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Educational supervisors' metaphorical roots of beliefs about teaching and learning

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Beliefs are a complex psychological construct that have potential to drive a person to make decisions and act. A person's metaphors can serve as roots of their beliefs. In this study, the metaphor construction task (MCT) was utilized to uncover beliefs about teaching and learning held by 216 educational supervisors from 10 provinces in the central region of Thailand. The follow-up interview was also conducted with 22 participants to further explore and validate data. The metaphors constructed by the participants were coded and categorized and then counted for frequencies and calculated for percentages. The results revealed four favorite metaphors held by the participants, that is, teacher as gardener, captain/driver, sculptor and coach. Two dominant metaphor categories were the teacher is seen as moulder/craftsperson and nurturer/cultivator. However, about one-third of the participants viewed teacher as knowledge provider or superior authoritative figure which inclined to be teacher-centered. Educational supervisors' beliefs are metaphorically rooted and culturally influenced. The implications regarding the MCT and metaphor analysis are also discussed.

Key words: Metaphor, belief, teaching and learning, educational supervisor, teacher education.

INTRODUCTION

Supervision is generally regarded as an essential part of education system. It is an activity considered to be one of important factors for continuous development and improvement in education. Providing effective supervision is required to maintain and promote quality education in accordance with the educational goals of the country (Yilmaz et al., 2009).

Since 1952, Thailand had been established a supervisory unit in the ministry of education and recruited a number of educational supervisors. Presently, there are about 3,700 educational supervisors in Thailand and this number tends to be increasing. The educational supervisors are responsible to arrange professional meetings with teachers, discuss about educational and teaching problems, and provide guidance and problem-solving, and teacher professional training.

In 1999, Thailand initiated the learning-reform movement

by launching the National Education Act B.E. 2542, which strongly emphasizes student-centered teaching and learning. Therefore, one major responsibility of educational supervisors is to promote and help teachers to enact student-centered teaching. To do this, at first, educational supervisors themselves must possess student-centered beliefs. The study of educational supervisors' beliefs about teaching and learning is consequently needed. However, exploring teaching and learning beliefs is regarded as a difficult task because of the complex nature of beliefs. Up to this, metaphor construction is proposed as an alternative method for exploring beliefs about teaching and learning (Saban, 2006). Nevertheless, there is no study that deals with educational supervisors' beliefs about teaching and learning revealed by metaphors. Accordingly, the central focus of this study is to explore educational supervisors'

metaphorical beliefs about teaching and learning. The findings of this study may be subsequently used as stepping stones for driving the educational reform.

LITERATURE REVIEW

Beliefs about teaching and learning

Beliefs are regarded as a psychological construct that include understanding, assumptions, images, or propositions a person feels to be true (Green, 1971; Kagan, 1992; Richardson, 1996) that highly related to personal, episodic, and emotional experiences (Nespor, 1987). Importantly, beliefs function as a filter that a person uses to interpret derived experience and to guide decision making and subsequent action (Hancock and Gallard, 2004; Pajares, 1992; Richardson, 1996). Accordingly, beliefs are widely accepted as the most important determinant of human behaviour (Brown and Cooney, 1982). Human beliefs and behaviour possibly interact in an ongoing way and change in a reciprocal way—change in beliefs can bring about change in behaviour, or vice versa (Guskey, 1986; Levitt, 2001).

Whether being consciously or not, educational supervisors possess a variety of educational beliefs including teaching and learning beliefs that may grow as a result of personal experiences both in and out of school (Kagan, 1992; Nespor, 1987). Based upon the extant studies, beliefs about teaching and learning can be classified into two major groups: teacher-centered and student-centered. The main characteristic of teacher-centered beliefs is knowledge transmission: a teacher teaches by delivering content of a subject to students through lectures; and students learn by memorizing content transmitted from the teacher. In contrast, the student-centered beliefs emphasize knowledge construction: a teacher is a facilitator who manages appropriate learning activities and environment; and students learn by constructing their own knowledge. The proportion of teacher-centered and the student-centered beliefs held by educational personnel are diverse across contexts of studies (Hancock and Gallard, 2004; Levitt, 2001; Tsai, 2002; Van Driel et al., 2007; Weber and Mitchell, 1996; Wong et al., 2009).

