

Brave New World for University Educators: Effects of Pedagogical Training on Teaching at Higher Education Level

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Abstract

Mastery of content knowledge and expertise in research are no longer the only requirements expected of university educators. Knowledge of a range of pedagogical skills is also elemental to ensure effective delivery of instruction, enabling meaningful transfer of knowledge takes place. Recognizing the need to develop and upgrade its academics' pedagogical knowledge and skills, Universiti Malaysia Sarawak (UNIMAS), in 2002, initiated a Postgraduate Diploma in Teaching and Learning program (PGDip in TL) with the objectives of developing and enhancing its academics' knowledge, competence and performance in teaching. This paper presents the findings of a study which investigated the effects of pedagogical training, specifically the PGDip in TL program on UNIMAS' academics approaches to teaching. Implication of the findings on the design and development of pedagogical training modules for university educators is also addressed.

Keywords: Approaches to Teaching, Pedagogical Training, Higher Education

Introduction

That teaching and learning are the core businesses in any university (Zawawi Ismail, 1996) is a fact which cannot be denied, and they are the means from which quality graduates who exhibit life-long learning and autonomous learning skills could be developed. Executing the teaching and learning processes effectively would take the university a step closer towards excellence (Confesorre, 2008). Nonetheless, it is not uncommon for the practice of teaching at higher education institutions to be overshadowed by the scholarship of research. Accolades are often awarded to university educators based on breakthroughs unraveled from the findings of their research, and more often than not, it is the quantity of research, the amount of financial grants secured and the list of publications churned from research endeavors which are considered as key indicators of their academic excellence. It is also typically assumed that university educators who excel in research would provide their learners with a more up-to-date knowledge about the content area they specialize in, piquing further the learners' intellectual curiosity and interest for knowledge (Brew, 1999; Wei, Chen & Zhao, 2007). However, findings from research on the relationship between research productivity and teaching effectiveness have

shown conflicting results, suggesting that the age old debate on the effect these two scholarly activities have on one another is far from over (Barton, 2006; Marsh & Hattie, 2002; Perry & Smart, 1997).

It is also pertinent to acknowledge that the context of higher education is changing in tandem with the changes that are taking place in the society (Varghese, 2004). University graduates are expected to play a more active role in contributing to the advancement and growth of nation's knowledge economy. Thus, to stay relevant, programs of study or courses offered at higher education level must not only be redesigned to include knowledge and skills that are up-to-date in the area of study, they also must be delivered in a way that enables meaningful transfer of learning taking place in actual workplace settings.

It is the contention of this paper that expertise in research should not be perceived as the only requirements expected of university educators. Their knowledge of a range of pedagogical skills is also elemental to ensure effective delivery of instruction be carried out. Studies in recent years have indicated the need for attention to also be accorded to the development of university educators' pedagogical thinking and skills (Postareff, Lindlom-Ylänne & Nevgi, 2007; Trigwell, Prosser & Waterhouse, 1999; Prosser, Trigwell & Lyons, 1997). Such renewed emphasis on the practice of teaching at higher education is driven by the premise that the instructional approaches adopted by university educators in their delivery of content knowledge have important implications on the type of learning approach adopted by their students, which subsequently would affect achievement of their learning outcomes (Stes, Coertjens & Van Petegem, 2009; Postareff et al., 2007; Trigwell et al., 1999).

Approaches to Teaching at Higher Education Level

Approaches to teaching refer to the instructional strategies by university educators in their classroom teaching and learning. Teaching approaches are often influenced by the beliefs or conceptions held about what teaching means (Postareff, Katajavuori, Lindblom-Ylänne & Trigwell, 2008; Lindblom-Ylänne, Trigwell, Nevgi & Ashwin, 2006; Ho, Watkins & Kelly, 2001; Kember, 1997). Those who view teaching as the transmission of knowledge are regarded as having strategies of teaching that are more teacher-focused, whilst those who view it as learning facilitation are considered to be more student-focused in their adoption of teaching strategies. University educators who adopt a more teacher-focused stance, which is also known as the content-focused approach, are primarily concerned with the organization, presentation and testing of the content knowledge (Gibbs & Coffey,

2004). On the other hand, those whose approaches to teaching are more student-focused tend to use strategies that support and facilitate student learning. In the student or learner-focused approach, students are not regarded as passive recipients of information; instead, they are encouraged to become independent learners via construction of own knowledge and understanding (Postareff et al., 2007).

