# IMPACT TRAINING ON KNOWLEDGE DISSEMINATION ON TEACHING AND LEARNING IN MALAYSIAN HIGHER EDUCATION

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***ABSTRACT***

*This research, grant by Akademi Kepimpinan Pengajian Tinggi Malaysia (AKEPT). The purpose of this paper is to reveal the impact of AKEPT Training Program on lecturers toward their contribution on knowledge dissemination processes among peers and colleagues at faculty level. Data were collected from 519 academics from all IPTA, IPTS, in Malaysia during AKEPT Teaching and Learning training within 2008 to 2009. The study found only three out of ten elements of knowledge dissemination processes show a significant level ( more follow-up after training p= 0.037, supervisor involve me after training p= 0.27 and more confident after training p= 0.037). Where another finding show that another seven elements of knowledge dissemination processes somewhat have less change (asking questions, suggest ides in T&L, involve peers, making a decisions, hold group meeting, taking more time to transform planned into implementation and takes time to reflect). All element are moderately practiced by lecturer at MoHE. As conclusion, this paper raises awareness and provides initial guidelines to the AKEPT's as training centre for all lecturers to improve knowledge dissemination strategies in their local university. In suggestion, intensive organizations in formulating strategies on how to properly implement and manage their pedagogical knowledge dissemination processes are open to be explore. This study has extended in pedagogical knowledge dissemination for it is probably the first to provide a comparative analysis between AKEPT's Training Centre and local teaching and learning training centre. It further opens up new lines of future research possibilities.*

***Keywords:*** *knowledge dissemination processes, pedagogical knowledge, perceive competence, training.*

## 1.0 INTRODUCTION

Impact training on knowledge dissemination on teaching and learning in Malaysian higher education is one of the Akademi Kepimpinan Pengajian Tinggi (AKEPT) study. Pertaining to the transformation plan 2007-2015, AKEPT Centre for Teaching and Learning, provides depth training into the processes on teaching and learning. This study measure the significant on knowledge dissemination among peers and colleagues in teaching and learning at faculties. It discuss how peers and colleagues disseminate knowledge after gained new information and knowledge from AKEPT tanning. In order to transform traditional model in to transformational leadership in teaching and learning, which have been effective at distinguishing those who are more academically talented from those who are less so, in developing the pedagogical content knowledge talents of all lecturer, knowledge dissemination processes will require the creation of "knowledge-rich", evidence based education systems, in which dean, head of the department, senior lecturers, young lecturers, tutor, language advisor and the entire faculty learn how to disseminate knowledge and act as a professional community with the authority to do so, the necessary information to act wisely, and have access to effective support systems to assist them in implementing change in teaching and learning.

AKEPT teaching and learning study focused on the knowledge dissemination process among lecturers and teaching and learning environment at faculties stage. It's aimed to help AKEPT to review and develop policies that foster the conditions for effective training in teaching and learning. AKEPT focused on higher education lecturers and the head of department of their faculty and seeks to provide policy-relevant data and analysis on the following key aspects of knowledge dissemination process:

- involve supervisor
- involve peers
- confident level
- asking questions
- suggest ides in T&L
- making a decisions
- hold group meeting
- taking more time to transform planned into implementation and
- takes time to reflect

In view of the important role that lecturers leadership can play in creating effective faculty, AKEPT describes the role of peers and colleagues and examines the support they give to their subordinate. Because retaining and developing effective lecturers is a priority in all university systems, AKEPT looks at how lecturers' work recognized, appraised and rewarded and how well their professional development needs are being addressed. Finally, AKEPT provides insights into the beliefs and attitudes about teaching and learning that lecturers bring to the classroom and the pedagogical practices that they adopt. AKEPT is a collaborative effort by member universities of the MOHE and partner countries which has been conceptualized as a programmed of this study. This report presents the results from AKEPT study, which was implemented in 2008-2009.