An important task of teacher educators is to help educational supervisors cultivate teaching and learning beliefs that are in line with the reform movement, that is, student-centered beliefs. So that, educational supervisors can help teachers enact the student-centered in their classrooms that eventually drive the learning-reform movement in a larger scale. Based on constructivism, a person's prior beliefs can influence the belief modification. To help educational supervisors cultivate student-centered beliefs, first of all, teacher educators should elicit educational supervisors' prior beliefs about

teaching and learning. However, a belief elicitation task is appeared as a very difficult task because of the complex or nested nature of beliefs.

Complex or nested nature of beliefs

Beliefs are complex and nested within belief systems. Each belief system may consist of several groups or clusters of beliefs (Green, 1971). People incline to order their beliefs into clusters whether or not they are consciously aware of doing this. Teachers, as an example, may hold both the general-education and the domain-specific belief clusters (Van Driel et al., 2007).

Green (1971: 48) asserted that belief clusters are "more or less in isolation from other clusters and protected from any relationship with other sets of beliefs". Unlike knowledge systems, belief systems do not require a general consensus. Some people may apparently combine beliefs from different clusters to form their belief systems, while some may consciously hold conflicting belief clusters within the same belief system. These conflicting belief clusters may remain so as long as they are not examined against one another. For instance, many teachers seize conflicting teaching beliefs such as teacher-centered versus student-centered and utilize them in different teaching situations and purposes (Van Driel et al., 2007).

To unearth the complexity construct as beliefs about teaching and learning deeply rooted in belief systems, it requires the utilization of an alternative technique such as metaphor construction. The following part describes the characteristics of metaphor and its implication in a belief elicitation task.

METAPHORS AS ROOT BELIEFS ABOUT TEACHING AND LEARNING

In general, metaphors represent a linkage between two dissimilar ideas (the concrete and the abstract) or the projection of one schema (the source domain of the metaphor) onto another schema (the target domain of the metaphor) (Lakoff and Johnson, 1980). A metaphor acts as a lens or a filter through which a thing is viewed and becomes a mental model for thinking about it in light of another (Saban et al., 2007). Thus, metaphors serve a similar purpose to beliefs. People tend to understand their world through metaphors, which relate complex phenomena to something previously experienced. As Lakoff and Johnson (1980: 233) stated, people seek out their personal metaphors: to highlight and make coherent what we have in common with someone else ... and make coherent our own pasts, our present activities, and our dreams, hopes and goals as well. A large part of self-understanding is the search for appropriate metaphors

that make sense of our lives.

Metaphors convey richness of meaning such as mood, control, roles, attitudes, and beliefs that are deeply rooted in individual minds (Gurney, 1995). People sometimes unconsciously hold metaphors that lie beneath the surface of awareness and serve them as a means for framing and defining experience (Hardcastle et al., 1985). Accordingly, an examination of an individual's metaphors can reveal his or her tacit beliefs, mental models, cultures, and inner worldviews, which literal language cannot accomplish (Gurney, 1995; Moser, 2000).

In education, teacher educators can employ metaphors as a cognitive tool to gain holistic insights into their educational professional thinking (Saban et al., 2007; Tobin and Tippins, 1996). Requiring educational personnel to construct teaching and learning metaphors may help them reveal their root beliefs about teaching and learning and recognize the relationship between, and the complexity of, teaching and learning (Leavy et al., 2007).

