

**THE ROLE OF MULTI-MEDIA APPROACH IN NARROWING
THE KAP-GAPS AMONG THE FARMERS OF
THE STRATEGIC EXTENSION CAMPAIGN
IN MUDA IRRIGATION SCHEME**

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ABSTRACT

The purpose of the study was to determine whether the multi-media approach in the brown plant hopper (BPH) control management Strategic Extension Campaign (SEC) has narrowed the knowledge, attitude, and practice (KAP)-gaps among the farmers with low and high socio-economic status (SES) in the MADA area, Malaysia. The research was designed as the before and after campaign study.

The KAP-survey results as the secondary data of the study, was the benchmark data of the before campaign study. Data of the after campaign study were gathered by means of personal interview with 189 farmers using the structured questionnaire.

Findings reveal that KAP-level of both farmers with low and high-SES farmers on the technology of BPH control management had increased after the multi-media campaign. However, the multi-media approach of SEC had narrowed the KAP-gaps of these farmers. Therefore, the study found that the multi-media approach of the SEC is the appropriate approach in narrowing the KAP-gaps among the farmers.

INTRODUCTION

The decade of the eighties witnessed a shift from the dominant development paradigm which focused on technologically deterministic and GNP-centred to alternative model that is more qualitative and normative. The new paradigm of development is sometimes termed as *Another Development*. This paradigm was primarily about people who have to live in harmony with the environment (Rogers, 1976; Servaes, 1985; and Melkote, 1991). The concept of sustainable development, therefore, has to answer the future challenge of development process. One of the real future challenge is the Sustainable Agricultural Development.

In practical aspects, according to Connell (1991) sustainable agriculture will vary from farm to farm but commonly include integrated pest management (IPM). IPM is an ecological approach to pest suppression by using various techniques of the conventional pest controls. The key point of success in this approach is most likely when the focus is on a large area. Area-wide pest management involves the coordination effort of many parts of an agricultural community to use effective communication strategies. Regarding the IPM issue, Escalada and Heong (1993) have classified three kind of communication strategies in implementing the IPM, namely the Strategic Extension Campaign (SEC) as one kind of Public Communication Campaign; Media Use; and Farmers Field School (FFS).

The communication approach that has been used by the Malaysian Government in controlling the pest problem is the Strategic Extension Campaign (SEC). The SEC is one of methods which emphasise on people's participation (Adhikarya, 1994). Moreover, the SEC is useful and important to an agricultural extension service because it employs a cost-effective multi-media approach and it concentrates on meeting the information needs of intended target beneficiaries. One of the most important factors in employing the multi-media approach is strategic planning on the media designing or combination of media should be used for what specific purposes by whom, in order to deliver specific messages to whom.

Some previous studies of diffusion of the Integrated Pest Management revealed that there are gaps in current knowledge of farmers to make good decision on the most suitable method of controlling pests. According to Ho et al. (1990 and 1996), the SEC in the Muda Irrigation Scheme Area had created significant impacts in minimising the weed and pest infestation, i.e. BPH infestation. However, the results have not yet showed that all segment of the farmers have gained an equal technological advantages from the SEC.

Most diffusion studies attempted to determine what effects a particular approach, channel, message, or combination of such elements have on a target audience (Rogers, 1983). The measure of effects as the innovation consequences should not just the average amount of behaviour change or production increase by an innovation adoption but whether the socio-economic groups will gain the equal benefits from it or whether the gaps between the advantaged and disadvantaged become narrower or at least not wider than before the diffusion program. According to Rogers (1983), this phenomena is the second dimension of effects of diffusion of innovation, namely the communication effects gap theory, inspired by the knowledge gap theory of Tichenor et al. (1970).

Based on some the definitions of knowledge gap which were proposed by Gaziano (1983), Lovrich and Pierce (1984) and Hornik (1989), the definition of the KAP-gaps which will be used in this study was the differences in knowledge, attitude, and practice level or scores between the farmers with low and high socio-economic status, computed from the pre and post strategic extension campaign. The measurement will be taken at two points of time for inquiring the causal influence of multi-media factors.

The mass media or multi-media exposure and its messages are the key factors which determine the KAP-gaps phenomena. The multi-media channels have a higher probability of success because different channels serve different needs and redundancy is of intrinsic value (Hornik, 1989). Therefore, the multi-media approach might be a substantial factor in the success of the Strategic Extension Campaign in equalising both communications and beneficial impacts.

