

RESEARCH RESULTS UTILIZATION IN VOCATIONAL EDUCATION POLICY MAKING IN MALAYSIA

Wilfredo Herrera Libunao, Adibah Abdul Latif and Crystal Joan Peter

This research assessed the utilization of research findings in technical and vocational education (TVE) policy development process and determined ways to bridge the gap between TVE research and policy making. It employed mix research method: qualitative (focus group discussion, elite interview and in-depth interview; quantitative (using survey questionnaire). The questionnaires were administered to 105 purposively-chosen respondents, who were TVE researchers from 6 polytechnics and 4 universities. The qualitative and quantitative data were analysed using NVIVO version 8 and descriptive statistics using SPSS version 13, respectively. Results show that 77.1% of the respondents do not have knowledge of TVE policy making process and only few (4.8%) have knowledge on whether their research findings were used in TVE policy making. Analysis of the twelve-item-inquiry on the extent of research results utilization indicated that research findings are seldom used in TVE policy making. Several major reasons why research findings are seldom used in policy making were identified. This study was able to identify important things that the researchers can do to promote utilization of their research findings and bridge the gap between research and TVE policy development.

INTRODUCTION

There is growing recognition that education research results are important input to further improve technical and vocational education (TVE) delivery and could be used as basis for charting policy directions, policy advocacy and formulation. Reality, however dictates that the gap between research and policy making remains far and wide.

Although the debate on research utilization for policy decision-making and implementation processes is not new and its features have changed over time, the issue has gained greater prominence in recent decades following the major processes of world change that increasingly call for concrete evidence to support or challenge the innovations that are implemented in a variety of contexts (Almeida & Bascolo, 2006).

Most researches do not possess the characteristics that policy makers find useful (Weiss & Bucavalas, 1980). Moreover, many of the research reports, although relevant and could be utilized to improve practices in the classroom and the system,

Address for communication: **Dr. Wilfredo Herrera Libunao**, Lecturer, Graduate School and Professional Service, Colegio de San Juan de Letran Calamba, Calamba City, Philippines, *E-mail:* libunaowilfredo@yahoo.com. **Dr. Adibah Abdul Latif**, Senior Lecturer, Department of Educational Foundation and Social Sciences, Faculty of Education, Universiti Teknologi Malaysia, MALAYSIA, *E-mail:* p-adibah@utm.my. **Crystal Joan Peter**, PhD Student, Department of Technical and Engineering Education, Faculty of Education, Universiti Teknologi Malaysia, MALAYSIA, *E-mail:* crysjoan@gmail.com.

end up in the bookshelves. Regrettably, those that reached the policy-makers were criticized to be too bulky, or are written in a format and language that is quite incomprehensible to readers, and the subject matter of the reports is of little relevance or interest to policy makers (Morden, 1999; Hanney, *et al.*, 2003). So far, there is no systematic and comprehensive way of disseminating and utilizing TVE research findings in policy making in the Southeast Asian region, Malaysia included. This research therefore, sought to find answers to three key questions:

- a) To what extent are TVE researches being used in policy making?
- b) What strategies should be undertaken to improve research utilization?
- c) How can we bridge the gap between TVE research and policy making?

The interactive/social interaction model of knowledge utilization (Glasser *et al.*, 1983 & Weiss, 1979) served as the research's conceptual framework. The process here is a set of interactions between researchers and users rather than a linear move from research to decisions. Policy networks are seen as providing a useful framework for studying research utilization. The network concepts help to explain the difficulties some research faces in gaining acceptance by users.

METHODOLOGY

The research employed multiple triangulations to ensure or enhance the validity and reliability of the research findings. Specifically, it involved the triangulation of research methods (within-method and between-method), triangulation of data and data sources and investigator triangulation. This study was pursued using mix method: qualitative research (using elite interview, focus group discussion and in-depth semi-structure interview) followed by quantitative research (using survey questionnaire).