Written metaphors alone may not be sufficient to understand such a complex construct as beliefs. In combination with written metaphor, metaphor drawing can fulfill the belief elicitation task because it can express a drawer's ineffable, elusive, or sub-conscious meaning that is not easily put into words (Weber and Mitchell, 1996). In this study, both written metaphor and metaphor drawing are combined into an alternative method called "the metaphor construction task (MCT)".

EDUCATIONAL SUPERVISION AND EDUCATIONAL REFORM IN THAILAND

Thailand lies as the heart of Southeast Asia. In Thailand, there are 76 provinces, which are gathered into six regions. According to the basic education curriculum B.E. 2544 (Ministry of Education, 2001), basic education in Thailand includes 12 years of study that are divided into four levels: Level 1 (Grades 1 to 3), Level 2 (Grades 4 to 6), Level 3 (Grades 7 to 9), and Level 4 (Grades 10 to 12).

Supervision is widely accepted as an essential part of education system. Providing effective supervision is required to maintain and promote quality education of the country (Yilmaz et al., 2009). So that, along with school teachers and administrators, educational supervisors are regarded as one essential component of education system. In 1952, the supervisory unit had been established in Thailand. At present, there are about 3,700 educational supervisors in Thailand and this number inclines to be increasing. Educational supervisors are responsible to arrange professional meetings with teachers, discuss about educational and teaching problems, and provide guidance and problem-solving, and teacher professional training.

Nowadays, the requirements for a person who applies for an educational supervisor are: a) graduated in a master degree or above, b) earn at least 10 years of experience in teaching or administration, c) pass an examination with at least 60% of a total score, and, most importantly, d) get a professional license. According to the Teachers and Educational Personnel Council Act B.E. 2546 (2003) (Secretariat of the Cabinet, 2003), all education supervisors shall practice under two main standards: the knowledge standards, and the professional experience standards. The knowledge standard consists of educational supervision, educational plans and policies, curriculum and instructional development, educational quality assurance, educational administration and management, educational research, instructional strategies, information and technology, and moral and ethics. The professional experience standards require a quality publication and at least 10 years of teaching or administration.

Thailand has initiated the second wave of educational reform with the proposals for the second decade of educational reform (2009 to 2018) (Office of the Education Council, 2009). The vision of the forthcoming reform is that "All Thai people are able to access high-quality lifelong learning". Seven frameworks of the reform were proposed to the government; one of them explicitly deals with quality of teachers.

Quality development of a new generation of teachers

Development of system for production of teachers, faculty staff and educational personnel; Development of teachers, faculty staff, and educational personnel; and Utilization of teachers, faculty staff, and educational personnel (Office of the Education Council, 2009, pp. iv-v).

Educational supervisors are indeed responsible to develop quality teachers. To do that, at first, educational supervisors themselves must possess appropriate teaching and learning beliefs, that is, student-centered beliefs. Exploring educational supervisors' existing beliefs about teaching and learning is, therefore, needed for further improvement.

METHODS

Participants

This study was conducted in the second semester of 2010 academic year. There were 216 educational supervisors (50 male and 166 female) participated in this study. A majority of the participants (76.9%) were female. These participants came from 10 provinces in the central region of Thailand: Bangkok (19.4%), Lop Buri (18.1%), Sa Kaeo (12%), Samut Prakan (9.3%), Ang Thong (8.8%), Sing Buri (7.9%), Chai Nat (7.4%), Prachin Buri (6.9%), Nakhon Nayok (5.1%), and Chachoengsoa (5.1%).

Table 1. Metaphor construction task.

Instruction:

In your view, what are teaching and learning science look like? Please construct your own metaphors of teaching and learning science and describe how your metaphor represents teachers, learners, and teaching and learning process.

.....

In addition, please make drawing to illustrate your metaphors of teaching and learning science.