The type of teaching approach adopted by university educators is further argued to have a bearing on the type of learning approach adopted by their learners. When remembrance of the content becomes the intention for learning, the approach adopted is regarded to be surface in nature. Students who operate on a surface approach to learning are described to be more preoccupied with the need to rote learn the content taught because the intention is on the completion of the learning task, not on its conceptual understanding (Struyven, Dochy, Janssens, Gielen, 2006; Entwistle, McCune & Walker, 2001). On the other hand, students who adopt a deep learning approach are more focused on the sense-making process of the learning content. Higher quality learning outcomes have also been reported to be related to deep approaches to learning. This is because the underlying intention is to understand and develop more sophisticated conceptions of the subject matter (Struyven et al., 2006; Gibbs & Coffey, 2004). Surface and non-deep approaches to learning are indicated to be strongly associated with the teacher-focused approach to teaching; on the contrary, the student-focused teaching approach is associated with a non-surface approach to learning (Gibbs & Coffey, 2004; Trigwell et al., 1999).

Teaching approach adopted by university educators may also vary according to the context of teaching they are in. The student-focused approach is argued to be associated with those educators from the 'soft' disciplines, such as the social sciences and humanities, whereas those from disciplines such the physical sciences, engineering and medicine, typically referred to as the 'hard' disciplines, are prone to adopting the teacher-focused outlook towards university teaching (Lindblom-Ylänne et al., 2006).

Educators whose teaching approaches incorporate both the teacher and student-focused strategies are described as having a dissonant teaching profile (Postareff et al., 2008). This means that both approaches can co-exist in the teaching practices of the university educators, although such a situation could lead to provision of lower quality learning experiences for the learners, characterized as being the result of poorer teaching, higher workloads, and less clear goals (Prosser, Ramsden, Trigwell & Martin, 2003). In other words, when the conception of teaching or the beliefs held about teaching does not match with the type of strategies adopted for teaching, lower quality student learning outcomes would be derived. In contrast, higher quality outcomes would be expected when there is consonance in the university

educators' approaches to teaching. Therefore, efforts to promote more consonant learning-focused teaching among university teachers must be intensified so that a positive influence on the quality of student learning can be achieved (Postareff et al., 2008).

Pedagogical Training for University Teaching

Qualification in teaching is not ordinarily considered as a requisite for becoming university educators (Postareff, Lindblom-Ylänne & Nevgi, 2008). The levels of expertise these educators have in the content area of study often take precedence over their ability to effectively teach the content area to the learners. Content knowledge refers to the knowledge of concepts, theories and ideas, as well as established practices and approaches towards developing such knowledge (Koehler & Mishra, 2009; Shulman, 1987). Although described as one of the fundamental knowledge bases for teaching, content knowledge alone would not be sufficient to ensure effective teaching and learning can be realized. Knowledge of the pedagogy, specifically the pedagogy in relation to the content, the pedagogical content knowledge, is equally pertinent for university educators to acquire. Pedagogical knowledge refers to the deep knowledge about the principles and strategies used in the teaching and learning process which may transcend subject matter (Koehler & Mishra, 2009), whereas pedagogical content knowledge is the knowledge of principles and strategies of teaching that are suitable for the learning of specific content. It is "the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to diverse interests and abilities of learners, and presented for instruction (Shulman, 1987, p.8).

Recognizing the need for development and improvement of university educators' pedagogical knowledge and skills, many countries, including Malaysia (AKEPT, 2009) have made decisions to put in place compulsory pedagogical training for their university educators (Sonesson & Lindberg-Sand, 2006; van Keulen, 2006; Coffey & Gibbs, 2000). The focus of such programs is mainly on the development of pedagogical knowledge due to the diversity of the content expertise which educators who participated in the programs have.

