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Teacher beliefs and education reform in Abu Dhabi: 21st Century Skills?

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Abstract
Education reform, in particular, curriculum reform, of the magnitude being implemented in Abu Dhabi and involving such different cultural contexts and expected paradigm shifts, poses a number of questions with respect to implementation, on-going challenges, and future impact for teachers, students and the community. This paper focuses on the relationship between the results of the Teacher Belief's Survey and the teachers' classroom practice. The research reported in this paper took place in Abu Dhabi where the Arab teachers had been entrenched in mostly traditional approaches to teaching. The large-scale education reform, being carried out at the time of writing this paper, required the teachers to shift to a constructivist approach. The study involved a mixed methods approach in which quantitative and qualitative data were collected sequentially. As a first step, the newly-developed Teacher Belief Survey was administered to 198 teachers across the emirate. The second step involved a case-study approach, involving 15 teachers, that was used to further examine teacher beliefs and observed practice. Lesson observations were conducted with each of the case study teachers that were preceded by a semi-structured interview with each teacher and a post lesson observation interview. The results indicated that the teachers were willing to comply with the reform initiatives; however, they continued to hold more traditional beliefs about their role in the classroom and their philosophy of teaching and learning acquisition. Observations corroborated these findings, indicating that the teachers choice of delivery, use of student collaboration and the physical environment, were not what they believed it to be. Interviews and observations showed that culture, fear, a lack of knowledge and understanding by teachers and incongruent interpretations of terminology were strong mitigating factors that were impeding the Arab teachers' implementation of curriculum reform initiatives.
Keywords*: Abu Dhabi, Teacher belief, curriculum reform initiatives,*

Öğretmen inançları ve Abu Dabi'de Eğitim reformu: 21. Yüzyıl becerileri?

Özet

Abu Dabi'de eğitimde- özellikle programlarla ilgili kapsamlı reform çalışmaları uygulanmaktadır. Farklı kültürel bağlamları ve paradigma kaymalarını içeren reform hareketinin gelecekte, öğretmenler, öğrenciler ve toplum için uygulamalarda bir dizi zorlukları, soruları ve mücadeleleri içerebilecektir. Bu makale öğretmenlerin inançları ile sınıf uygulamaları arasındaki ilişkilere odaklanmıştır. Bu araştırma, Abu Dabi'deki çoğunlukla öğretimde geleneksel yaklaşımın yerleşmiş olduğu Arap öğretmenlerle gerçekleşmiştir. Büyük ölçekli eğitim reformunda öğretmenlerin yapılandırmacı yaklaşıma geçmelerinin gerekli olduğu belirtilmiştir. Bu çalışma, nitel ve nicel verilerin birlikte kullanıldığı karma yöntemin kullanıldığı bir çalışmadır. Çalışmada ilk basamakta

Emirlik genelinde 198 öğretemen üzerinde yürütülen yeni öğretmen inançları anketi uygulanmıştır. İkinci basamakta 15 öğretmen ile durum çalışması yapılmıştır. Bu durum çalışmasında öğretmen inançları ve uygulamaları incelenmiştir. Durum çalışmalarına katılan öğretmenlere yarı yapılandırılmış görüşme formu ile mulakatlar yapılmıştır. Sonuçlar öğretmenlerin reform girişimlerine uymada istekli olduklarını göstermektedir. Buna karşın sınıftaki rollerinde ve öğrenme ve öğretmeye yönelik kendi felsefelerinin daha geleneksel inançlara devam ettikleri görüldü. Öğretmenlerin öğrencilerle işbirliği ve fiziki çevrenin kullanımında inandıklarını gerçekleştiremediklerin gözlenmiştir. Görüşmeler ve gözlemler Arap öğretmenlerinin kültür, korku, öğretmenlerin terminolojiyele uyumsuz bilgi ve anlayış eksikliğinin reform girişimlerindeki gücü azaltıcı faktörler olarak görülmektedir.