Area for drawing your metaphor

The age ranges of participants were: 31 to 35 years old (2.8%), 36 to 40 years old (1.9%), 41 to 45 years old (6%), 46 to 50 years old (21.3%), 51 to 55 years old (40.3%), and 56 to 60 years old (27.8%). The participants' supervisory experience ranges were: under six years (11.1%), 6 to 10 years (20.4%), 11 to 15 years (17.1%), 16 to 20 years (13.9%), 21 to 25 years (16.2%), 26 to 30 years (13.9%), and 31 to 35 years (7.4%). A majority of the participants graduated in a master degree (88%), while the others graduated in a bachelor degree (7.4%) and a doctoral degree (4.6%).

Data collection

The MCT in Table 1 (Buaraphan 2011) was employed to explore the participants' metaphors described their beliefs about teaching and learning. The participants took approximately 45 min to complete the MCT.

After that, 10% of the participants (n = 22) were randomly selected to conduct follow-up interview in order to further explore, clarify, and validate their responses. The guiding questions are: Which part in your metaphor or drawing represents teachers (or learners or teaching-learning process)? Why? And do you have anything else to clarify or add in your metaphor?

Data analysis

First of all, each metaphor was carefully read and determined its validity. When the invalid metaphors existed, they would be eliminated from a pool of metaphors. The invalid metaphors are (a) plain description without mention of a metaphor; (b) mention of a metaphor without provision of rationale; (c) fuzzy or hybrid metaphor that is difficult to place under one clearly recognisable conceptual category; and (d) idiosyncratic metaphors (Saban et al., 2007). Up to this, 27 invalid metaphors were taken off and 216 valid metaphors were subsequently used in data analysis. Then, the 10 metaphor categories (Buaraphan 2011) were used as a framework of coding. Each metaphor was read, coded, and placed in a suitable metaphor category. From a coding process, the existing metaphor categories were finally modified (Table 2).

Nineteen new emerging codes were added into the existing metaphor categories: codes 1.21 Designer, 1.22 Constructor, 1.23

Data provider, 2.20 Angel, 2.21 Scientist, 3.04 Jigsaw, 3.05 Washer, 4.11 Manager/Boss, 4.12 Director, 4.13 Postman, 7.05 Counsellor, 8.06 Feeder, 8.07 Nature, 9.12 Scaffolding, 9.13 Elevator, 10.05 Astronaut, 10.06 Cook, 10.07 Co-constructor, and 10.08 Bug. Cautiously, the similar code names may appear in different metaphor categories, for example, the "parent" code appears in codes 7.01 and 8.05 or the "cook" code appears in codes 1.20 and 2.07, which express different teaching and learning beliefs.

The inter-rater reliability of coding was established by asking three educators to independently code all metaphors into the metaphor categories. The inter-rater reliability of metaphor coding using the Miles and Huberman (1994) formula, that is, reliability = agreement / (agreement + disagreement), was 0.96. Miles and Huberman (1994) suggested that inter-coder agreement in qualitative data analysis should approach or exceed 0.90. The disagreements about coding were subsequently resolved in a meeting. At the end, the metaphors in each category were counted for frequencies and also calculated for percentages.

RESULTS AND DISCUSSION

Metaphors of teaching and learning

Table 3 shows 53 metaphors constructed by the participants. The wide range of metaphors indicated the participants' diverse thinking about teaching and learning.

The most dominant metaphor that the participants used to describe their belief about teaching and learning was teacher as gardener (15.7%). The other three favorite metaphors are teacher as captain/ driver (13.4%), sculptor (8.8%), and coach (5.6%). The following quotes and figures illustrate the four most popular metaphors.

Teacher as a gardener

A teacher is as a gardener and students are as flowers. A teaching and learning process is as the gardener (teacher)

Table 2. Metaphor categories of teaching and learning.