The research participants for the elite interview, focus group discussions and semi-structured interview were key officials of Ministry of Education, key officers of Department of Technical Education and Department of Polytechnic Education, respectively. For the quantitative aspect of the study, the respondents were researchers from four Universities and six polytechnics pursuing research in vocational education.

Survey questionnaire composed of closed and open-ended questions was designed based on the results of the qualitative research. The questionnaire was pre-tested involving 30 TVET researchers from one Polytechnic to determine its validity and reliability. Cronbach's alpha reliability coefficient for overall constructs was 0.80 which is higher than 0.70, indicating that all the measures in this research appear to be reliable instruments for the study.

Analysis of qualitative data was done using NVIVO version 8. Further analysis was done using content analysis, theme analysis and simple deductive logic. The quantitative data was analysed using descriptive and inferential statistics using SPSS version 13.

QUALITATIVE RESEARCH FINDINGS

Focus Group Discussion (FGD)

The study pursued two focus group discussions with key officers of Ministry of Education/Higher Education. Results of the FGD sessions indicate that TVE policy making conforms to Leong's (1992) observation that policy formulation in Malaysia is essentially a centrally directed exercise and research is seldom used in the process. The results also suggest that most policy inputs and outputs are systematically determined by the government bureaucracy before proposals are made available to the public for debate and discussion, which are being participated mainly by those in the government ministries, departments and bureaus. Whereby, agenda are being set by key government officials (e.g., ministers) with minimal consultation with stakeholders. The policy process being followed is what experts call "stagist approach", with the following cyclical steps: 1) Agenda setting (Problem identification; 2) Policy formulation; 3) Adoption; 4) Implementation; and 5) Evaluation.

The FGD results, however, showed that implementation and evaluation of policies, albeit lacking, need to be done systematically and purposively. Another important observation is the lack of policy instrument development or written documents detailing the purpose of the policy, who will be involved in the policy implementation, the implementing rules and regulations, etc. The FGD participants recognized this as lacking and in most cases the minutes of the meetings are taken as the policy itself. To further enhance the TVE policy making process, the MOE and MOHE may consider adapting the policy making process of Althaus, Bridgman and Davis (2007), which include the following cyclical steps: 1) Issue identification; 2) Policy analysis; 3) Policy instrument development; 4) Consultation (which permeates the entire process); 5) Coordination; 6) Decision; 7) Implementation; 8) Evaluation

This model is heuristic and iterative. It is intentionally normative and not meant to be diagnostic or predictive. Policy cycles are typically characterized as adopting a classical approach. Accordingly some postmodern academics challenge cyclical models as unresponsive and unrealistic, preferring systemic and more complex models. They consider a broader range of actors involved in the policy space that includes civil society organizations, the media, intellectuals, think tanks or policy research institutes, corporations, lobbyists, etc. (Althaus, Bridgman and Davis, 2007).

Further analysis of the FGD findings also indicated that results of commissioned research and the findings of international research institutions were the most frequently used inputs in the policy process. Local researches, on the other hand, are not fully utilized and are doubted for its quality and relevance. Nutley (2003), Finch (1986), Rogers (1995), and Weiss (1998), as cited by Nutley, Walter &

Davis (2003), mentioned that, attention is more likely to be paid to research findings when: a) the research is timely, the evidence is clear and relevant, and the methodology is relatively uncontested; b) the results support existing ideologies, are convenient and uncontentious to the powerful; c) policy makers believe in evidence as an important counterbalance to expert opinion and act accordingly; d) the research findings have strong advocates; e) research users are partners in the generation of evidence; f) the results are robust in implementation; and g) implementation is reversible if need be. These factors therefore need to be taken into account by both the researchers and users of research findings if only to increase research utilization in TVE policy making.

The FGD participants, when asked at which particular stage of the policy making process does research plays the greatest role, mentioned that it is during the agenda setting stage where research findings could be more useful. While this maybe true, Pollard and Court however contested that there is a potential role for knowledge (research) at each of stage of the policy process (APPENDIX I, Box 1).

It has become more apparent that the FGD participants are not aware of the potential role of research beyond agenda setting. Throughout the FGD sessions, there was no mention of evaluation being done on policy and its implementation. This is also indicative of the reasons why local researches were all the more underutilized.

