

The Use of Radio in Conceptualising Farmer's Reaction in Problem Solving

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Abstract – *Communication media principally radio has provided farmers with newest idea and information for them to adapt and adopt agriculture technology and practices in agricultural extension services (AES). It shows that, radio role is still focused on delivery of information for production output. For that reason, under AES structural governance reform such as decentralisation and privatization that aimed to curb AES situation problem like insufficient of information delivery, radio is suggested as a tool that allow feedback and influence farmers information behavior in facing that problem. Drawing upon Situational Theory Problem Solving (STOPS) as the framework, aside from looking at the perception of publics towards certain problem. This study determined the reaction of Malaysian paddy farmers that could be shaped to view insufficient of information delivery within AES as being intervention in increasing farmers' utilisation of communication media such radio. More specifically, the objective of the study is to construct a quantitative measure of radio as new concept to be examined within STOPS. An extensive reviews of literature then produced preliminary factor and items that were tested through a survey distributed among 110 respondents. Exploratory factor analysis found the items fell into common factor group and finalised with 7 items of measurement for future study. These results offer initial guidance into the relevance of radio effected farmers' reaction in problem solving within the proposed model of the STOPS especially at local context*

Keywords – *Agricultural Extension Services, Farmers, Insufficient of Information Delivery, Situational Theory of Problem Solving(STOPS), Radio.*

INTRODUCTION

Communication media is an important source of information that helps farmers access to latest

information and deal with agriculture extension service situational problem such insufficient of information delivery. In many developing countries, along with the public Agricultural Extension Services (AES), besides face to face interaction with friends, relatives, other farmers, extension agents, combination with traditional media such as radio and television allowed farmers better access to information and enhancing their behaviour in agriculture situation[1]. Similarly, In Malaysia considering paddy farmers are the main force of the industry [2], they often relied on the selection of the correct communication channel which increases the agriculture information and innovation acceptance among them [3] and for all they believed communication media such radio and television as the most powerful and reliable media [4]. Thus, in the situation of insufficient of information delivery, beside information has to be reliable, timely and relevant [5].It is also highly relied on trusted channel that encourage interactive communication process between AES and farmers [4] . However, literature around communication media such radio according to the famer's information need, context and AES situation, the key functions is still focused on delivery of information for production output.

For that reason, AES under structure governance reform such decentralisation and privatisation which aimed to curb with insufficient of information delivery problem, communication media is also suggested as a means to provide two-way flow communication which allows feedback from farmers in dealing with this situation. With the same note, in promoting sustainability in agriculture there is a need to better understand the farmers perspective [6] and this require basic understanding of communication media used principally radio and farmers' attitude and aptitude towards problem solving. That make the case, farmer has, or can develop requisite skills sets as decision making and problem solving related to farm situation

and management [7] through selection of effective mass media channels which can increase knowledge and influence farmers information behavior in facing insufficient of information delivery [8]. It shows the developmental role of mass media, one mostly refers to radio as credible source in enhancing their information needs such problem solving in AES situational issue.

Noting the contribution of radio in the farmers information behavior towards getting sufficient information more emphasis could be given to utilizing radio as part of the tool in helping farmers to deal with the AES problem. It is therefore important to know, whether radio affect the farmers perceptual and cognitive processing towards Insufficient of information delivery and motivations behind farmers' need to acquire, select, and transmit information. Drawing upon [9] Situational Problem of Solving (STOPS) as the framework, proposed, aside from looking at the perception of publics towards certain problems. Scholars contend that other possible significant antecedent factors of the independent variables should also be looked into [10]. These antecedents factors were introduced to enhance explanatory power of this theory in relations to selected items and found potential to influence the perceptual and cognitive variables as well as communication behavior.

OBJECTIVES OF THE STUDY

This study argued the reaction of Malaysian paddy farmers could be shaped to view insufficient of information delivery within AES as being an intervention in increasing farmers' utilisation of radio. More specifically, the objective of the study is to construct a quantitative measure of radio as new concept to be examined within STOPS.