### 1.1 Literature Review

The theory of knowledge dissemination is based on knowledge creation. Underlying this cycle is based on the theories of David Kolb, Reg Revans, Chris Argyris, and Jean Piaget; and on close observation of organization but that have, in one way or another, embedded knowledge creation into their everyday activities. It is now well understood that learning from experience takes place in an ongoing cycle. For example, people may take action, observe and reflect upon the result (reflecting), draw conclusions (Abstracting/Connecting), choose a new action to execute and learn from (deciding), and then again move back to the action stage. There are many individual "wheels of learning" for more about them, see the fifth Discipline Field book, p.58. Also see organizational learning: A Theory of Action Perspective, Chris Argyris and Donald Schon (Reading, MA: Addison-Wesley1978). Experiential Learning, by David Kolb (Englewood Cliffs, NJ: Prentice-Hall 1984). ABC of Action Learning, by R.Revans (London: Chartwell-Bratt, 1983); Action learning: New Techniques for Management, by R. Revans (London: Blond &Briggs, 1980); and The Developmental Psychology of Jean Piaget, by John Flavell (New York:Van Nostrand Reinhold, 1963).

### 1.2 Conceptual Design

**Training Evaluation Model -Kirk Patrick 1994**

Assessing training effectiveness often entails using the four-level model developed by Donald Kirkpatrick (1994). According to this model, evaluation should always begin with level one, and then, as time and budget allows, should move sequentially through levels two, three, and four. Information from each prior level serves as a base for the next level's evaluation. Thus, each successive level represents a more precise

measure of the effectiveness of the training program, but at the same time requires a more rigorous and time-consuming analysis. Table 1 below show an overview of the four levels of training evaluation.

**Table 1:** Provides an overview of the four levels of evaluation

| | What | Who | When | How | Why |
|---|---|---|---|---|---|
| Level 1 | Reaction: Did they like it? | Participants | End of Program | "Smile Sheet" | Determine level of customer satisfaction; may indicate need for revision. |
| Level 2 | Learning: What knowledge | Participants; trainer | During, before/after program | Pre-test/post-test; skills application | Identify whether trainer have been successful in delivery of course content and achieving program objectives. |
| Level 3 | Behaviour: how are they performing differently? | Participants; bosses; subordinates; peers | 3 to 6 months after program completion | Surveys; interviews; observation; performance appraisal | Determine extent to which participants have transferred hat they learned in the session to the actual work situation. |
| Level 4 | Results: What is the impact on the bottom line? | Participants; control group | After completion of Level 3 follow-up | Cost/benefit analysis; tracking; operational data | Determine whether benefits outweigh costs; ascertain degree of contribution of program to organizational goals. |

Level 3 measures the transfer occurred in learners' behavior due to the training program. Evaluating at this level attempts to answer the question - Are the newly acquired skills, knowledge, or attitude being used in the everyday environment of the learner? For many trainers this level represents the truest assessment of a program's effectiveness. However, measuring at this level is difficult as it is often impossible to predict when the change in behavior will occur, and thus requires important decisions in terms of when to evaluate, how often to evaluate, and how to evaluate.

## Knowledge Application as a Learning Process in Transformation

The recent work on social cognition has shown clearly that information is processed in wondrous ways, few of which are replicative of the original information… The gist of this more recent work is roughly that

individuals--alone or in organizations-- transform and use research in highly selective and strategic ways (Huberman, 1987, p. 589).

The perspectives on knowledge use described by Hutchinson and Huberman in the preceding section draw from a learning theory known as *constructivism*,; which has moved to the forefront of educational theory in recent years. Constructivist principles, for example, underlie many of the reform-based approaches emerging in mathematics and science education, as well as in other disciplines. Some of the basic concepts of constructivism can be found in ideas about knowledge utilization dating back to the 1970s and before; Hutchinson (1995) notes that "the constructivist perspective is evident in various models of knowledge utilization including social interaction, practical discourse, two communities, technocratic counsel, and theories-in-use models" (p. 92).

Another common image is that of the learner as sponge, "soaking up" knowledge--a role that is somewhat more active than that of empty vessel, although what the learner absorbs is taken in wholesale, without filtering or processing. A metaphor often used in this era of technology is that of the brain as a computer, which processes in an orderly, systematic fashion the information that is received from outside sources. In this analogy the learner actively does something to or with the information, which can be presumed to be altered in appearance, if not in substance, from the form in which it was originally received.