Elite Interview (EI)

The elite interviewees (three high ranking officers of the Ministries of Education and Higher Education) mentioned that Malaysia TVE policy making is largely centralized wherein policy decisions are made at the Ministry level, with very limited research input or use of research-generated knowledge.

One of the most significant suggestions made by the EI participants for bridging the gap between research and policy making is to capitalize on the recently created “National Professors Council (Majlis Professor Negara)”. The Council was created to form a group of intellectuals exerting influence on the policies or to contribute to decision-making and affairs of the nation. The interviewees viewed that the council could serve as a conduit between the policy makers and the researchers. It was also mentioned that the members of the council are researchers themselves and therefore could be the major source of knowledge for policy making.

The EI participants forwarded the following suggestions for further improving the TVE policy making process and research results utilization:

- Institutionalize the policy review and policy evaluation process in order to ensure that the policies that were issued are implemented accordingly, and determine if it addresses the issues for which it was created. The results of this policy review/evaluation can be used as input in deciding whether

to continue or discontinue the implementation of the policy or whether it needs revision or not.

- To have more linkage with the ministry and the universities, where universities and ministry can work together for more research-based informed decision making.
- The researchers should ensure that their researches are relevant, valid and reliable for it to be considered in policy making.
- Research should be realistic and replicable. Study that can be generalized is far more important and useful in policy formation because it is across the board.
- One way to encourage researchers to conduct research related to policy making is by give them reward or make research as condition for promotion
- Policy makers should be encouraged to make use of the available research findings and communicate their needs to the researchers.

In-depth Interview (IDI)

It was noted that the IDI findings were consistent with those of the results generated from the FGDs and EIs. The IDI participants are one in saying that TVE policy making in Malaysia is largely top-down and commissioned research and international data as the main source of knowledge. But they also mentioned that the use of this research is far-in-between.

The interviewees have a firm belief that for policy to be effective and adaptable it should be based on research for it to have solid foundation. However, most of the IDI participants indicated that researches are not being used or are seldom used in TVE policy making due to lack of information by policy makers about the researches being done or the available research findings. This according to them makes the resulting policies static and not responsive.

One of the logical reasons mentioned by the interviewees for the underutilization of research is the lack of communication between the researchers and the policy makers due to time constraint on the part of the latter. In most cases, they have very limited time to develop the policy, and research for that matter requires a great deal of time before results could be made available for use by the policy makers. The interviewees suggested that both parties should be open to any discussion as regards the area for research and how research could be fully used in policy making. Intellectual forum like seminars and meetings could be a good avenue for both parties to communicate with each other.

In order to enhance the Polytechnic Department's ability to absorb research from various sources (universities, research centres, etc.), the interviewees suggested for the setting-up of a division whose responsibility will be more focused on collecting, sorting, processing and communicating or transmitting the research

findings to policy makers. The division will act as a clearing house and will see to it that relevant research results are communicated properly to the end users.

QUANTITATIVE RESEARCH FINDINGS

Respondents' Research Experience

The most common type of research conducted by the respondents was basic research, followed by applied and action research with frequency of mention of 62, 37 and 23, respectively (APPENDIX I, Table 1).

Results also show that 81% of those with research experience were able to implement a total of 232 researches. It could be noted however that 55% of them have only conducted 2 researches at the time of this survey. This group of researchers were the young staff of both the universities and the polytechnics.

Hanney, *et al.* (2003) reported that applied research might be more readily useable by a policy system than basic research. She opined that applied research is more likely than basic research to be following an agenda driven by forces other than the scientific imperative. Given this information, it is not surprising that research outputs of university and polytechnic researchers are underutilized. The challenge however, is how to encourage the researchers to pursue more applied research useable by the policy system. It might be worth considering giving incentives both for researchers to produce utilizable research, and for policy-makers, at the system or individual level, to use it.