Category	Metaphor	Teaching and learning
1. Teacher as knowledge provider (student as passive recipient of knowledge)	1.01 Sun	i) Teacher is both source and transmitter or deliver of knowledge. Teacher's knowledge is endless. ii) Student is passive recipient of knowledge. iii) Knowledge is product or means of learning. iv) Learning is process of acquiring and accumulating knowledge transferred from teacher
	1.02 Candle	
	1.03 Tree/ Fruit tree	
	1.04 Light	
	1.05 Flower	
	1.06 Computer	
	1.07 Television	
	1.08 Book/ Cookbook	
	1.09 Pen	
	1.10 Spring	
	1.11 Jug/ Glass	
	1.12 Fountain	
	1.13 Rain	
	1.14 Writer/ Poet	
	1.15 Shopkeeper	
	1.16 Buddha/ Monk	
	1.17 Sky	
	1.18 Wind	
	1.19 Food	
	1.20 Cook	
	1.21 Designer	
	1.22 Constructor	
	1.23 Data provider	
2. Teacher as moulder/ craftsperson (Student as raw materials)	2.01 Sculptor	i) Teacher is highly skilled individual or master whose main task is to produce students as socially useful products. Teacher does all molding, shaping, and manufacturing. Teacher's job is to educate student through standardized curriculum with set of common goals, principles and values. ii) Student is raw material which is inanimate and can take shape.
	2.02 Painter	
	2.03 Constructor	
	2.04 Baker	
	2.05 Potter	
	2.06 Honeybee	
	2.07 Cook	
	2.08 Jeweller	
	2.09 Tailor	
	2.10 Carpenter	
	2.11 Architect	
	2.12 Miner	
	2.13 Weaver	
	2.14 Ironworker	
2.15 Contractor		
2.16 Technician		
2.17 Mill		
2.18 Factory		
2.19 Garland maker		
2.20 Angel		
2.21 Scientist		

Table 2. Contd.

3. Teacher as curer/repairer (Student as defective individual)	3.01 Doctor 3.02 Medicine 3.03 Mechanic 3.04 Jigsaw 3.05 Washer	i) Teacher knows what is correct or not. Teacher's main duty is to diagnosis and fix student's errors and deficiencies. ii) Student is ill or sick person.
4. Teacher as superior authoritative figure (Student as absolute compliant)	4.01 Shepherd 4.02 Captain/ Driver 4.03 Locomotive 4.04 Brain 4.05 Vehicle 4.06 Life 4.07 Earth 4.08 Rod 4.09 Chef 4.10 Container 4.11 Manager/ Boss 4.12 Director 4.13 Postman	iii) Teacher is superior and authoritative reflecting control and power over. teaching-learning process iv) Student is absolute compliant.
5. Teacher as change agent (Student as object of change)	5.01 Fashion designer 5.02 Scriptwriter 5.03 Laundryman	i) Teacher is social agent bringing about change in student. Teaching is genuine activity of bringing about change in both student and society's future. ii) Student is disadvantaged or problematic human being expected to be transformed into kind of individual teacher envisions.
6. Teacher as entertainer (Student as conscious observant)	6.01 Actor/ Actress 6.02 Stand-up comedian 6.03 Magician 6.04 Sportsman	i) Teacher is amuser making people happy for period of time without demanding too much effort from them. Teacher uses acting as part of instruction to break down affective domain barriers that prevent communication and active participation from student. ii) Student is audience or observer.
7. Teacher as counsellor (Student as significant other)	7.01 Parent 7.02 Friend 7.03 Psychologist 7.04 Companion 7.05 Counsellor	i) Teacher's concern is emotional and psychological well-being of student and/or helping each learner to find centre in life. ii) Student is advisee
8. Teacher as nurturer/ cultivator (Student as developing organism)	8.01 Gardener 8.02 Farmer 8.03 Soil/ Lake 8.04 Chameleon 8.05 Parent 8.06 Feeder 8.07 Nature	i) Teacher is caring person who adopts various roles to meet needs of student. Teacher's role is to nourish and foster potential capabilities of student in loving and nurturing learning environment. ii) Student is encouraged to learn and grow in his/her own pace. iii) Classroom is conceived as garden where plants grow with cultivation of gardeners.

Table 2. Contd.