Whether or not pedagogical training of university educators would have any effect on their conceptions of and approaches to teaching has become an emerging question in current research on university teaching (Stes et al., 2009; Postareff, Lindblom-Ylänne & Nevgi, 2007; Coffey & Gibbs, 2004; McArthur, Earl & Edwards, 2004; Ho, Watkins & Kely, 2001). Although evidence in literature on the effect of pedagogical

training on university educators' teaching practices is scarce, the findings reported thus far seem to suggest that there is some effect of such training programs on the educators' conceptions of and approaches to teaching at the university level. Gibbs and Coffey (2004), in their study on the impact of such programs on university educators' teaching approaches, reported that pedagogical training can increase the extent to which the educators adopt a student-focused approach as well as improve a number of aspects of their teaching. Using the Approaches to Teaching Inventory (ATI), an instrument which measures teaching approaches of university educators, their study further revealed that a change in approach towards becoming more student-centered can be observed upon involvement in pedagogical training programs. A similar outcome was reported by Stes et al., (2009) who looked at the effects of an instructional development program on the teaching approach of beginning university educators. Their findings showed that differences in teaching approach were evident between beginning educators who had participated in the program and those who did not. A change towards a more student-focused approach was also observed amongst educators from the 'hard' disciplines at the end of the training. The research outcome reaffirms the claim that changes in teaching conceptions and approach can be facilitated via pedagogical training programs. This change process, however, is viewed to be gradual and must be supported via provision of intensive pedagogical training (Postareff et al., 2007).

Context of Study

Since its inception in 1992, Universiti Malaysia Sarawak (UNIMAS) has strived to become an exemplary university of internationally acknowledged stature and a scholarly institution of choice for both students and academics through the pursuit of excellence in teaching, research and scholarship. Being a young public university in the country and the first in the state of Sarawak, UNIMAS' academics are generally younger and have lesser years of teaching experience at the higher education levels compared to the majority of the academics at other established universities in the country (CALM, 2006). As a forward looking university, UNIMAS, however, has embarked on a university-wide endeavor to assure its academics are able to demonstrate excellence in pedagogical skills by offering an in-house Postgraduate Diploma in Teaching and Learning (PGDip in TL) in 2002.

The PGDip in TL program, conducted by the Centre for Applied Learning and Multimedia (CALM) is offered to all UNIMAS' new academics and those without formal training experience in teaching. Among others, the objectives of the program are to train UNIMAS' academics in teaching and learning in a systematic and formal basis, to establish a long term commitment toward teaching and learning

that is consistent with UNIMAS teaching and learning policies, and to develop a culture of collaborative academic environment that places commitment to excellence in teaching and learning (CALM, 2006). Seven modules were designed and each addresses a pertinent component of university teaching. The modules are “Introduction to University Teaching”, “Principles of Teaching and Learning”, “Instructional Design”, “Management of Teaching and Learning”, “Assessment of Learning”, “Educational Technology”, and “Teaching Practice”.

Purpose of Study

Based on the exit surveys carried out at the end of each pedagogical training module, the participants of the PGDip in TL program had expressed satisfaction towards their learning experiences in the program (CALM, 2006). However, to date, there has not been any systematic study carried out to determine the impact of the pedagogical training on the academics approaches to teaching at UNIMAS. This present study aims to identify the approaches to teaching adopted by UNIMAS’ academics before their participation in the PGDip in TL program and investigate the impact of the pedagogical training they had received on their approaches to teaching at the respective instructional settings at UNIMAS.

Research Design

A cross-sectional research design using researcher-administered survey questionnaire, adapted from the Approaches to Teaching Inventory (ATI) by Trigwell and Prosser (2004) and Trigwell, Prosser and Ginns (2005) was employed in this study. This 22-item instrument, measured on a five-point Likert scale, was chosen as it enables identification of qualitatively different conceptions of teaching (Postareff et al., 2007). The ATI consists of two scales, namely the Information Transfer/Teacher-focused scale and the Conceptual Changes/Student-focused scale. Each of these scales also contains two subscales – *Intention* and *Strategy* subscales. The participants in this study were asked to respond to the items in relation to the teaching context they were in before and after involvement in the PGDip in TL program.