Anahtar Kelimeler: *Abu Dabi, Öğretmen inançları, Program reform girişimleri*

Background

Learning Culture of Abu Dhabi: The unique learning culture of Abu Dhabi (Middle Eastern and Arab context) presents contributory factors to the issue of teacher beliefs and classroom practice. Abu Dhabi emanated from a tribal system that was geared for the survival and the wellbeing of its members. The hierarchical tribal structure excludes dissention in its decision-making process, puts the onus on the leader to correctly decide for the development, safety and well-being of the tribe and in return tribal members dictate their loyalty to the leader in unquestioned allegiance (Al Fahim, 2007). Prior to 1971, formal education had been largely unknown to most Abu Dhabi citizens because of their nomadic and isolated desert existence. "The elders simply passed on what they knew to the next generation" (Al Fahim, 2007, p. 152). The notion of empowerment and responsibility is a foreign concept, as an individual was never empowered to make independent decisions because, in doing so, responsibility, would need to be invoked (Henderson, 1988).

Travel was only undertaken when absolutely necessary. There was no mass communication, no newspapers, radio or TV before 1971, resulting in virtual isolation for the majority from the rest of the world and also from other tribes and states (Henderson, 1988). They relied on their memory to "preserve them, memorising the Qur'an and heroic narrative poems recording their history" (Maitra & Al-Hajji, 2001, p. 2). Thus, pedagogy was based on the traditional, transmission mode emphasising memorisation through rote learning (Rugh, 2002), training students to retain answers to fixed content-based questions - not developing critical or creative thinking for effective decision-making and problem solving. The teacher's responsibility was to cover the curriculum by completing the relevant sections of the textbook. There was no emphasis on diagnosis of learning nor was the teacher responsible for which resources to use or designing of tasks (Bichelmeyer & Hsu, 1999; Boghossian, 2006; Taylor, 1990). These were provided by the textbook and the associated publisher. Students regarded their teachers and supervisors as being the experts and, their role was to tell the students where they go wrong, rather than rely on personal reflections because, "this deference to authority… is likely to cause obstacles" (Richardson, 2004, p. 433).

In the 1990s the Abu Dhabi education sector came under criticism for its "inappropriate methods of teaching and learning, inflexible curricula and program which led to high dropout rates and long duration of study" (Mograby, 1999 in Clarke & Otaky, 2006, p. 114). The Ministry of Education, announced that changes in teaching and learning practices would involve shifts from "teaching to learning; teacher to learner; and memorization to creativity, reflection, imagination and innovation (UAE Ministry of Education and Youth 2000, p. 87). It is against this backdrop that the constructivist curriculum, which advocates a student-centred approach, depends upon the teacher to make decisions, design tasks and activities using a prior diagnosis of student needs, and then, as a facilitator, guide students in their knowledge construction and meaning-making through specifically designed tasks and through social interaction, has been implemented in Abu Dhabi.

Teachers' Beliefs

The idea that a person's beliefs determined his attitude (Fishbein & Ajzen, 1972) inspired the concept that teachers' beliefs determine teaching behaviour (initially explored by Lortie (1975), Nespor (1985) and Pajares (1992). Teacher beliefs is a complex subject with no single definition but a common understanding that the beliefs that teachers hold with respect to education influences education reform initiatives because "a teacher's belief system can govern nearly every action s/he takes in the classroom" (Mitchell, 2005, p. 26). The term has been used to encompass a range of beliefs such as beliefs with respect to the teacher's role (Eisenhart, Cuthbert, Shrum, & Harding, 1988; Fives & Buehl, 2008; Ogan-Bekiroglu & Akkoc, 2009), teacher's philosophy of learning and education (Meirink, Meijer, Verloop, & Bergen, 2009), teachers beliefs about teaching and learning (Kleve, 2004; Roehrig & Kruse, 2005), teachers own efficacy as teachers (Dellinger, Bobbett, Olivier, & Ellett, 2008; Quirk et al., 2010), subject specific content (Luft & Roehrig, 2007; Milner, Sondergeld, Demir, Johnson, & Czerniak, 2011), beliefs as to what constitutes knowledge and how this should be delivered (Roehrig & Kruse, 2005; Taylor, 1990) and instructional beliefs (Benjamin, 2003; Chai, 2010; Hallet, 2010; Ogan-Bekiroglu & Akkoc, 2009; Schroeder et al., 2011; Şeker (a), 2011; Van Driel, Bulte, & Verloop, 2007).