The knowledge gap literature accumulated the variables which have potentials in influencing the knowledge gap either to narrow or to widen gaps. According to Tichenor et al. (1970) there are five variables which may account for widening the gaps, namely (1) differences in communication skills between higher and lower SES persons, (2) differences in existing knowledge from prior exposure, (3) differences in amount of social contact either with the change agents or the neighbour relevant to the topic, (4) differences in exposure and retention of mass media information, and (5) middle class-orientation of the print media. Katzman (1975) offers a similar list

which includes (1) differences in communication skills due to differences in education, (2) difference in ability to make use of new information due to differences in the individuals existing knowledge, (3) differences in access to new communication technology due to differences in financial resources, and (4) differences in motivation to use communication resources. Other scholars proposed to emphasise on one of variables, namely: (1) difference in exposure between higher and lower SES (Cook et al., 1975); (2) difference in interest (or salience) of news event (Genova, 1979); and the social contact factors that the gaps widen when discussion of the innovation is limited to the more advantaged substructure.

Thomas et al. (1990) stated that the percentage of acreage irrigated land, the level of education and the amount of gross farm sales were the most important variables explaining such differences on rate of IPM adoption. The farmers with higher education and gross farm sales tended to adopt the IPM technology on cotton owing to find the reducing of cost production under the IPM scheme. In summary, then, the knowledge, attitude, and practice gaps of In summary, this study will be focus on three categories of causal factors, namely (1) individual characteristic factors, such as age, educational attainment, land ownership, income and so on; (2) multi-media related factors; and (3) social activity factors.

Regarding the media exposure, Gaziano (1983) proved that when media publicity is high, sustained, and concentrated, gaps in knowledge may close or be non-existent. Moreover, Moore (1987) and Viswanath et al. (1993) concluded that the sustained flow of information in the campaign and length of campaign have to be taken into consideration. Based on the appropriateness distribution process, frequency of audience and change agent contact and in combination use of the multi-media channels during the campaign, the multi-media flow of information is stable. Thus, the multi-media approach is an appropriate approach concerning the flow of information.

The mass media could affect the knowledge, attitude, and behaviour depending on the mass media exposure. According to Finnegan (1989) the concept of media exposure seeks to capture situation of social condition in which individuals come in contact with messages in particular channels. Individuals may actively seek out certain messages, or they may be exposed to them unintentionally. They may interact directly with a particular message once or repeatedly, and exposure may occur through single or multiple channels or indirectly in interpersonal discussion. The standard approach in operationalizing the media exposure has assessed the number of channels used, frequency of use, and time spent with each channel by using likert-scale (Finnegan, 1989).

Based on the literature review above, This study determined whether the multi-media approach in the BPH control management SEC has narrowed the KAP gaps among the farmers with low and high socio-economic status in Muda Irrigation Scheme Area. It also determined the relationship between farmer characteristics, social activities, and multi-media factors in the SEC and the KAP-level.

MATERIAL AND METHODS

The study was designed as the Pre and Post or Before and After campaign study. The Muda Agricultural Development Authority (MADA)'s Task-Force of Campaign had conducted the KAP-survey in 1996. The total respondents of the

KAP-survey was 528 farmers. The results of these survey were used as the benchmark data of the study. It means that the before campaign data which based on the KAP-survey results was the secondary data of the study.

This study evaluated effects of the campaign. The respondents of this study were the paddy farmers who were the target audience of the BPH Strategic Extension Campaign in the MADA area. A sample of 189 farmers were selected by using the stratified sampling procedures. The instruments of the study were a set questionnaire for both before and after campaign study. The after campaign primary data of this study were gathered through a survey using a set of questionnaire which was designed on the basis of the KAP-survey questionnaire.

The before campaign questionnaire comprised of two main parts, namely farmers' background information and KAP-level measurement. Meanwhile, the after campaign questionnaire comprised of three main parts, namely farmers' background information, KAP-level measurement and the farmer's activity in the Strategic Extension Campaign of BPH Control Management.

The independent variables of this study are age, educational attainment, paddy income, organisational membership, contacts with change agent, cosmopolitaness, the exposure to multi-media, the frequency of using multi-media, the usefulness of multi-media messages, understanding level toward multi-media messages, farmers' perception on the multi-media approach of SEC, and farmers' preference on the printed media. Meanwhile, the dependent variable of the study is the KAP-level.