Study Participants

To date, more than 200 UNIMAS’ academics have attended the PGDip in TL program since its first implementation in 2003. However, only 74 of them were available for involvement when this study was conducted as the rest have either left

the university or were on study leave. All eight academic faculties at UNIMAS and one centre, which is the Centre for Language Studies, were represented in list of the study participants. The survey questionnaires were distributed to and collected from these academics via their respective faculty's assistant registrar's office. A two-week period was given to the academics to complete the survey. At the end of the given timeline, only 32 completed questionnaires were received, yielding a 43.2% response rate.

A descriptive analyses of the participants' demographic distribution was carried out and it was revealed that 90.6% (n = 29) of them had never attended any pedagogical training prior to the PGDip in TL program. The analysis also showed that 53.1% (n = 17) of the participants were from study disciplines which are typically referred to as 'hard' disciplines, such as Engineering, Medical and Health Sciences, Resource Science and Technology, and Computer Science and Information Technology. The other 46.9 % (n = 15) of the participants, however, were from the 'soft' disciplines, such as Economics and Businesses, Cognitive Sciences and Human Development, Social Sciences, and Applied and Creative Arts. Academics from the Centre for Language Studies are also grouped into this category. The participants' number of years teaching at higher education level ranged from less than a year (9.4%) to more than 10 years of experience (6.3%). In addition, 46.9% of them (n = 15) have between one to three years of working experience as university educators, whereas the remaining 37.5 % have between four to six years of working experience at higher education level.

Results

The ATI consists of two scales, namely the Information Transfer/Teacher-focused (ITTF) scale and the Conceptual Changes/Student-focused (CCSE) scale. The participants in this study were asked to respond to the items in relation to the teaching context they were in before and after involvement in the PGDip in TL program. Based on the responses, the internal reliabilities of the scales were computed using Cronbach Alpha coefficients. The Cronbach Alpha values ranged from 0.842 to 0.940 as shown in Table 1 and were considered adequate for research purposes (Nunnally, 1978). These reliability values were comparable to those reported in previous studies using ATI such as the values of 0.70 reported by Postareff et al., (2008).

Table 1. *Cronbach Alpha values for various sections of the questionnaire.*

		Approaches to Teaching Inventory (ATI)			
		ITTF (Pre)	CCSF(Pre)	ITTF (Post)	CCSF (Post)
Cronbach	Alpha	0.842	0.940	0.919	0.948
values					

Note:

(1) ITTF: Information Transmission/Teacher-Focused Approach

(2) CCSF: Conceptual Change/Student-Focused Approach

The mean scores for the two scales of ATI (ITTF and CCSF) before and after attending the PgDip in TL program were calculated and compared as shown in Table 2. The before-after differences for both the teacher-focused and student-focused approaches were statistically significant. The participants of the workshop reported that their instructional approaches became less teacher-focused and more student-focused after they had completed the workshop.

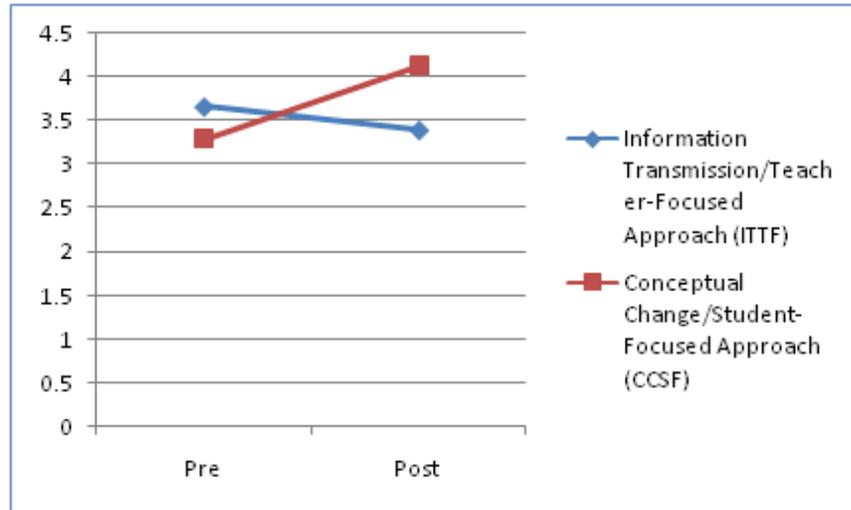
Table 2. *Approaches to teaching before and after attending the PGDip in TL program.*