According to constructivist principles, none of these metaphors adequately describes the ways in which we as learners process information. Constructivism presumes that new knowledge is filtered and shaped by the learner's pre-existing experience and understandings. Learners, from the youngest children to the oldest adults, are constantly seeking to make sense of the environment; to do so, we "construct" explanations that make sense based on our personal experiences. Knowing, then, "is an adaptive activity" (von Glasersfeld, 1995, p. 7), concerned with reaching functional understandings about the various aspects of living:

Taken as the advancement of understanding, the cognitive endeavor starts from what happens to be currently adopted and proceeds to integrate and organize, weed out and supplement, not in order to arrive at truth about something already made but in order to make something right--to construct something that works cognitively, that fits together and handles new cases, that may implement further inquiry and invention. (Bauersfeld, 1995, p. 163).

As Driver (1995) explains, "Human beings construct models of their environment, and new experiences and information are interpreted and understood in relation to existing mental models or schemes" (p. 386). The metaphors that suggest constructivist perspectives, then, are those of *building*; and *shaping*; new structures. In writing about the impact of the learning process on the dissemination of research, Huberman (1990) states:

Prior knowledge does not operate like a sponge, sopping up new information… Rather, prior understandings are the mold into which new information is poured, such that the new understandings may not correspond to the researcher's conception of his own study (p. 380).

From a constructivist perspective, the task of getting learners to change their pre-existing understandings begins with helping them to recognize--and to be bothered by--the "discrepancies" that Ackerman discusses. As Shapiro (1994) points out, "In order to take on a new viewpoint, one must decide to let go of an old one. There must be a reason to decide to make a shift in thinking" (p. 7). Sechrest et al. (1994), in applying this understanding to the task of dissemination, note that if practitioners "are not in a state of uncertainty about a problem" (p. 187) the mere provision of information is not likely to lead to changes in behavior. Backer (1994) makes the point even more bluntly: "People and organizations develop the energy to change when faced with real pain… whether the nature of change is personal (psychotherapy) or work-related (organizational change, implementation of an innovation)" (p. 7).

## 2.0 METHODOLOGY

Data were collected from 519 academics from all IPTA, IPTS, in Malaysia during AKEPT Teaching and Learning training within 2008 to 2009. The nature of the respondents show in Table 1.Data in this study show that more man respondents 64.7% in this study, and almost 40% of the entire respondents come from age within 35-44 years old. Lecturer group showed the biggest 48% peers and colleagues. It also showed that almost 49% of respondents have less then 5 years length of services.

**Table 1**: Background of the respondents

| | Frequency | Percent (%) |
|---|---|---|
| Gender | | |
| Male | 336 | 64.7 |
| Female | 183 | 35.3 |
| Age group ( years ) | | |
| <25 | 48 | 9.3 |
| 25-34 | 105 | 20.2 |
| 35-44 | 207 | 39.9 |
| 45-54 | 108 | 20.8 |
| 55 and above | 51 | 9.8 |
| Rank of Colleagues | | |
| Assistant Lecturer | 69 | 13.3 |
| Lecturer | 243 | 46.8 |
| Senior Lecturer | 99 | 19.1 |
| Associate Professor | 72 | 13.9 |
| Professor | 36 | 6.9 |
| Length of service ( years) | | |
| 0-5 | 255 | 49.1 |
| 6-10 | 105 | 20.2 |
| 11-20 | 72 | 13.9 |
| 21-30 | 60 | 11.6 |
| 31 and above | 27 | 5.2 |

Table 1 above shows that there are four groups of professional teaching colleagues. Lecturer, indicates the highest rank, which is 46.8% whereas senior lecturer states 19.1%, is the second highest rank. Others like professor is recorded 6.9% and associate professor is recorded 13.9%. All rank of colleagues act as peers group in knowledge dissemination processes.

## 3.0 RESULT AND DISCUSSION

From a constructivist viewpoint, the extent to which an individual's existing understandings may be "right" or "wrong" is essentially irrelevant; what matters is how well those understandings work in helping the person make sense of her or his environment. One of the major theorists of constructivism, von Glasersfeld (1995) explains: "To the biologist, a living organism is viable as long as it manages to survive in its environment. To the constructivist, concepts, models, theories, and so on are viable if they prove adequate in the contexts in which they were created" (pp. 7-8). Ackerman (1995) elaborates on this idea, explaining that "from a learner's point of view, there are no such things as misconceptions. There are only discrepancies, either between points

of view or between a person's activity and some unexpected effects of this activity" (p. 342).