9. Teacher as facilitator/ scaffolder (Student as constructor of knowledge)	9.01 Compass	i) Teacher facilitates student learning. He/she provides needed help/scaffolding to student at appropriate time and removes it when no longer essential. Teacher's main role is to make instructional material and academic assistance available in classroom. ii) Student takes responsibility to construct his/her own knowledge
	9.02 Lighthouse	
	9.03 North Star	
	9.04 Flashlight	
	9.05 Traffic signs	
	9.06 Taxi driver	
	9.07 Road map	
	9.08 Torch	
	9.09 Bridge	
	9.10 Ladder	
	9.11 Oil	
	9.12 Scaffolding	
	9.13 Elevator	
10. Teacher as cooperative/ democratic (Student as active participant in a community of practice)	10.01 Tour guide	i) Teacher is in position of leadership. Teacher and student are partner in achieving something and construct their knowledge together. Teacher has more experience than student, so he/she coordinate all learning activities in classroom. ii) Student is active participant.
	10.02 Coach	
	10.03 Conductor	
	10.04 Co-actor/ Co-actress	
	10.05 Astronaut	
	10.06 Cook	
	10.07 Co-constructor	
	10.08 Bug	

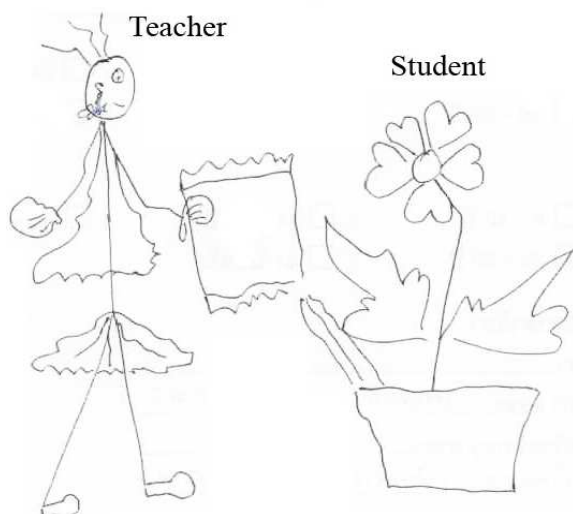


Figure 1. Teacher as a gardener.

chooses soil and fertilizer to best suit each kind of flowers (students) in order to make each of them properly grow and finally blossom with beautiful and colourful flowers (Figure 1).

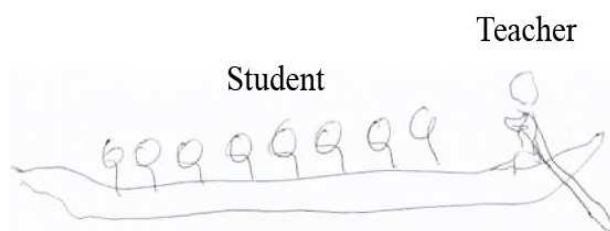


Figure 2. Teacher as a captain/ driver.

Teacher as a captain/driver

A teacher is like a captain. Students are like passengers. The captain (teacher) brings the passengers (students) to their destinations with safety. The passengers must obey and cooperate with the captain, and learn to overcome obstacles and make success in traveling (Figure 2).

Teacher as a sculptor

A teacher is as a sculptor and students are as products

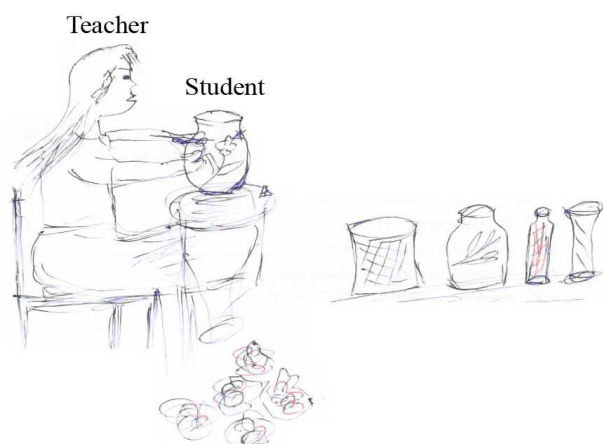


Figure 3. Teacher as a sculptor.