Hanney, *et al.*, (2003) concurred with Trist (1972) in arguing that domain-based research, represented a third category alongside basic and applied research, and is more compatible with attempts to increase utilization by focusing research production on the interests of at least some potential users. Domain-based, or policy-oriented, research is essentially interdisciplinary and the crossing of new boundaries and the creation of new syntheses may advance both knowledge and human betterment.

Respondents' Knowledge of TVE Policy Making

Respondents' general knowledge about TVE policy making was also investigated. The result is very revealing in the sense that, only 22.9% have knowledge about TVE policy making and merely 4.8% have knowledge as to whether their research findings have been or are being used in policy making (APPENDIX I, Table 2). Moreover, only few (8.6%) indicated that they have experience communicating their research findings to policy makers. In like manner, no more than 5% has experience in preparing policy brief based on the results of their research.

Asked on why they were not able or did not prepare policy brief based on their research, 52.4% indicated that "*they do not know how to prepare the policy brief*", while 46.7% "*do not see the importance of policy brief*". On the other hand, 24%

of the respondents said “*their research do not have policy implications*”, while 20% of them gave other reasons.

Policy brief is one of the most common and effective way of communicating the research findings to policy makers. The purpose of the policy brief is to convince the target audience of the urgency of the current problem and the need to adopt the preferred alternative or course of action outlined and therefore, serve as an impetus for action (Young & Quinn, 2002). Given the importance of policy brief, it is therefore necessary to enhance the researchers’ knowledge and skills in designing and preparing policy briefs based on their research findings. Similarly, researchers’ understanding of the TVE policy making process should be enhanced. Knowledge of which will enable them to identify at what stage of the process their research could be useful.

Experts reiterated that there are three most commonly mentioned facilitators of research use: personal contact between researchers and policy-makers (Hanney & Kuruvilla, 2002); the timeliness and relevance of research (Cave & Hanney, 1990); and the inclusion of a summary with clear recommendations (Hanney & Kuruvilla, 2002). The latter would enhance appreciation and understanding of the research findings by the policy makers.

Respondents’ View on the Extent to which Research Findings are utilized in TVE Policy Formulation.

A twelve-item-inquiry was used to determine the respondents’ view on the extent of research utilisation in policy making. Table 3 (APPENDIX II) presents the respondents’ view on the extent to which research findings are utilized in policy making.

Mean scores of *Items 1* and *2* indicate that TVE policies are more often developed based on the directives from top level and prevailing issues without prior research. *Item 12* mean score of 2.33 on the other hand indicates that research results are seldom used in TVE policy development. The respondents however, viewed that results of researches done by special research team at the ministry and the independent research bodies/institutions are occasionally being used in TVE policy making (*Items 5 and 6*).

The respondents also indicated that research are occasionally being done after the policy have been formulated (*Items 1, 4 and 7*). This situation occurs when policy makers are confronted with several alternatives that are perceived as viable, contrasting with a situation where a decision has been taken and the role for research is rather to support this choice (Smith, 2001).

These results further confirm Leong’s (1992) observation that policy formulation in Malaysia is essentially a centrally directed exercise and research has little or no value to policy makers. While the formulation process is somewhat open to public opinion and interest group influence, it is nonetheless a relatively

autonomous administrative act. Leong further stressed that most policy inputs and outputs are systematically determined by the government bureaucracy before proposals are made available to the public for debate and discussion. This policy making process could be described as symbolic argumentation (Miller, 1999) where it is based mainly on reasons of interest, ideology or intellect. Under these circumstances, however, research can still be used to support the policies made and being implemented.

Respondents' Perception on the Utilization of the Research Findings in TVE Policy Formulation.

Results indicate that the respondents are aware of the importance of research in policy making (APPENDIX III, Table 4). They however perceived that "*there are not many researches implemented for that purpose*", *studies conducted are not related to policy making but just for academic purposes*" and "*most researcher-initiated studies are not related to existing policies*" (Items 2, 4 and 5, respectively). These finding is supported by the fact that many of the research findings flow into the pool of knowledge and rarely reach the policy makers. The respondents' disagreement to *Statement 7* further validates this observation.