The farmer respondents were grouped into three groups, namely farmers with low, medium, and high socio-economic status (SES). Since the study is concerned with the KAP-gaps between the farmers with high and low SES which is in line with the communication effect gap theory, the medium SES farmers were excluded from the main data analysis. The ANOVA-test with contrast orthogonal technique, Pearson' product-moment correlation and stepwise multiple regression were employed to test the hypotheses.

Based on the above discussion, the following two main hypotheses will be tested:

- H1 : The KAP-gap after campaign between the farmers with high and low socio-economic status will be lower than that of the before campaign.
- H2 : The KAP-level on the BPH control management technology of the two groups of farmers after campaign will have the relationship with selected independent variables: age, educational attainment, paddy income, organisational membership, contact with change agents, cosmopolitaness, exposure to multi-media, frequency of using multi-media, usefulness of multi-media messages, understanding level toward multi-media messages, farmers' perception on the multi-media approach of SEC, and farmers' preference on the printed media.

RESULTS AND DISCUSSION

This part presents the findings of the study which is divided into two main headings. The first deals with the KAP-levels on the BPH control management technology and KAP-gaps. The second deals with the stepwise multiple regression between the KAP-level and its selected independent variables.

The descriptive analysis results show that respondents range in age from 21 to 80 years with the averages age of respondents with low-SES and high-SES were 53 and 52 years respectively. The mean educational duration of the respondents was about 6 years. Based on these figures, it can be said that the respondents in the two groups were comparable to each other. After the campaign, however, the average income of the farmers with low-SES has increased 24.93%, while the high-SES has increased 20.63%.

Regarding the farmers' social activities, the percentage of the high-SES respondents who hold positions as the committee member of the organisation was 30.8%, while the low-SES respondents was only 15.4%. However, majority (75.9%) of the low-SES respondents was the members of farmers' organisation in their villages. The percentage of the high-SES respondents who made contacted with the change agents was higher than that of the low-SES respondents. The high-SES respondents was also relatively more active in seeking information from outside than the low-SES respondents.

The results show that the percentage of both low-SES and high-SES respondents with regards to the six multi-media variables were no significant difference, except for the farmers' perception on the multi-media approach of SEC. The low SES respondents had relatively higher agreement regarding the positive aspects of the multi-media approach of SEC. It implies that the low-SES respondents was relatively more appreciative of SEC than that of he high-SES respondents.

KAP-level on the BPH Control Management Technology, and KAP-gaps.

Data from Table 1 reveal that the average KAP level of the respondents with low and high-SES before the campaign were 135.26 and 163.33 or 49.18% and 59.39% out of the total score of 275, respectively. Meanwhile, after the campaign, the data show that among the respondents both with low and high-SES, the average of KAP level were 168.94 and 173.01 with the percentage 61.43% and 62.91% respectively.

Comparing the score achievement among the low-SES respondents for each technology components before and after the campaign (Table 1.), the highest growth of score was for the BPH controlling technology (8.55), embankment management (5.87), fertiliser usage technology (5.77), then followed by pesticide technical usage (3.66). In the case of high-SES respondents group, the highest growth of score was for the fertiliser usage (6.04), then followed by BPH controlling technology (3.15). It implies that, after the campaign, the respondents were more aware on how to use the pesticides safely and how to use fertilisers economically and how to control the BPH infestation than that before the campaign.

Table 1. The Mean of KAP-level Before and After the Campaign by Components of Technology

| Components of Technology | Before | | After | |
|------------------------------|--------------------|---------------------|-------------------|--------------------|
| | Low-SES n = 198 | High-SES n = 132 | Low-SES n = 65 | High-SES n = 52 |
| 1. Land Preparation | 11.34 | 11.53 | 11.78 | 12.12 |
| 2. Seed Management | 10.49 | 13.02 | 12.91 | 14.92 |
| 3. Fertiliser Usage | 12.48 | 13.06 | 18.25 | 19.10 |
| 4. Embankment Man. | 24.93 | 28.38 | 30.80 | 27.28 |
| 5. BPH Controlling Tech. | 23.75 | 36.52 | 32.20 | 33.37 |
| 6. Pesticide Tech. Usage | 2.40 | 3.45 | 6.06 | 6.58 |
| 7. Natural Enemies | 21.32 | 25.12 | 25.58 | 26.04 |
| 8. Daily Rice Field Inspect. | 14.95 | 16.52 | 13.18 | 14.31 |
| Farmer's Attitude | 13.60 | 15.73 | 18.18 | 19.29 |
| Total | 135.26 | 163.33 | 168.94 | 173.01 |