What is "adequate" for one individual (or organization) may vary as well. The user's self-interest and self-image sometimes include considerations that conflict with what may, in terms of efficiency or cost benefits or effectiveness of operation, appear to be the "best" solution. Merely telling people that their ideas or practices are wrong, or ineffective, or outdated, or that a better mousetrap is available to replace the one they are currently using, is generally an inadequate approach to encouraging change.

The research on utilization is quite clear: the meaning of research is constructed by the user… Individuals translate research findings through the lens of prior knowledge and understanding, making sense of new knowledge in the context of their daily activities. It is research on learning that is the foundation of understanding knowledge utilization. We [the educational research community] should be the *last*; to offer simple access or supply-side solutions to promoting utilization. We should be the *first*; to view use as a complex change process in which "getting the research out there" is only the first step (p. 138).

In discussing the practical implications of this perspective, Fuhrman argues for two major changes in current practice: "First, we should focus more on the context of knowledge users, and second, we should strengthen the integration between research and dissemination" 1994 (p. 138). In addition, Buttolph (1992), in an article focused on the ways in which potential users adapt research results, notes that constructivism--which she calls *generative learning*;--changes traditional ideas about the stages at which potential users begin (often unconsciously) to reshape, or adapt, research findings to fit their previous understandings:

Experts have agreed that adaptation takes place later rather than sooner in the diffusion process… Because generative learning begins at the knowledge stage of diffusion, which is the first stage (Rogers, 1983, p. 165) however, I suggest that adaptation begins during the knowledge stage as well. The seeds of adaptation are sown in the initial diffusion stages, during first awareness and interest; later, when individuals adopt and implement the innovation wholeheartedly, they have already changed it to fit their particular situation (p. 468).

Task is a general term used for all work done by pupils in relation to a subject that has been or is being studied. In a good lesson, teachers not only teach the talk or lecture but involve students in teaching and

learning. In addition, involvement in moving the students to draw attention, to ask question, and to use the knowledge that they have, to do assignment or task are also one of the direct involvement of students. An assignment to be given to pupils must be relevant to the subject being taught, and have certain objective. By knowing the objective of assignments that students will be able to carry out their duties properly (Atan Long, 1980).

The level of professionalism of teachers or lecturers is also very important in effectiveness of teaching and teacher leadership, the level of educational planning, development studies and finally the assessment of pupils to view their learning. Lecturer should also be prepared by his basic common knowledge, knowledge in the subject, and knowledge and new discoveries in environmental education. Through efforts to increase professionalism, teachers will recognize themselves, realize the strengths and weaknesses and know how to style their own to realize the potential as a lecturer. This is how the style should be tailored to students' actions - which can be flexible (Rosenshine, 1970).