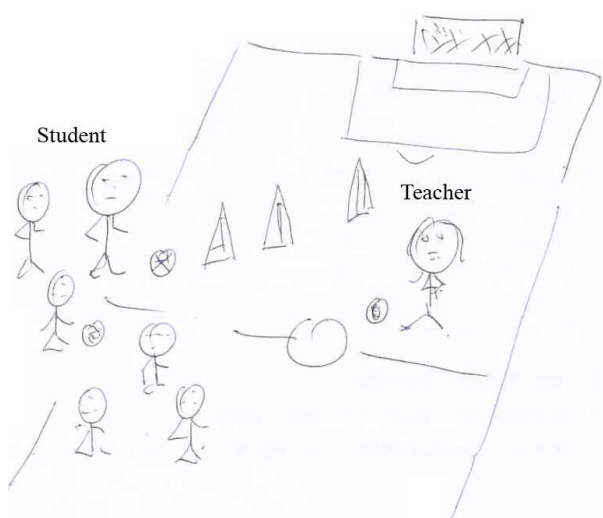


Figure 4. Teacher as a coach.

such as bowl and jar. Teaching and learning is a process that the sculptor (teacher) mold and decorate raw materials (students) such as soil to be a product he or she intended (Figure 3).

Teacher as a coach

A teacher is as a coach and students are as football players. Teaching and learning process is like the coach (teacher) trains the players (students) about techniques, rules, and spirit in playing football (Figure 4).

In general, Thai people view education as growth. They often regard teachers as gardeners and students as plants such as flowers, orchid, etc. The gardener (teacher)

grows plants (students) and keeps maintaining them until they yield products such as fruits or flowers (learn and have better lives). These products show that the success of the gardener is success of education. This is the reason why “the teacher as gardener” metaphor occurs frequently in this study.

The other favorite metaphors of a teacher that have been used in the Thai context for a long time are “teacher as boatman”, “teacher as social engineer” and “teacher as candle”. Similar metaphors also emerge from this study, that is, “teacher as captain/driver”, “teacher as sculptor” and “teacher as candle”. Specifically, many Thais view the teacher as a boatman and students as passengers. The boatman (teacher) rows and tries to deliver all passengers (students) from one shore (unlearned) to the other (learned)”. So, “the teacher as captain/ driver” metaphor is used in this work.

Interestingly, the teacher as Buddha/ monk metaphor may reflect the cultural influence on the metaphor construction. A majority of Thais are Buddhists. They pray for, and pay highest respect to, the Buddha or monk. As one participant said:

Teacher is like a monk who has knowledge, intelligence, and wisdom. Students are like prayers who wish to listen, respect, and do as the monk preaches. Teaching is like the method the monk (teacher) to preach that makes the prayers (students) do good things with full intention.

Metaphor categories of teaching and learning

All metaphors constructed by the participants could be categorized into eight categories as shown in Table 2.

Overall, the four most dominant metaphor categories for the participants were teacher as moulder/ craftsman (25.5%), as nurturer/ cultivator (21.8%), as superior authoritative figure (16.7%), and as knowledge provider (15.7%). The popularity of teacher as moulder/ craftsman, as nurturer/ cultivator, and as superior authoritative figure categories supports various studies in the literature. That is, the teacher as moulder/ craftsman category supports Saban, Kocbeker, and Saban (2007); the teacher as nurturer/ cultivator category supports Ben-Peretz, et al. (2003) and Massengill et al. (2008); the teacher as superior authoritative figure category supports Ben-Peretz et al.(2003); and the teacher as knowledge provider category supports Martinez et al. (2001), Leavy et al. (2007), and Saban et al. (2007).