Data from Table 2 show that the KAP-gap before the campaign between high and low socio-economic status respondents was 28, but this gap after the campaign was only 5. It could be stated that the KAP-gap between the high-SES and low-SES respondents after the campaign has narrowed under the multi-media approach of SEC.

In Table 2, it is shown that the KAP-change of the high-SES respondents was + 10, but the KAP-change of the low-SES respondents was + 33. It can be explained that the respondents with low-SES tend to acquired information of the technology of BPH control management at a relatively faster rate than that of the high-SES respondents. This implies that the farmers with low-SES obtain relatively higher benefit than that the farmers with high-SES from the multi-media approach of SEC. It could be explained that the information on BPH control management appeal more to the low-SES farmers than the high-SES farmers. The farmers with low-SES have viewed the BPH technology more salient to fulfil their needs.

Table 2. The Mean of KAP-levels, KAP-gaps Before and After the Campaign

| Socio-economic Status of the Respondents | KAP-level Before | KAP-changes After |
|--|------------------|----------------------|
| High SE-Status | 163 (n = 198) | 173 + 10 (n = 65) |
| Low SE-Status | 135 (n = 132) | 168 + 33 (n = 52) |
| KAP- gaps | 28 | 5 |

Based on the result of ANOVA-test presented in Table 3, it was shown that the contrast value of the hypothesis 1 was - 23.99 with t-value - 7.97. Moreover, the probability value showed that the contrast value was significant at p value equal to 0.001. This implies that the KAP-gap after the campaign was significantly lower than before the campaign. It can be said that the multi-media campaign approach of SEC had reduced the KAP-Gap between the farmers with low-SES and high-SES.

The results of the study were in consonance with the statements of Hornik (1989), Adhikarya and Posamentier (1987) and Adhikarya (1994) that the multi-media campaign approach are geared at narrowing the gaps. These findings of the study suggest, therefore, that the multi-media campaign approach could be an appropriate in narrowing the gaps between the high-SES groups and the low-SES groups. The approach has served different needs of the target groups by using an appropriate media channels and an intrinsic value redundancy (Hornik, 1989). Moreover, the multi-media approach started with the KAP survey which is very crucial in providing the baseline data for segmenting the target audience, designing messages and its media channels, and for choosing the technical approach to involve the target audience actively (Adhikarya, 1994).

Table 3. F-value, Contrast Values and t-values of ANOVA test of the KAP-gaps Before and After the Campaign

| Sources | F-value | Signif. | Contrast Values | t | Significant (1 tailed test) |
|-----------------------|---------|----------|-----------------|--------|-----------------------------|
| Combined Hypothesis 1 | 114.99 | 0.001*** | - 23.99 | - 7.97 | 0.001 *** |

1 tailed significant *** = 0.001 ; NS = Not Significant.

Stepwise Multiple Regression Analysis

In the foregoing correlation analysis, twelve selected independent variables were found to be significantly related with KAP-level of the low-SES respondents. Meanwhile, among the high-SES respondents, there were nine of those variables significantly correlated with KAP-level. The stepwise multiple regression results show that out of twelve independent variables, five of those were the strong indicators in sequence for explaining the KAP-level.

Data from Table 4 shows that the multi-media exposure provided the greatest explanation in the variance of the KAP-level of the low SES farmers (with a $\beta_1 = 0.59$ and $R^2 = 0.474$). It means that the low-SES farmers need more of the BPH control management information which were coming from the multi-media channels to encourage their awareness on these technology. It could be explained that by distributing and putting the multi-media channels at the appropriate place, the low-SES farmers will become aware to the new information from those channels.

The finding seems to assert that the farmers who have higher multi-media exposure level were likely to gain higher level of the KAP. The findings agree with Moore (1987), Finnegan (1989), and Viswanath et al. (1990) who concluded that

media exposure and its sustained flow of information have to be taken into account in increasing the knowledge level.