The Oxford dictionary defines *a belief* as "a firm opinion; an acceptance of a fact, statement etc." (Metcalf, 2008, p. 80). An *opinion,* on the other hand, is defined as "a belief or assessment based on grounds short of proof; a view held as possible" (Metcalf, 2008, p. 573). *Proof* is defined as "facts, evidence, argument etc. establishing or helping to establish a fact; a demonstration or act of proving" (Metcalf, 2008, p. 655). These definitions point to being strongly held opinions that may not be substantiated or have proof for their existence but are regarded by the individual as an accepted fact. Teacher beliefs are therefore personal constructs that a teacher holds about an individual, a group of people, an event or a behaviour which informs them in their decision-making processes (Fishbein & Ajzen, 1972; Jones & Carter, 2007; D.M Kagan, 1990; Nespor, 1985; Pajares, 1992; Richardson, 1996; Rokeach, 1968). Philosophies, theories, views, perceptions, attitudes, personal theories, opinions, conceptions, values, practical principles, perspectives, and axioms are all words that are used interchangeably for the term *teacher beliefs* (Pajares, 1992). For the most part, researchers conducting research on teacher beliefs "are not concerned with distinction between beliefs, attitudes, opinions and intentions" (Fishbein & Ajzen, 1972, p. 492) and for the purpose of this study, the term teacher beliefs will be used.

The definitions help to explain that teacher beliefs are not proven, scientific facts, but personal, mental constructions of practice that are developed by individuals through observation, emersion and experience (Kagan, 1990; Luft & Roehrig, 2007; Nespor, 1985; Pajares, 1992; Richardson, 1996; Rokeach, 1986). This 'folk pedagogy', as termed by Bruner (1996), reflects "wired-in human tendencies and some deeply ingrained beliefs" (Bruner, 1996, p. 46), the formation of which is largely emotional, through personal experience and relying "more heavily on affective and evaluative components than knowledge systems" (Abelson, 1979, p. 358). The development of beliefs is a personal preference that is not formed through a memorization of facts and "operates independently of others forms of cognition typically associated with knowledge systems (Nespor, 1985, p. 13). Consequently these beliefs are not always logical, nor are any two people likely to hold exactly the same beliefs. There is no common source for these beliefs. They are said to be "a product of their upbringing, a reflection of their life experiences, or a result of socialisation processes in schools" (Raths, 2001, p. 2).

Beliefs cannot be observed or measured but may be inferred from what people say and do because they determine an individual's attitude and subsequent behaviour (Pajares, 1992). Individual experiences form perceptions which create expectations. The expectations create attitudes and an individual's attitude largely dictates the behaviour that will follow (de Bono, 2000). It follows, therefore, that much of a teacher's attitude was formed through past experience.

Pedagogical beliefs may differ depending upon the context e.g. a teacher may believe that science is a body of knowledge consisting of facts and as such need to be memorised, while a language, may be

believed to be a subject involving critical thinking that requires a different pedagogy (Fives & Buehl, 2008). Pedagogical behaviour would, therefore, differ according to these varying beliefs. Beliefs govern many aspects of a teacher's decision making, such as the role that education plays for the individual; individual variations in academic performance; what the teacher considers as acceptable practice in the classroom and what the teacher considers to be his role in the classroom (Raths, 2001).