**Table 2:** Knowledge Application and Dissemination Process

Part 1 -Elements and Issues Related to the Dissemination Process

| ISSUES IN EFFECTIVE DISSEMINATION Before and After Training (Change of Performances Behaviour in T&L) | DATA TRANGULATION | | | Paired Differences | | | | |
|---|---|---|---|---|---|---|---|---|
| | Level 3 Perceive on own T&L Before and After Training (Change) | Level 3 Supervisor Assessment on your T&L Before and After Training (Change ) | Level 3 Students Assessment on your T&L Before and After Training (Change) | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | t | df | Sig. (2-tailed) |
| 32-How often did you ask your peer/ colleague for suggestions or ideas regarding the change in teaching and learning? | Somewhat Less (2) | Somewhat Less (2) | Somewhat Less (2) | -.457 | .286 | -.461 | 46 | .647 |
| 33-Do you do more follow-up to the T&L change process in your institution to make sure it is going in the right direction? | Much more Change (5) | Much more Change (5) | Much more Change (5) | -.660 | -.021 | -2.143 | 46 | .037 ✪ |
| 34-How often have you involved your peer/ colleagues by asking them for T&L suggestions or ideas? | Somewhat Less (2) | Somewhat Less (2) | Somewhat Less (2) | -.324 | .282 | -.141 | 46 | .888 |
| 35-How often did your superior involve you in the departmental T&L process? | Much more Change (5) | Much more Change (5) | Much more Change (5) | -.600 | -.038 | -2.284 | 46 | .027 ✪ |
| 36-How often did you involve peers/ colleagues in the T&L? | Somewhat Less (2) | Somewhat Less (2) | Somewhat Less (2) | -.432 | .219 | -.658 | 46 | .514 |
| 37-Did you have tendency to put off making T&L decisions? | Somewhat Less (2) | Somewhat Less (2) | Somewhat Less (2) | -.547 | .164 | -1.086 | 46 | .283 |
| 38-Did you hold T&L group meetings with peers/ colleagues? | Somewhat more (4) | Much more Change (5) | Somewhat Less (2) | -.627 | .031 | -1.821 | 46 | .075 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 39-Did you have confidence in the T&L decisions you made? | Much more Change (5) | Much more Change (5) | Much more Change (5) | -.660 | -.021 | -2.143 | 46 | .037 ✪ |
| 40-Did you use a planned T&L approach in decision making (taking more time to define the problem to develop an answer)? | Somewhat Less (2) | Somewhat Less (2) | Somewhat Less (2) | -.507 | .124 | -1.220 | 46 | .229 |
| 41-Did you take time to reflect results of a T&L decision? | Much more Change (5) | Somewhat Less (2) | Somewhat Less (2) | -.603 | .008 | -1.962 | 46 | .056 |

**Elements and Issues Related to the Dissemination Process**

32/54. The results show that most of the participants of the AKEPT programme responded higher percentage of *no change* for asking suggestion from their peers after the programme (33%; 40%) as compared to before. This implies that academics may not feel comfortable asking or sharing information. The cultural problem is in fact considered a major challenge in change management initiatives among the HEIs because many faculty members consider knowledge as proprietary and something that is not shared freely (Wind & Main, 1999). On the other hand, it may also be due to the superiority in knowledge that the participants felt as compared to their peers after attending the programme which inhibits them from consulting their peers.

33/55. Most of the participants stated that a follow up was done somewhat more after the AKEPT programme compared to before it (31%; 44.68%). The results imply that training provides better direction to participants to check and balance their teaching and learning process. According to Apelman (1986), Productive teachers are those who can build a conductive learning climate in which students enjoy learning and can master what they are supposed to master. Teaching is looked upon as an art, and productive teachers are looked upon as artists who can motivate their students, and to nurture in them [the students] the interest to learn and find out more about the subject being taught.

34/56. The results show that after the AKEPT programme, most of the participants somewhat did not consult their peers in teaching and learning as compared to before the training (45%/ 44.6%), but this figure is just minimal. This could be due to the confidence the participants felt after the programme which may make them feel superior in knowledge as compared to their peers, thus, less consultation. On the other hand, it could also be due to the knowledge hoarding culture of academics (Wiig, 1997) which inhibits them from knowledge sharing.

35/57. Surprisingly, most of the superiors remained the same towards the participants in relation to involving them in teaching and learning

process, in fact the percentage increased for *no change* (38%; 51%). This may be due to fear that superiors face in relation to change in the management that their down line may bring after the training conducted (Trice and Beyer 1993). This can only be done when teachers know themselves as individuals and can adapt their own unique characteristics to the elements of the situation, and the context of their teaching. It is the duty of a lecturer to give lecture and develop his teaching to realize the maximum potential that the students can be. Teacher effectiveness can be seen not only from successive in teaching in the classroom or includes everything outlined in the syllabus, but is success to guide students through the control subjects and raised the interest to learn more of the listed besides launching poses gaining knowledge in these areas (Rahimah Haji Ahmad, 1992).

36/58. Most of the participants similarly projected *no change*, in fact more (33%;46%) when asked how often they included colleagues and peers in teaching and learning process. This again could be due to the confidence the participants felt after the programme which may make them feel superior in knowledge as compared to their peers, thus, less consultation. On the other hand, it could also be due to the knowledge hoarding culture of academics (Wiig, 1997) which inhibits them from knowledge sharing.