One probable reason why very few researches are being pursued for policy purposes is the emphases on the traditional academic criteria that dominate the crucial assessments of research performance upon which career advancement and peer recognition depend. The assessment of utilization, therefore, could become a key issue if rewards are to focus on relevance as well as research excellence (Henkel, 2000/1986 & Smith, 2001). Frank (1992) and Bardach (1984) further emphasized the need to give more attention to the role of incentives, both for researchers to produce utilizable research and for policy-makers, at the system or individual level, to pay attention to it.

BRIDGING THE GAP BETWEEN RESEARCHERS AND POLICY MAKERS

Initiatives from the Researchers to meet the Policy Makers' Needs and improve Communication with them.

The respondents were asked to rank eight probable initiatives the researchers can initiate to meet the policy makers' needs and improve communication with them. "*Researchers should get actively involved in any research undertakings initiated by the ministry*" was viewed by the respondents as the most important initiative (APPENDIX III, Table 5). While the initiative, "*Researchers should regularly inform the ministry about their on-going research*" was seen as the least important. It could be noted also that the respondents gave more weight on the initiatives that aims to meet the policy makers' needs (Items a, b and c), having been ranked

as 1st, 2nd and 3rd, respectively, in terms of importance. *Items d, e, f, g and h* pertain to researchers' initiative for improving their communication with the policy makers.

The respondents' view of getting involved in Ministry research and research-related initiatives fits especially well with Weiss's interactive model (Weiss, 1979), and with the view that policy-makers are unlikely to take much notice of research if the first they know about it is when it arrives on their desk (Patton, et. al, 1977).

Experts claimed that previous interaction with researchers and potential users increases the possibilities of the findings moving up the *Ladder of Research Utilization* (Knott & Wildovsky, 1980), and that the building of bridges between researchers and policy-makers is important and could be achieved by 'decision-linked research' (WHO, 1986).

Initiatives from the Ministry/Policy Makers to improve Research Utilisation and improve Communication with Researchers

The respondents' ranking on the seven probable initiatives can be classified in to three: initiatives *a* and *b* are geared towards improving research utilization in policy making, which were ranked 1st and 2nd, respectively in terms of importance; initiatives towards improving ministry/policy makers' communication with researchers (items *d, e* and *g*) on the other hand were ranked 4th, 5th, and 7th in terms of significance; and items *c* and *f* are initiatives that could improve both communication and research results utilisation, which were ranked 3rd and 6th, respectively (APPENDIX IV, Table 6).

The creation of a special task force or an Education Research System (ERS) in Malaysia will undoubtedly result to a more purposive and well coordinated research undertaking thereby enhancing research utilization and communication between communities. As Hanney, Packwood & Baxton (2001) stated, the various actions of individuals can be important, but it is desirable to consider the role of a research system in encouraging or facilitating interactions, networks and mechanisms at a system wide level. Joint research priority setting approaches are one such mechanism. The development of long-term research centres focusing on particular topics is one of the potentially strongest ways an ERS can take action to increase the possibilities of research being used to inform policy. Needless to say, research is less likely to be utilized in a significant way unless networks and mechanisms are established at the interfaces.

CONCLUSION

This research was able to: (a) assess the level by which research results are utilized in TVE policy making in Malaysia; and (b) generate salient courses of actions that could possibly bridge the gap between TVE research and policy making. It could be concluded that a careful consideration of the following factors, rather than recipe-

like approaches, will be needed for successful enhancement of the use of research in policy making.

- Education researches should be shifted from basic to more applied or domain-oriented research as this follows an agenda driven by forces other than the scientific imperative.
- Joint research priority setting should be pursued to link the research to the priorities of the national policy-makers. This will include: a) setting priorities that will produce research that policy-makers and others will want to use; and b) setting priorities that will engage the interests and commitment of the research community.
- Much attention must be given on improving the interface between researchers and users of research considering the differing values and interests between two communities, with different time frames.
- One of the key reasons why researchers are less inclined to conduct policy-oriented research is the lack of incentive for doing so. It is therefore important and urgent to set-up incentive schemes that will reward researchers whose findings are being used in policy formulation. This will also call for changing the criteria for assessing research outputs where relevance (i.e, utilization) and excellence are given equal importance.
- The setting-up of special task force or an education research system to improve research utilization in policymaking is all but necessary. It could encourage or facilitate interactions, networks and mechanisms at a system wide level.