The experiences that teachers had from their own schooling mostly forms the foundation for their teaching beliefs. After 12 to 20 years exposure in the classroom, approximately 22,000 hours (Fraser, 2007), most people are probably not consciously aware of the teaching practices they are witnessing, experiencing and absorbing, however, their brains continuously makes meaning of these experiences and "sometimes, with confusing bits of information, creates inaccurate connections or misconceptions" (Howard & Fogarty, 2004, p. 35). These personal beliefs may thus, not be logical, are not proven against facts, have strong links with feelings and do "not require general or group consensus regarding their validity or appropriateness" (Pajares, 1992, p. 311) but, are very real for each individual. Beliefs have an adaptive function that helps individuals to define and understand the world and themselves. So strong are these beliefs that it is reported that many student teachers believe that "they already have what it takes to be a good teacher and that therefore they have little to learn from the formal study of teaching" (Kennedy, 1997, p. 14).

Knowledge, in contrast to beliefs, is regarded as being unemotional consisting of indisputable facts. Many people can hold the same knowledge without variation. There is no emotion attached to such knowledge. A person's knowledge of a domain is very different from his or her feelings about that domain. However, sometimes it is difficult to know where knowledge ends and belief begins especially with reference to a teacher's personal knowledge, defined as experiential knowledge (Clandinin & Connelly, 1987). This experiential knowledge may be blurred by actual factual knowledge and the teachers' beliefs because experience involves the emotions (Pajares, 1992).

Mitchell (2005) postulated that all teachers operate on the basis of a personal theory of teaching, or a set of beliefs about how a subject is learned and how it should be taught. This drives action in the classroom including instructional choices and actions, classroom management practices and how teachers translate the curriculum (Eisenhart, et al., 1988; Fenstermacher, 1979; Luft & Roehrig, 2007; Önen, 2011; Pajares, 1992; Shinde & Karekatti, 2012; Shulman, 1974; Splitter, 2010). These beliefs are assumed to be implicit or tacit because teachers are generally not aware of how their beliefs influence their behaviour (Patrick & Pintrich, 2001). Consequently teachers' beliefs have implications for education innovation and reform programmes (C. M. Clarke & Peterson, 1986; Johnson, 2006; Milner, et al., 2011; Van Driel, et al., 2007) with education reform having little chance of success without the supporting beliefs of teachers because the beliefs are less malleable or dynamic than knowledge systems (Eisenhart et al., 1988, Nespor, 1985).

Teachers' pedagogical beliefs

Pedagogical beliefs refer to the preferred way of teaching by teachers. Pedagogical beliefs associated with the traditional philosophy of teaching may be viewed as being at the opposite end of the spectrum to beliefs associated with a constructivist philosophy of teaching. The traditional approach is characterised by the teacher being seen as the fountain of knowledge, presenter of factual content, neither encouraging nor discouraging student exploration, with an emphasis on student reproduction of content (Boghossian, 2006; Tsai, 2002). Knowledge and learning, in this context, is not dependent on reflection but, rather, acquired from outside sources with students, as passive recipients, expected to absorb and memorise through lecture-based pedagogy

(Bichelmeyer & Hsu, 1999). The accuracy of memorisation is regarded as the benchmark of success (Stoffels, 2005; Taylor, 1990). As a result students are likely to retain their own viable interpretations of an event and simply reproduce correct, but personally meaningless, replicas for the teacher" (Taylor, 1990, p. 4). Teachers commonly have the understanding that students have an innate or fixed ability for

learning where learning is not seen as requiring effort or being a process, but rather that a student has or does not have ability (Chai, 2010).

The constructivist approach is a philosophical belief that students construct or find meaning through their experiences, resulting in the creation of knowledge (Bichelmeyer & Hsu, 1999; Lieberman & Pointer-Mace, 2008; Boghossian, 2006), where the teacher's role is one of a facilitator guiding, coaching and stimulating students (Roelofs & Terwel, 1999; Richardson, 2003). The role of the teacher also entails designing experiences that encourage and enable learning (Lattuca, 2006).