The farmers' perception on the multi-media approach of SEC was the second strongest explanation in variance of the KAP-level of the farmers with low-SES (Table 4). Based on this finding it could be explained that if they had higher perception on the multi-media approach of SEC, they would have achieved higher KAP-level. They must perceive the multi-media approach of SEC positively before they could achieve higher KAP-level.

Table 4. Stepwise Multiple Regression Between KAP-level and Selected Independent Variables of Farmers with Low-SES After the Campaign

| Independent Variables | Beta | T-sig. | R-Squared | F |
|-----------------------------|--------|--------|-----------|-----------|
| Constant | 129.33 | 0.0001 | | |
| Multi-media exposure | 0.59 | 0.0001 | 0.475 | 57.07 *** |
| Farmers' percep. on the SEC | 0.71 | 0.012 | 0.587 | 16.82 *** |
| Organisational membership | 1.88 | 0.024 | 0.663 | 13.65 *** |
| Contacts with change agent | 1.92 | 0.001 | 0.705 | 8.65 ** |
| Paddy income | 0.002 | 0.014 | 0.734 | 6.38 * |

* = 0.05; ** = 0.01; ***= 0.001 Statistical Significant Level

Meanwhile, the results of the stepwise multiple regression analysis of high-SES farmers reveal that the R^2 of the first predictor namely, contacts with change agent was 0.591 with $\beta_1 = 2.40$. It indicates that this variable is the strongest predictor since it explains 59.1% of the variance of the KAP-level of the high-SES farmers (Table 5). It means that the high-SES farmers received more the information on BPH control management from their personal contacts with change agents. This is in line with Roling et al. (1976) who concluded that the change agent tended to contact with the high-SES farmers since the change agent could prove the benefit of the technology under their guidance and could get quick results. It is also supported by the facts that the change agent distributed some multi-media channels through special meeting with the elite of the farmers' group who mostly had higher total operated land.

Table 5. Stepwise Multiple Regression Between KAP Level and Selected Independent Variables of Farmers with High-SES After the Campaign

| Independent Variables | Beta | T-sig. | R-Squared | F |
|----------------------------|--------|--------|-----------|-----------|
| Constant | 151.22 | 0.0001 | | |
| Contacts with change agent | 2.40 | 0.0001 | 0.591 | 72.30 *** |
| Multi-media exposure | 0.45 | 0.0001 | 0.668 | 11.31 *** |
| Organisational membership | 1.92 | 0.0001 | 0.746 | 14.88 *** |
| Paddy income | 0.0001 | 0.005 | 0.778 | 6.78 * |
| Cosmopolitaness | -0.61 | 0.027 | 0.801 | 5.25 * |

* = 0.05; ** = 0.01; *** = 0.001 Statistical Significant Level

CONCLUSIONS AND RECOMMENDATIONS

The KAP-gap between the farmers with low-SES and the high-SES had narrowed after the multi-media campaign. It means that the multi-media approach of SEC is the appropriate approach in increasing the KAP-level and in narrowing the KAP-gap on any the sustainable agricultural technology among those farmers.

The task-force of SEC should design and distribute the multi-media channels in meeting the low-SES farmers needs based on the appropriate interpretation of the KAP-survey results. The relative advantages/dimension of the IPM technology should be emphasised in designing the messages. To ensure the understanding on the multi-media messages, the simple language use and multi-media format have to be taken into consideration. Moreover, those farmers should perceive the importance of multi-media messages through the appropriate design.

To ensure the high KAP-level, the combination of the multi-media exposure with the interpersonal contact is important. The change agents should encourage the farmer's group activity by having regular contacts with the farmers' group. Moreover, the multi-media channels should provide the information on the potential benefits in terms of the income by comparing income figure of those farmers that use *with technology and those farmers without technology application*.

The continuity of the farmer's exposure to the related issues on BPH control management through the appropriate multi-media channels, such as radio, should be well managed by the task-force of the campaign. By exposing the information through the special broadcast in radio, the farmers will more conscious with those related issues. The various kinds of topic discussion on the related issues through group communication channels is recommended.

The comparison of either the KAP-level or KAP-gap of the different communication strategies for IPM technology in the form of before and after study is very crucial. The level of participation of the individual farmers, the farmers' group, and change agent activities in the SEC on the IPM technology should be explored. This could be done also in the form of a comparative study between two areas-one with heavy pest infested area and one with fair infested area.