LITERATURE REVIEW

Situational Theory of Problem Solving (STOPS)

The Situational Theory of Publics (STP) defined publics; "a public a group of people who face a similar problem, recognize that the problem exists and organize to do something about the important problem," [11]. STP explain publics mixed perception which consists of three independent variables, namely problem recognition, constraint recognition and level of involvement that determine the dependent variables of information processing such as passive communication behavior and information seeking such as active communication behavior. Correlations of the independents with dependents variables were used to

categorize publics for various situational issues. Studies utilising STP for single issue found that the relationship among the variables produced four types of publics such as active publics, aware publics, latent publics and non publics [12] in addressing these different types of publics, different types of messages and delivery methods need to be employed.

Kim and Grunig [9] introduced STOPS to further extend the theoretical virtues of STP. The STOPS introduces a motivational variable which mediates the effects of antecedents perceptual independent variables on communicative action as the dependent variables. In addition, STOPS redefine and reinstate the variables of referent criterion as cognitive approach. STOPS expanded the focus of the theory from "decisions" to become more general theory of communication and "problem solving". Such understanding also offers a more comprehensive segmentation of publics in that it is possible to differentiate between active and activist publics based on their cognitive approaches and communicative behaviour [12]. The dependents variables information processing and information seeking had been developed into comprehensive variable known as communicant activeness in problem solving (CAPS). This is demonstrated in Figure 1.

The STOPS has managed to generate new research that extend beyond public relations in areas concerning the concept of "Publics," [13] The theory has been used to improve the classification of publics [12] and examined the predictive power of Situational Theory of Problem Solving variables in range of issues. Therefore, this study introduced new concept of radio within AES field in an attempts to predict farmers' reaction on insufficient of information delivery problem to fill the research gap which leads to perception of problem, situational motivation, and the communicative action in AES by applying and extending the STOPS conceptually and empirically.

Conceptualising radio on perceptual situation and cognitive processing in AES issue

Radio, a newly-suggested concept in the present study as an antecedent to the STOPS. [9] distinguished problem situation to perceptual problem and to cognitive problem. The concept denotes the relevant of radio as powerful media to influence farmers' interaction within AES to gather information and their agriculture problem [14], which triggers reaction and to be situationally motivated to think about the issue.

In this contact, this study argues that problem recognition towards insufficient of information delivery in AES could be influenced by farmers'

utilisation of radio. This view been identified by scholars, where radio can describe, predict and explain how farmers behave in many AES situations. For example [15] found that radio also be able to establish interaction and information behavior in order to exchange of knowledge information and technology regarding farming activities farmers within AES situation of climate change. Thus study seeks to evaluate whether radio is an antecedent to the factors leading to active response postulated in the STOPS with regard to AES problem.

With the same note, radio does not only trigger farmers' recognition of insufficient of information delivery but also "the extent people connect themselves" as in their involvement [16] to insufficient of information delivery problem. This has long been pointed out by scholars, found amongst farmers in Malaysia with regards to their information seeking activities and found their roles as producer, inventor and communicator [17]. Consistently farmers are found able to convey their perspectives and to be connected in the situational problem through actively sharing their perception during information gathering process which later allows harmonious effort between AES institution and farmers' behaviors in problem solving [18]. Thus, this views that radio affects farmers' sense of personal involvement to the problem.

Moreover, perceptual situation like constraint recognition, have shown that farmers' perceived behavioral control is related to the farmers' perception of how difficult the AES information and technology to be to carry out. That hold true when Mustaffa and Asyiek [19] argued that, that only through channels such specifically radio for obtaining information and training are the means to helps solve constrained by females' farmers in getting information and accepting technologies at their village agricultural development. These arguments rightly explained in STOPS where public also select only certain kinds of information to solve their problems [9]. This study views the availability and access to radio affects farmers' constraint to recognized the problem of insufficient of information delivery.

The cognitive approach through the use of radio found farmers' used several sources of communication, however radio maintained as the main communication media coupled with interpersonal communication to learn, record the knowledge obtained and applicable to daily farming life and influenced their information behaviours about their farming problem [20]. Similarly, in Malaysia, farmers should be informed on the schedules of radio agriculture programs as it can

help enlightened their knowledge regarding agriculture [21]. Thus, Communicative action take various action forms such as learning, giving and selecting, and various content elements such as facts, ideas, opinions, advice, and attitudes from one's knowledge store or cognitive efforts [22]. This study suggested radio ready for farmers kept farmers informed towards problem like insufficient of information delivery and subsequently affect their information behavior.