The term epistemological beliefs refers to beliefs that a teacher holds about the nature of knowledge and knowing and how knowledge is constructed, justified and stored (Fives & Buehl, 2008; Hofer & Pintrich, 1997; Nespor, 1985; Schommer, 1990). Schommer (1990) identified five types of epistemological beliefs that provide an understanding of the traditional approach to teaching. Knowledge is provided by an authority figure and thus, not open for questioning, 'authority knowledge', is commonly memorised; learning occurs in a short time or not at all; 'quick knowledge' where there is no monitoring for understanding; 'certain knowledge' where knowledge is seen as fixed and unchanging; 'simple knowledge' where knowledge is regarded as consisting of facts and 'innate knowledge' where it is believed that the ability to learn is fixed at birth. These beliefs fit in well with a traditional approach to teaching where it is regarded as the teacher's role to disseminate knowledge without students questioning such knowledge or creating a deeper understanding of it.

According to the epistemological beliefs provided by Shommer it follows that should the teacher's belief be that a subject consists of facts that need to be learnt and memorized, the teacher is likely to use the traditional approach to teaching (Kang & Wallace, 2005). Conversely should a teacher believe that knowledge is constructed through thinking and problem solving, then, a different teaching approach will be adopted in the classroom. This may result in teachers holding conflicting beliefs, where one subject discipline may be seen as consisting only of facts which need to be drilled and memorised, while another subject discipline might be seen as needing more exploration and thinking where constructivist methods may be seen to be more suitable. Furthermore if the examination system is one requiring a reproduction of memorised material, then "the pressures of an examination driven curriculum were more likely to create a consistently teacher-centred learning environment (J.M. Aldridge, Fraser, & Huang, 1999, p. 58). In addition where teachers believed a teacher-centred approach was expected by students, then the perception by the teacher was that the teacher had to do so to prevent problems (Aldridge et al., 1999).

Beliefs as a Driving Force for Teacher Action:

The interplay of beliefs determines the teacher's classroom action. If the belief is to "faithfully reproduce the 'real' curriculum with little concern for adaptations to local circumstances" (Taylor, 1990, p. 6), then their classrooms are likely to be characterised by a 'managerialist' teacher whose concern is with delivering the syllabus and controlling student interactions. If a teacher holds strong innate beliefs then a student's success or failure is seen as predictable due to their genetics and not dependent on the quality of teaching and where the priority may be on preparation for examinations and tests, teachers tended to adopt the traditional approach (Chai, 2010; Clark & Peterson, 1986). In addition, where teachers view knowledge as "a prescribed set of facts and algorithms to be transmitted by the teacher and memorised by the students" (Roehrig & Kruse, 2005, p. 413), the traditional model becomes the focus for instruction.

Although beliefs are the result of personal interpretations, as opposed to factual information, they are none-the-less considered to be the best predictors of future action (Ajzen, 1996) and, therefore, important factors to be considered for sustainable education reform. Teachers' beliefs determine how they respond to situations or to new information and are the foundation upon which they react and make decisions. Beliefs act as a filter for new phenomena (Alger, 2009; Fives & Buehl, 2008; Önen, 2011; Pajares, 1992; Wallace & Priestly, 2011). Teachers' beliefs are often regarded as more influential than knowledge because it is a teacher's beliefs that will determine how the teacher arranges and defines problems and tasks and how they will behave in the classroom (Luft & Roehrig, 2007;

Muofhe, 2001; Splitter, 2010). Thus "teacher actions are a key component of evidence regarding teachers' beliefs" (Richardson, 1996 in Wallace & Priestley, 2011, p. 360), that is, observations, of a teacher's actions will provide insight into his/her beliefs because most of the time "intentionally or unintentionally we act the way we think about most of the time" (Sideridis, Kaissidis, & Padeliadu, 1998, p. 576).