In short, this study provides the clue whether the multi-media approach of the Strategic Extension Campaign will benefit all segments of the target audience of the campaign. Beyond the previous research, this study provides better understanding of the communication effects gap which was proposed by Rogers (1983) in the IPM issue.

LITERATURE CITED

- Adhikarya, R. (1994). *Strategic Extension Campaign: A Participatory-oriented method of agricultural extension*. Rome: FAO.
- Connell, P.F. (1991). Sustainable Agriculture. In Smith, D.T. (Ed). *Agriculture and the Environment the 1991 Yearbook of Agriculture*. Washington DC. USA. pp 175-185.
- Escalada, M.M., and Heong, K.L. (1993). "Communication and Implementation of Change in Crop Protection. Crop Protection and Sustainable Agriculture". Paper presented in Ciba Foundation Symposium.
- Ettema, J.S., and Kline, F.G. (1977). Deficit Differences and Ceilings: Contingent Conditions for Understanding the Knowledge Gap. *Communication Research Journal Vol. 4 (2)*: pp. 179-202.
- Finnegan, J.R., Viswanath, K., Hannan, P.J., Weisbrod, R., Jacobs, D.R. (1989). Message Discrimination: A Study of Its Use in a Campaign Research Project. *Communication Research Journal Vol.16 (6)*: pp. 770-792.
- Gaziano, C. (1983). The Knowledge Gap: An Analytical Review of Media Effects: *Communication Research Journal Vol. 10 (4)*: pp. 447-486.
- Genova, B.K.L., and Greenberg, B. S. (1979). Interest in News and Knowledge Gap. *Public Opinion Quarterly (43)*: pp. 73-91.
- Hornik, R.C. (1989). The Knowledge Behaviour Gap in Public Information Campaign: A Development Communication View. In Salmon, C.T (Ed). *Information Campaign: Balancing Social Values and Social Change*. Newbury Park. USA. Sage Publication. pp. 113-138.
- Lovrich, N. P., and Pierce. J. (1984). Knowledge Gap Phenomena: Effect of Situation-Specific and Transsituational Factors. *Communication Research Journal Vol. 11 (3)*: pp. 415-434.
- Moore, D. (1987). Political Campaigns and the Knowledge-Gap Hypothesis. *Public Opinion Quarterly (51)*. Pp 186-200.
- Melkote, S. (1991). *Communication for Development in the Third World: Theory and Practice*. New Delhi. Sage Publication.
- Nai-Kin Ho, Zainuddin Zakaria,, Badrun, Guan-Huat Yeoh (1996, July). *Results, Benefits and Lessons Learned From Planning, Implementing and Evaluating Strategic Extension Campaign (SEC) Activities in the Muda Area, Malaysia*. A Paper presented at the International Workshop on Strategic Extension Campaign (SEC): Result Demonstration and Experience Sharing. Penang-Malaysia. pp. 1-16.
- Nai-Kin Ho, Md. Zuki Ismail and Asna Booty Othman (1990, March). *The Implementation of Strategic Extension Campaign on Integrated Weed*

- Management in the MUDA area, Malaysia*, Paper presented in the 3rd International on Crop Protection in the Tropic, Gentings Highlands, Malaysia.
- Rogers, E.M. (1983). *Diffusion of Innovations* (3rd Ed). New York: The Free Press
- Rogers, E.M. (1976). New Perspective on Communication and Development: Overview. In Rogers, E.M (Ed). *Communication and Development: Critical Perspective*. London: Sage. 7-14.
- Servaes, J. (1985). To ward an Alternative Concept of Communication and Development. *Media Development Vol. 32 (4)*: pp. 2-5.
- Tichenor, P.J., Donohue, G.A., and Olien, C.N., (1970). Mass Media flow and differential growth in knowledge. *Public Opinion Quarterly* 34. pp. 159-170.
- Viswanath, K., Kahn, E., Finnegan, J.R., Hertog, J., Potter, J.D. (1993). Motivation and Knowledge Gap: Effect of a Campaign to Reduce Diet-Related Cancer Risk. *Communication Research Journal Vol. 20 (4)*. pp. 546-563.
- Zandpour, F. and Fellow, A.R. (1992). Knowledge Gap Effects: Audience and Media Factors in Alcohol-Related Health Communications. *Mass Communication Review*: pp. 34-41.