behavioral control, self-effectiveness factor and government support are important. All respondents using SRI methods who learnt safety motivation for planting technique do not use pesticides. However R2 emphasized that this method must preserve the environment for generations to come.

Some respondents said that government support is important for the continuation of use of SRI methods. R1, R4 and R6 state method require funds from management to stabilize the area. Conversely, R5 state receives aid for its work where rice machine is needed. The R4 thinks all agencies should give emphasis on the promotion and ongoing support.

Facilities can be enhanced from making their own equipment such as stamp tool plant, weeding tool and hoes. However, infrastructure is provided by KEDA like providing a tractor, preparing the way and clearing the area. Besides, MARDI and Department of Agriculture, particularly the Department of Agriculture Sik provides assistance to the farmers in many districts. They also get advice from SRI development agencies.

In terms of information technology, only one of the respondents did not know how to use a computer and surf the Internet. Two respondents reported that the Internet is important to get information and reference source on the SRI, especially in countries like India and Indonesia.

5.0 Conclusion

This study aimed at exploring the factors which influence the willingness of respondents to use the SRI method. For extension to future research, several recommendations can be considered. Firstly, studies can be conducted on existing farmers who use organic methods of cultivation as well as SRI. Secondly, SRI is a method of management that is still new in Malaysia. Therefore various other studies also can be explored such as the concept of commercialization and value chain in the method of this crop. The findings of this study provide important implications to organizations like KEDA and the Department of Agriculture to formulate course and training which would start a change in the existing agricultural management.

6.0 Acknowledgements

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7.0 References