References

- Almeida C. & Báscolo E. (2006). Use of research results in policy decision-making, formulation, and implementation: a review of the literature. *Cad. Saúde Pública*.
- Althaus, C., Bridgman, P. & Davis, G. (2007). *The Australian Policy Handbook* (4th edition) by Althaus, Bridgman and Davis. Allen and Unwin Press, 83 Alexander St, Crows Nest NSW 2065.
- Cave M. & Hanney S. (1990). Performance indicators for higher education and research. In: *Output and Performance Measurement in Government* (Edited by Cave M, Kogan M, Smith R) London, Jessica Kingsley Publishers.
- Crewe, E. & J. Young. (2002). *Bridging Research and Policy: Context, Evidence and Links*. Overseas Development Institute. 111 Westminster Road, London, SE1 7D, UK.
- Bardach E. (1984). The dissemination of policy research to policymakers. *Knowledge: Creation, Diffusion, Utilization*, 6: 125-145.
- Frenk J. (1992). Balancing relevance and excellence: organizational responses to link research with decision-making. *Soc Sci Med*, 35: 1397-1404.

- Glaser, E.M., Abelson, H.H., & Garrison, K.N. (1983). Putting knowledge to use: Facilitating the diffusion of knowledge and the implementation of planned change. San Francisco: Jossey-Bass.
- Hanney S. & Kuruville S. (2002). HRSPA Project 4: Utilisation of research to inform policy, practice and public understanding and improve health and health equity. WHO/Wellcome Trust Technical Workshop. London.
- Hanney S., Packwood T. & Buxton M. (2000). Evaluating the benefits from health research and development centres: a categorization, a model, and examples of application. *Evaluation: The International Journal of Theory, Research and Practice*, 6: 137-60.
- Hanney, S.R., Gonzalez-Block, M. A., Buxton, M. J. and Kogan, M. (2003). The Utilization of Health Research in Policy-Making: Concepts, Examples and Methods of Assessment. *Health Research Policy and Systems* 2003, 1:2.
- Henkel M. (1986). Excellence versus relevance: the evaluation of research. *International Journal of Institutional Management in Higher Education*.
- Henkel M. (2000). Academic Identities and Policy Change in Higher Education. London, Jessica Kingsley Publishers.
- Leong, H. K. (1992). Dynamics of Policy-Making in Malaysia: The Formulation of The New Economic Policy and The National Development Policy. *Asian Journal of Public Administration* Vol.14 No.2 (Dec 1992): 204-227.
- Landry R., Amara N., & Lamari M. (2001). Climbing the Ladder of Research Utilization: Evidence from Social Science Research. *Science Communication* 2001, 22:396-422.
- Miller D. (1999). Risk, science and policy: definitional struggles, information management, the media and BSE. *Soc Sci Med*, 49: 1239-1255.
- Morden C. (1999), From Research to Policy Action. Paper presented during the "Regional Workshop on Agricultural Policy, Resources Access and Human Nutrition," 3-5 November 1999, Africa.
- Nutley, S., I. Walter & Davies, H. (2002). 'From knowing to doing: A Framework for understanding the evidence-into-practice agenda', *Discussion Paper* 1. Research Unit for Research Utilization, University of St Andrews. Linked to the ESRC Network for Evidence-based Policy and Practice. Accessed: <http://www.st-and.ac.uk/~cppm/KnowDo%20paper.pdf>. (15.5.02).
- Patton M. Q, Grimes P., Guthrie K., Brennan N., French K., & Blyth D. (1977). In search of impact: an analysis of the utilisation of federal health evaluation research. In: *Using Social Research in Public Policy Making* (Edited Weiss C) Lexington, Lexington Books.
- Smith R. (2001). Measuring the social impact of research. *BMJ*, 323: 528.
- Trist E. (1972). Types of output mix of research organisations and their complementarity. In: *Social Science and Government: Policies and Problems* (Edited by Cherns AB, Sinclair R, Jenkins WI,) London, Tavistock Publications.
- Weiss C. (1979). The many meanings of research utilization. *Public Adm Rev*, 39: 426-431.
- WHO. (1986). Improving health care through decision linked research: Application in health systems and manpower development. Part II: Options for implementation, Geneva: Doc. No. HDM/86.4.2 (OMS).
- Young E. & Quinn L. (2002). Writing Effective Public Policy Papers: A Guide to Policy Advisers in Central and Eastern Europe. Published in Budapest by Local Government and Public Reform Initiative.