Beliefs form a "repertoire of explanations or goals which could be invoked to justify a particular course or action" (Nespor, 1985, p. 154). Teachers are required to make six or seven performances a day and it is the repertoire of beliefs that allows them respond to the many situations to which he must act (Nespor, 1985). Thus beliefs become a primary source for action for classroom practice (Morris, 1998; Pajares, 1992; Shinde & Karekatti, 2012). During education reform initiatives it was observed that teachers fall back into old patterns in order to survive in the classroom, because they ma be overwhelmed with procedural issues and classroom management (Mitchell, 2005), Furthermore teaching involves many quick decisions and a reliance on impulses and intuition because of the variety of personal contacts a teacher makes every day which does not allow for much time for reflection before action and so teacher actions become a direct manifestation of personal belief systems.

Educational reforms favouring a move away towards a constructivist philosophy of education became more evident in Western education systems during the 1990's. The shift in emphasis in school education is one from "what teachers do to an outcomes-focus on what students achieve and an emphasis on catering for student individual differences" (J.M Aldridge, Fraser, & Fisher, 2003, p. 167). Benjamin (2009) notes that education in American schools in most of the 20th Century was dominated by traditional or behaviourist learning theories which tended to over-shadow constructivism even though constructivism was reflected in the education standards, implying that a large percentage of the teachers held traditional views of teaching and learning and that these views affected their practice and ability to comply with the education standards. The situation is of concern for sustainable education reform within the Abu Dhabi context, where the traditional teaching model has been the favoured modus operandi practiced, known and desired by teachers (M. Clarke & Otaky, 2006; Gaad, Arif, & Scott, 2006; P. M. Richardson, 2004).

Kleve (2004) reports from research conducted on curriculum reform in Norway, that all lessons observed followed traditional teaching patterns with the teacher explaining and reviewing and pupils working on their own or in pairs (Kleve, 2004). He concluded that the reform curriculum was not being implemented as it had been intended. Yarrow, Millwater, and Fraser (1997) commented that it was not surprising that "teachers found it difficult to devolve their traditional power, share their ownership of the class and re-order their priorities" during an initiative that required them to shift to a constructivist approach (Yarrow et al., 1997, p. 89). Thus it is evident that even in the Western context, where there has been an emphasis on independent thinking and constructivist pedagogy, curriculum reform has been problematic, therefore, it may prove equally or more problematic in a society that has not been exposed to nor have experienced the promotion of independent thinking and constructivist pedagogy in its past.

Most researchers agree that beliefs are stable and resistant to change (Kagan, 1990; Lortie, 1975; Nespor, 1985; Pajares, 1992; Şeker, 2011). Nespor (1985) comments on beliefs as being static but, when they do change, he argues that this is due to a conversion rather than by argument or reflection upon practice and evidence (Nespor 1985). According to Fishbein and Ajzen (1972, p. 518) "new and old information interact in different ways and acceptance of 'new' information may influence either the strength or affective value of previously held beliefs". Furthermore the reception of new ideas by teachers is influenced by anxiety and self-esteem (Fishbein & Ajzen, 1972). Mitchell (2005), in a case study of six in-service teachers, found little change in beliefs after attending a training programme and that the new knowledge that was retained was the knowledge that was most closely related to teachers existing beliefs. Alger (2009) reported that 63% of teachers change their conception of teaching over time, but the findings do not show whether this resulted in a change of practice or just a change in conceptions. Other research findings indicate that beliefs evolve and can be modified through new knowledge that is subconsciously modified to conform to their existing belief structures (J.M Aldridge, et al., 2003; D. M. Kagan, 1992; Luft & Roehrig, 2007; McDaniel, 1991; Pajares, 1992; Wallace & Priestley, 2011).

Munby (1984) identified that there can exist an incongruence between what teachers think they are doing with what they actual are doing and referred to this as the 'theory-practice interface'. Teachers often believe that they are implementing what is being required of them (and may have been receptive to learning these new methods), however, "when they return to their classrooms they misinterpret the new ideas and translate them to conform to existing classroom routines, at the same time believing that they are doing what the new approach calls for" (Karavas-Doukas, 1996, p. 187). It is widely recognised that teachers filter the new knowledge or ideas to fit with their existing beliefs and that, for the most part, they are not conscious that they are reverting to their more familiar practices or that they have misinterpreted the new knowledge (Johnson, 1994; Karavas-Doukas, 1996; Kleve, 2004; Mitchell, 2005; Pajares, 1992). Şeker (2011) attributes the inability of teachers to transfer their knowledge and beliefs into their classroom practice, to the strong traditional education they received and practiced for many years.