	ITTF-Teacher-Focused Approach			CCSF- Student-Focused Approach		
	Mean	SD	n	Mean	SD	n
Before	3.66	0.719	32	3.29	0.801	32
After	3.39	0.597	32	4.13	0.611	32
Change	-0.27			0.84		
<i>t</i>	-2.656			6.533		
<i>df</i>	31			31		
<i>p</i>	0.012*			0.000***		

Note: * significant at 0.05; *** significant at 0.001

Figure 1 plots the above data and shows that the changes in the instructional approaches, as reported by the participants of the PgDip in TL program.

Figure 1. Line graph depicting changes in scores on ITTF and CCSF before and after attending the program.



A split plot subject analysis of variance (SPANOVA) was conducted with the first independent variable, time of answering the ATI (pre and post PgDip with TL) and the second independent variable being the participants' disciplines of studies (science versus humanities). The dependent variable is the scores on ATI. The means and standard deviations for the ATI scores are presented in Table 3.

Table 3. Mean and standard deviations of the ATI scores

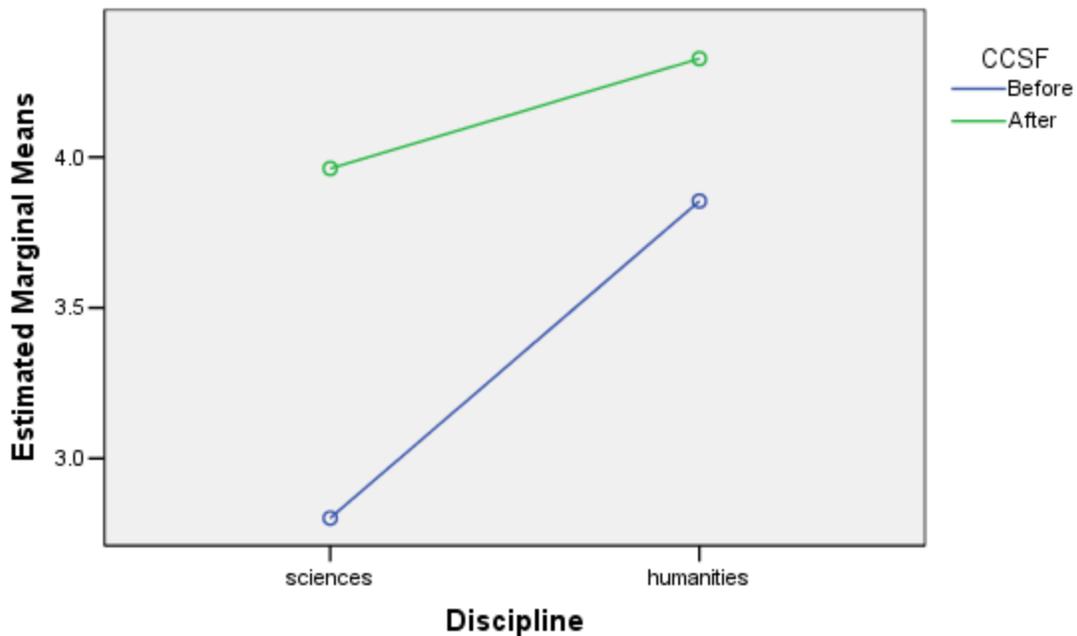
Discipline	n	ITTF-Teacher-Focused Approach				CCSF-Student-Focused Approach			
		Before		After		Before		After	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Hard	17	3.67	0.655	3.25	0.553	2.80	0.645	3.96	0.645
Soft	15	3.64	0.809	3.55	0.621	3.85	0.561	4.33	0.517

For differences in ITTF (Teacher-Focused Approach) scores between the hard and soft disciplines, after satisfying the assumptions for carrying out the SPANOVA analyses comprising of non-significant Box's M statistic (p-value = 0.440), Mauchy's Test of sphericity (p-value = 0.450), and Levene's test homogeneity of variance (p-value = 0.754 and 0.981), it was found that there were no differences in their ITTF scores between lecturers from the hard and soft disciplines ($F=0.429$, p-value = 0.517), although there was a significant decrease for the ITTF scores from before and after attending the PgDip in TL program (Wilk's $\lambda = 0.813$, p-value= 0.014). There

was also no significant interaction between the two variables (Wilk's $\lambda = 0.913$, p-value = 0.101).