APPENDICES

APPENDIX I

BOX 1: POTENTIAL ROLE FOR KNOWLEDGE (RESEARCH) AT EACH STAGE OF THE POLICY PROCESS (POLLARD AND COURT 2005).

- At the agenda-setting stage, knowledge is used to identify new problems or highlight the magnitude of a problem; uptake of knowledge is enhanced if it is crystallized around a policy narrative, and credibility and communication are shown to be important. There has been a lot of work from the third paradigm on agenda-setting: for example, as well as Kingdon's model (below), Cobb and Elder (1972) argue that an unequal distribution of influence generally leads to systematic biases in the range of issues considered, sustained by significant pre-political forces.
- At the formulation stage knowledge plays a role in structuring various alternative policy options, and in suggesting the causal links between the policy and its outcomes; the quantity and credibility of the evidence is important, and analyses of costs and benefits tend to be required.
- At the implementation stage operational knowledge functions to improve the effectiveness of initiatives; it needs to be relevant and generalizable across different contexts, and directly communicated with those implementing policy. Grindle and Thomas (1990) emphasise that in developing countries the implementation phase is often the most crucial aspect of the policy process, with political economy being a central determinant of policy outcomes and implementation.
- Evaluation functions to monitor and assess the process and effects of an intervention; objectivity or independence are important for accountability functions.

TABLE 1: TYPE AND NUMBER OF RESEARCHES CONDUCTED BY THE RESPONDENTS (N=105).

<i>Type and Number of Research Conducted</i>	<i>Frequency (f)</i>	<i>Percentage (%)</i>
Type of Research*		
Basic	62	45.9
Applied	37	27.4
Action	23	17.1
Others	13	9.6
Number of Research Conducted		
0 (Never)	14	13.3
1	36	34.3
2	22	21.0
3	8	7.6
4	8	7.6
5	3	2.9
6	2	1.9
7	2	1.9
10	2	1.9
15	1	1.0
20	1	1.0
<i>Missing Value</i>	6	5.7

*Multiple responses

TABLE 2: RESPONDENTS' KNOWLEDGE ABOUT TVE POLICY MAKING AND THE USE OF TVE RESEARCH IN POLICY MAKING (N=105)

<i>Knowledge about</i>	<i>Frequency (f)</i>	<i>Percentage (%)</i>
a. VTE policy making		
Yes	24	22.9
No	81	77.1
b. Utilization of research findings in policy making		
Yes	5	4.8
No	97	92.4
Missing	3	2.8
Experience in		
a. Communicating research findings to policy makers		
Yes	9	8.6
No	96	91.4
b. Preparing policy brief		
Yes	5	4.8
No	100	94.3

APPENDIX II

TABLE 3. RESPONDENTS' VIEW ON THE EXTENT TO WHICH RESEARCH FINDINGS ARE UTILISED IN TVE POLICY FORMULATION.