37/59. Most of the participants projected higher *no change* before the AKEPT training compared to after (42%; 36%) for this question. This could be due to the benefits that are derived from the training that guides them not to procrastinate teaching or research activities.

38/60. Most of the participants projected higher no change before the AKEPT training compared to after (29%; 53%) for this question. This could be due to the fact that the training makes them visionary leaders on their own and consultation with peers may be seen as waste of time when they could figure out problems by themselves. However, there is a negative connotation to this, in that it could be viewed that some faculty members view knowledge as a possible source of differentiation, and thus defer sharing certain aspects of their knowledge. Unfortunately, however, when knowledge is viewed as a source of power it acts as a "separator" between the haves and the have-nots (Wiig, 1999) and in some cases, knowledge loss occurs.

39/61. Most of the participants responded that their confidence increased after the AKEPT programme some what more compared to before it (45%; 48%). Although this figure may be minimal, but it is a step towards moulding the participants to be a confident educator. Beliefs

about how learning takes place are often articulated as metaphors. The tabula rasa,; the image of the human mind as a blank slate to be written upon, was once the most common metaphor; this theory of learning also has been characterized as "the bucket theory of the mind" (Backman, 1982), in which the brain is viewed as an empty vessel into which knowledge is poured. Shapiro (1994) notes that "despite the fact that the 'blank slate' view of the learner is not well regarded, it is still the view underlying the practice seen most often in school settings" (p. 8). Much the same can be said about dissemination practice in rehabilitation and in other fields.

40/62. Most of the participants responded that they used planned approach in decision making somewhat more after the AKEPT training compared to before it (45%; 48%). Again all though this figure may be minimal, but it is a step towards moulding the participants to be more systematic in their teaching and learning efforts.

41/63. Most of the participants responded that they took time to evaluate their teaching decisions somewhat more (43%; 46%) after the AKEPT programme compared to before it. This implies that the AKEPT training trains them to reflect on their teaching decisions in order to be better knowledge disseminators.

## 4.0 IMPLICATION AND SUGGESTION

The average ratings on knowledge application and dissemination in the institutions of higher learning (IHLs) advocate that although the academics practice the KM processes, it is far from satisfactory to ensure its competitive edge. Hence, aligned with the IHLs' nature and objectives, it is timely for IHLs to institutionalise a KM programme in order to improve all the KM processes. Moreover, the academics must be given proper training, and training is not possible unless the top management has formalised the KM programme in the institution. The IHLs must not only rigorously attempt to improve its current processes, but also to innovate them (Biloslavo, 2005). This is because if KM processes continues to be observed moderately as done currently in the IHLs surveyed, knowledge loss may result. Knowledge loss will result in loss of the ability to efficiently make decisions, and often ability to serve customers well (Wiig, 1997).

Although IHLs are regarded independent bodies, in that they are autonomous in creating and implementing their own regulation, MOHE still plays a role as facilitator and lead partner in enhancing

the higher education network. As a lead partner MOHE does not only provide strategic direction, it also offers the support necessary to ensure the success of the institutions (National Higher Education Action Plan, 2007). Hence, the average mean values for knowledge application and dissemination implies that AKEPT has a vital role to kick start the knowledge management initiatives so as to enhance IHLs' competitive advantage to anticipate further changes that will require yet more redesign in the institution's forms and practices. Moreover, AKEPT has to also conduct training on culture in order to nurture knowledge sharing among academics. Currently, this may not have been done fully or successfully given the results of this study.

**Four Dimensions of Knowledge Utilization-Further Research**

While no all-encompassing theory or explanation of knowledge utilization has been described and tested, the literature includes a great deal of information that can help to strengthen dissemination efforts. Within the varied perspectives about dissemination, authors generally consider some combination of these four major elements to be explore for next future such as:

- the dissemination *source*; that is, the agency, organization, or individual responsible for creating the new knowledge or product, and/or for conducting dissemination activities,
- the *content* or message that is disseminated, that is, the new knowledge or product itself, as well as any supporting information or materials,
- the dissemination *medium*; that is, the ways in which the knowledge or product is described, "packaged," and transmitted, and
- the *user* or intended user, of the information or product to be disseminated.

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