For differences in CCSF (Student-Focused Approach) scores between the soft and hard disciplines, after satisfying the assumptions for carrying out the SPANOVA analyses comprising of non-significant Box's M statistic (p-value = 0.635), Mauchy's Test of sphericity (p-value = 0.560), and Levene's test homogeneity of variance (p-value = 0.597 and 0.536), it was found that there were differences in the before and after CCSF scores between lecturers from the hard and soft disciplines ($F=15.7$, p-value < 0.0005). In addition there was a significant increase for the CCSF scores from before and after attending the PgDip in TL program (Wilk's $\lambda = 0.371$, p-value < 0.0005). There was also a significant interaction between the two variables (Wilk's $\lambda = 0.769$, p-value = 0.005).

Figure 2 plots the scores for CCSF before and after attending the PgDip in TL program and the disciplines of the participants. The participants from the hard disciplines indicated lower level of student-focused approach for both before and after attending the PgDip in TL than those in the soft disciplines but the changes from less to more student-focused approaches was more prevalent for participants from the hard disciplines.



Discussions

The finding of this study indicated that the participants of the PGDip in TL program reported that their instructional approaches became less teacher-focused and more student-focused after they had completed the program. Thus, this finding lend support to the views that pedagogical training had some effects on university educators' conceptions of and approaches to teaching at the university level (Stes et al., 2009; Postareff et al., 2004; Coffey & Gobbs, 2004). In addition, it was similar to the findings reported by Gibbs and Coffey (2004) that pedagogical training can results in educators adopting a student-focused approach to teaching at the tertiary level.

Furthermore, it has been suggested that university educators from the hard disciplines are prone to adapting more teacher-focused approach to teaching than those from the humanities disciplines (Lindblom-Ylänne et al., 2006). To a certain extent this was supported by the findings in this study. It was reported that prior to attending the PgDip in TL program, participants of the study reported almost similar scores for the Teacher-Focused Approach scale of ATI but for the Student-Focused Approach scale, the ratings by the participants from the hard disciplines were much lower than those reported by those from the soft disciplines. Thus, it would appear that educators in the hard disciplines practiced less Student-Focused Approach in their classes than their counterparts from the soft disciplines. However, for both disciplines, the participants indicated that they showed more Student-Focused Approach and less Teacher-Focused Approach in their teaching after attending the PgDip in TL program, indicating that a positive impact of the program. Thus, this finding provide evidence to support the continuance of the efforts to develop and improve university educators' pedagogical knowledge and skills carried out in UNIMAS and other universities in Malaysia (AKEPT, 2009).

The results of the survey essentially provided evidence for two issues in academic training of pedagogy. Firstly, the participants reported that their instructional approaches gradually shifted to become more student-centered after they attended the training program. This is markedly clear from academics who came from both hard and soft disciplines. Secondly, participants from the hard disciplines reported a lower level use of student-focused instructional approaches when compared to those from soft disciplines. The result may have been attributed to the nature of these disciplines, in that the soft disciplines tended to use student-oriented tasks such as small-group discussions, reflective journals, collaborative group projects and so forth.

Conclusions

The UNIMAS strategy to equip its educators are consequently affecting its students and courses, as the educators are gradually conscious and responsive to the needs of a good and effective learning experience for their students. It is hoped that the postgraduate diploma program will continue to become an integral part of the academic development initiative in UNIMAS. As the number of its academics learn and use the knowledge and skills in pedagogy to match their content knowledge in their respective disciplines, the quality of teaching and learning at the university shall mature and progress in line with the aspirations of UNIMAS to become contemporary and forward-looking in the aspects of teaching and learning in the country.

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