<i>No</i>	<i>Item</i>	<i>Mean</i>	<i>Level*</i>	<i>SD</i>
1	Policies are formulated based on directives from top level management and then followed by research.	3.77	F	1.05
2	Policies are often formulated based purely on issues.	3.65	F	1.11
3	Policies are often formulated based on directives from higher ranking officials.	3.55	O	1.28
4	Policies are formulated based on issues and then followed by research.	3.26	O	1.05
5	Research for the formulation of a policy is being conducted by a special research team at the ministry level.	3.19	O	1.05
6	Independent research bodies/institutions pursue research on policies developed and results are feedback to the government for input in policy formulation.	3.07	O	1.02
7	Research is being used to determine the significance of the decision after the policy has been formulated.	3.05	O	1.14
8	Researches being done by dedicated unit at the ministry level that are intended for policy making involve researchers from other institutions.	3.04	O	0.97
9	Policies formulated were based on administrative evidences rather than research findings.	3.04	O	1.07
10	Researchers from universities/polytechnics actively do the research as an attempt to give information to ministry/policy makers.	3.01	O	1.06
11	The ministry encourages the researchers to determine important issues that would need new policy.	3.00	O	1.09
12	Policies are formulated based on the results of local researches done by individual researchers.	2.33	S	1.05
	Overall	3.19	O	0.62

*F= frequent (mean score of 3.64-5); O= occasional (mean score of 2.34-3.63); S= seldom (mean score of 1-2.33)

APPENDIX III

TABLE 4. RESPONDENTS' PERCEPTION ON THE UTILISATION OF THE RESEARCH FINDINGS IN TVE POLICY FORMULATION.

<i>No</i>	<i>Item</i>	<i>Mean</i>	<i>Rating*</i>	<i>SD</i>
1	Research findings play a big role in policy formulation.	3.63	A	1.10
2	There are not many researches implemented/conducted for the purpose of formulating policy.	3.35	A	1.15
3	Researcher-initiated studies focus largely on the effectiveness of existing policies.	3.34	A	0.81
4	Studies conducted are not related to policy making, but just for the sake of academic purpose.	3.24	A	1.19
5	Research reports that are kept at the Ministry are extensively being used as inputs for policy making.	3.07	A	0.81
6	Most researcher-initiated studies are not related to existing policies.	3.00	A	0.90
7	Policies formulated were carefully planned based on sound and extensive research.	2.26	D	1.02
	Overall mean	3.22	A	0.53

* Disagree (mean score 1–2.5); Agree (mean score 2.6–5.0)

TABLE 5: INITIATIVES FROM THE RESEARCHERS TO BRIDGE THE GAP BETWEEN RESEARCH AND TVE POLICY MAKING

<i>Rank</i>	<i>Initiatives</i>
1	a. Researchers should get actively involved in any research undertakings initiated by the ministry.
2	b. Researchers should be critically aware of the issues that have policy implication in doing their research.
3	c. Researchers should ensure reliability and validity of their researches for them to be considered by the policy makers.
4	d. Researchers should actively attend seminars/conferences/workshops organized by the Ministry.
5	e. Researchers should establish and maintain contacts with policy makers.
6	f. Researchers should take the initiative in presenting or communicating their research findings to policy makers.
7	g. Researchers should establish and maintain contacts with policy makers.
8	h. Researchers should regularly inform the ministry about their on-going research.

APPENDIX IV
 TABLE 6: INITIATIVES FROM THE MINISTRY/POLICY MAKERS TO BRIDGE
 THE GAP BETWEEN RESEARCH AND TVE POLICY MAKING

<i>Rank</i>	<i>Initiatives</i>
1	a. Special Task Force need to be formed to provide a link between policy makers and researchers so that research can be done in parallel with the formulation of the planned policy.
2	b. The involvement of the University/Polytechnic/College Community researchers should be intensified so that more studies are carried out in line with policy to be formulated.
3	c. Increase collaboration between policy makers, researchers, academicians and independent research institutions.
4	d. Policy makers should inform and get feedback from universities, polytechnics or community colleges about the policies to be formulated.
5	e. The Ministry/policy makers should involve the researchers in discussing issues related to policies being formulated.
6	f. Research unit in the Ministry should regularly update the policy makers on available research findings.
7	g. Strengthen the two-way communication process between policy makers and researchers (e.g., through seminar, workshop, meeting, forum, policy debate, etc).