Situational Motivation in problem solving as an effect of Radio and perceptual variables

Kakade [23] in his studies shows, radio is considered as a credible source of information and is taken as authentic, trustworthy and prestigious medium of communication for AES. Credibility refers to the trustworthiness of information perceived by farmers as important and gave weightage in adoption of information. Thus radio are seen as vehicle to motivate farmers so that they can be eager to seek more knowledge and information about insufficient of information delivery issue which accepting the mediating role of situational motivation in individuals' problem solving. Kim and Grunig [9] proposes that perceptual situation triggered by the use of radio, leads to more active communicative action when it is intervened by situational motivation.

Communicative Action in Problem Solving (CAPS)

Leeuwis and Aarts [24], believe that better approach in AES environment move along with an increase of interaction at farmer's level. Similarly, earlier on [25] found that farmers' efforts to maintain self-perceptions in the AES issue may influence their behavior and decision-making. In other words, farmers' communicative action may facilitate their ability in problem solving and decision making within AES situation as an outcome of the cognitive recognition of the problem and the situational motivation to solve it, as knowledge enhances possibilities to seek more information if they recognize the problem as more crucial and if they are situational motivated to solve it [9].

By exploring relationships between the variables in the STOPS model, it is hoped that the avenues for research may be expanded in local context. This research therefore will address radio as antecedent variables from the point of view of multi-racial farmers but majority Muslim in Malaysia. Therefore, it is essential for researchers in other parts of the world like in Asia (East) to explore STOPS where cultural factors

suggested as a significant towards the behavior of the publics [10].

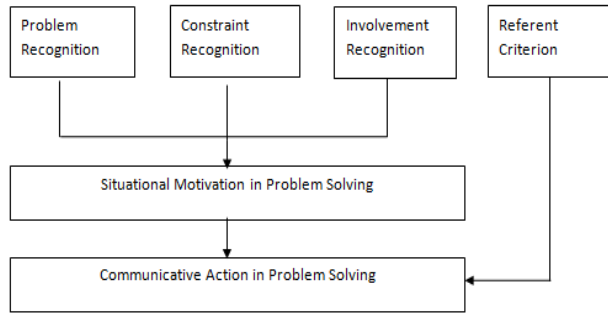


Figure 1: The Situational Theory of Problem Solving (STOPS)
Source : Kim-JN and Gimig., 2011

MATERIALS AND METHODS

The quantitative measure in determining radio on farmer’s reaction in problem solving was applied in line with STOPS mainly explains publics’s perception and communication behavior through statistical finding. The questionnaires were distributed to farmers in a scheduled event on 29 April and 1 May 2017. A total of 102 out of 110 distributed survey of farmers at IADA, Selangor, Malaysia were used which ethnic composition are majority Muslim as follows: 96% Muslim, 3% Buddha, and 1% were Hindu. The conceptual for radio were based on literature review in which this study attempts to investigate 7 items measuring farmers use and perceive radio in their AES concerns to solve problems. A 10-point Likert scale was utilised with 1 representing strong disagreement and 10 representing strong agreement with the statements. The exploratory data analysis was performed using principal components with varimax rotation to assess the performance of each item in measuring their respective variables. To define the number of dimensions and items within each dimension that best represent the variable in each latent construct on preliminary study with sample at least 100, where items with low factor loading will be excluded [26]. Thus, study only retained items that loaded on the variables at .50 cut off criterion and the Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO more than .50 [27].

Validity and Reliability

The purpose of this study was to test the reliability and validity of the 7 items constructed in an instrument for the measurement of radio. A common used measure for internal consistency of scale items is the reliability analysis Cronbach’s Alpha. The Cronbach’s Alpha

must display a high degree of internal with value greater than the minimum of 0.70 [27]. However, to ascertain the number of factors underlying the variables, exploratory factor analysis was performed and retained only items loaded on the variables at 0.5 cut-off criterion and eigenvalues of 1.0 or more [27].