Although, the advent of the student-centered learning-reform movement had started in Thailand by the National Education Act B.E. 2542 (1999) a decade ago, this study, surprisingly, revealed that about one-third (32.4%) of the educational supervisors viewed teacher as knowledge provider or superior authoritative figure, which are inclined

to be teacher-centered. How educational supervisors help teachers to enact student-centered classroom practice, while they still believe that teacher-centered is the main issue arisen from this study.

The long immersion in teacher-centered schooling experiences before the student-centered learning reform era may potentially influence educational supervisors teaching and learning beliefs. That is, many educational supervisors, whether being consciously aware or not, constantly experienced as learners in teacher-centered learning environments as well as observed their teachers' teaching by teacher-centered approaches in schools for a long time.

Interestingly, no participant in this study raised the metaphor under the teacher as change agent and as entertainer categories. This indicated that the educational supervisors in this study did not view students as ill people or broken objects for experts (teachers) to cure or fix. This finding was contrary to Saban et al. (2007), who found that some participants constructed three metaphors under the teacher as curer/ repairer category. In addition, without a metaphor in the teacher as entertainer metaphor category, this study implies that some educational supervisors consider teaching as a serious endeavour Ben-Peretz et al. (2003).

Implications

Metaphors are very useful and serve various functions in educational contexts (Saban, 2006). This study shows that the MCT can act as a powerful tool to uncover educational supervisors' beliefs about teaching and learning. In the constructivist view, prior beliefs a person brings with can influence his or her interpretation of new information and construction of knowledge. The educational supervisors' prior beliefs about teaching and learning revealed by metaphors in this study may inform or encourage teacher educators in Thailand to think about how to help educational supervisors develop more student-centered teaching and learning beliefs.

In addition, metaphors can be used as a pedagogical tool in educational training. It can open the communication between trainers and trainees about how to teach and learn. In addition, metaphors constructed by trainees at different stages of a specific training can inform trainers about trainees' advancement of beliefs. As Saban (2006) mentioned, metaphors can function as a medium of reflection. The evolving metaphors shown to educational supervisors can help them reflect, and aware of their self-evolved beliefs that assist them to become reflective practitioners (Tobin and Tippins, 1996). Sharing metaphors with peers also provides an excellent forum for critical reflection and brings to light the implicit, diverse views about teaching and teaching and their historical, social, or cultural roots.

This study shows that some metaphorical schemas held by educational supervisors are mismatched with the goals of learning reform that can also impede the success of the reform. Introduction of innovative teaching and learning is often met with resistance and doubt by practitioners because such innovation is in conflict with their prior beliefs. This is the dilemma as Levitt (2001:1-2) describes:

The dilemma is that implementation of current science education reform requires considerable adaptation of teachers' beliefs in order to align requisite practices with the philosophy of reform. If teachers' beliefs are incompatible with the philosophy of science education reform, a gap develops between the intended principles of reform and the implemented principles of reform, potentially prohibiting essential change.

One major task for teacher educators is, therefore, to help educational supervisors shift their metaphors of teaching and learning to align with the goals of learning reform. Educational supervisors should have the opportunity to compare and evaluate their teaching and learning metaphors with the goals of learning reform. Any mismatch of beliefs found must be adjusted. In addition, teacher educators must be careful that the methods they apply in professional development programmes are consistent with the emphasis of learning reform (Mellado et al., 2007).

This study presents the importance of metaphor as well as the value of the MCT in eliciting educational supervisors' beliefs about teaching and learning. It also provides the extended metaphor categories of beliefs about teaching and learning (Table 2) that may be useful for other researchers in metaphor analysis. This study may lead teacher educators worldwide to consider the value of metaphor construction as a part for educational development.

Limitations of the study

Although this study has its value, a small number of participants employed in this study limits the generalization of findings to a larger population.

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