Finding and Analysis

Reliability test on radio indicates high reliability with alpha more than 0.7. Factor analysis was performed on the measurement model of Radio. Table 1 shows test and the suitability of variables for factors analysis in the radio measurement model. Result from KMO indicated Radio = 0.87 > 0.5. This shows that all analysis data are in sufficient condition in terms of value distribution. Where the accepted value must be greater than 0.5. The Barlett’s test of sphericity test performed on data shows radio at high value indicated on probability p<0.001 which reported at (731.93). Thus, analysis for this factor is accepted as explained in table 1 below:

Table 1 : Test on KMO and Barlett’s for factors Radio

| Variable | KMO | | Barlett’s Test | |
|----------|------------------|-------------------|----------------|-------|
| | Cronbach Alpha’s | Approx Chi-Square | Df | Sig |
| Radio | 0.87 | 731.93 | 21 | 0.000 |

Table 2, shows the eigenvalues met at 5.11 which more than 1.0 as suggested by Hair 2010. Moreover, percentage on variance reported at 73.05% of the variable variance. Thus variable is accepted at value at more 60%.. Further, explained reliability test on radio indicates alpha 0.93, which carries 7 items. The result shows that the 7 items fell into and consistence in one dimensions as per suggested by [26] all of which when combined, explain the variation in radio.

Table 2. Summary of items and factor loading for varimax rotation and reliability test for RADIO

| Variable | Items | Eigenvalues | % of Variance | Cronbach |
|----------|-------|-------------|---------------|----------|
| Radio | 7 | 5.11 | 73.05 | 0.93 |

Although one item loaded at minimum value Of 0.51 as compared to other items respectively high between 0.8-0.94. However, this study decided to retain as it showed factor loading of above .50 [27]. In fact, local study amongst paddy farmers consistently with the idea where information via traditional media such radio was highlighted as the most effective way to embolden farming community in their farming routine

this tool considered as the most reliable and trusted information sources [21]. Thus, future study introduced radio to the concept of perception and communication action in problem solving.

DISCUSSION

This main objectives of this paper was to conceptualize radio and how it move on parallel with the assumption and concept of STOPS as in perceptual and cognitive variables that will help to connect and motivate farmers to a solution of a problem such as insufficient of information delivery in AES . Finally, this paper was to test the items for the measurement of radio as an antecedent variable and identified items for future study. The concept of STOPS was developed in 2006 to refine and extend the theoretical virtues of the Situational Theory of Public (STP) [22]. Based on literature that have utilized this theory through issues were selected based on their significance towards understanding various publics depending on the interest of the research in which rightfully explained that public would not change/adopt new behavior unless they recognized it a problem, and also they see few obstacles in doing something about it. In this case, this paper provided initial guidance toward investigating farmer's dimensions of radio conceptual in problem solving towards insufficient of information delivery. Items for the survey instrument was developed based on the extensive review of literature and adjusted to suit the needs of this study and local context. The items retained for future study were based on the results of the exploratory factor analysis (EFA). The EFA confirmed the dimensions of concept consistently like been proposed by theory and finalized with all 7 measurement items.

This study would provide insight, practically, it helps AES to better understand the use of radio and farmer's attitude and aptitude towards its application in problem solving. Similarly, STOPS argued that members of publics are "connected social process actors who acquire, select, and share information in the mesh of their social network." [9]. Theoretically, study carried by Kim and Viber [28] on modern online communication in Health issue and Choi and Kim [29] on contextual interpersonal communication in tourism issue forwarded the idea of communication method that assisted public to be connected towards identified problem. Radio can be used to create awareness, share information and give a voice to the community. Thus, future study seek to further develop empirical support to examine the role of radio in farmers reaction in

problem solving towards insufficient information delivery.

CONCLUSION

Result indicated, radio enables the concept of decentralization of AES through the interactive agriculture program, where it encouraged communication and immediate reaction from farmers to look at issues such insufficient of information delivery in AES that affecting their lives and cultivation activities. Thus it has become clear that the role of radio according to farming practices and new technologies brought by AES, can be extended as basic understanding from communication sources for delivery of information to problem solving as already illustrated in the paper. Therefore this study seek to examine the role of radio in farmers reaction in problem solving towards insufficient information delivery to fill the gap of knowledge within the framework of the Situational Theory of Problem Solving.

Further, studies in Asian region especially Malaysia as multiracial country would shed light to the applicability of this theory in explaining people's perception despite cultural differences in a way to further understand this concept and its effects on individual problem solving. This study served as guidelines for future research in understanding how farmers reaction of the problem and introduced radio as new variable to be examined within the proposed model of the STOPS whereby is tested as antecedent variable to the independent variables at local context in AES. Study suggest, taking this concept of research will provide an opportunity for new research to further investigate other needs of famers through the use of combination of media not specifically on radio only.

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