Factors influencing teachers in the implementation of reform initiatives in the classroom:

Large-scale national curriculum reform has taken place in countries around the world, in particular, Singapore (Lim & Chan, 2007), Thailand (de Segovia & Hardison, 2009), Norway (Kleve, 2004), Taiwan (Tsai, 2002), South Africa (Bloch, 2006; Grosser & Lombard, 2008), Netherlands (van Driel et al., 2007; Meirink et al., 2009), China (He, Levin, & Li, 2011; Wang, 2011), 2011), Turkey (Kirkgöz, 2008; Önen, 2011; Ozkal, Tekkaya, Cakiroglu, & Sungur, 2009; Şeker (a), 2011), Libya (Orafi & Borg, 2009), Palestine (Hashweh, 2004) and Jordan (Alkhawaldeh, 2010), 2010). A common factor for all of these reform efforts was the move from a traditional-based to a constructivist-based curriculum, in which teachers have had to make a "shift from being classroom instructors delivering a top-down curriculum to facilitators of student-centred knowledge networks" (Monkman & Baird, 2002, p. 504). This for many teachers, required "a profound shift in their teaching and thinking about teaching and learning" (Hoekstra, Brekelmans, Beijaard, & Korthagen, 2009, p. 664) and their teaching practice (Hoekstra & Korthagen, 2011). Teachers are required to acquire an understanding of educational philosophies, and principles of teaching and learning, master new skills for behaviour management, design meaningful lesson activities in line with outcomes and master new ways of assessing for and as learning in keeping with the needs of the new curriculum (Bakkenes, Vermunt, & Wubbles, 2010; Hoekstra, et al., 2009; Hoekstra & Korthagen, 2011; Kleve, 2004; Vermunt & Endedijk, 2011).

In all cases, there were underlying assumptions that the teachers understood the reform needs, what was expected of them, were able to learn and were able to implement the new pedagogies (Maclellan, 2008). Such changes also require teachers to be pedagogical literate, that is, able to "design their own representations of knowledge rather than absorbing representations preconceived by others" (Maclellan, 2008, p. 1986). This required teachers to synthesise subject matter knowledge and pedagogical knowledge in order to design tasks and activities through which students can construct meaning through the process of disequilibrium, adaption and making sense of the world.

Although, education reform, involving the implementation of constructivist practices has been ongoing since the 1980's, it is interesting to note that observable teacher practice did not show a marked shift towards the desired constructivist-related pedagogy (Kleve, 2004). Curriculum reform in The Netherlands showed that, even where teachers had engaged in informal learning activities, the majority of teachers did not show observable change in their teaching practices, although it was reported that their intentions for practice were positive (Bakkenes, et al., 2010; Hoekstra & Korthagen, 2011; Prawat, 1992; Williams & Baxter, 1996). Similarly in Norway teachers were reported as liking the curriculum but were not implementing it as intended (Kleve, 2004 but reverting to the traditional practices.

Research on education reform in Middle Eastern (Arab speaking) countries indicates that for these countries, including Turkey, Jordan, Palestine, Egypt and Libya, the shift from a, transmission-based, textbook education, pedagogy (Rugh, 2002), to constructivist pedagogies has been hampered by a lack of understanding and the background and training of the teachers (Kirkgőz, 2008).

Methods

The present study involved a mixed methods sequential approach where qualitative and quantitative data were collected. Quantitative data was collected in the first phase and qualitative information in the second phase. This section describes the research methods involved in the study including the participants, instruments and data analysis.

Participants:

Phase1, a large-scale administration of a Teacher Belief Survey (TBS), developed for the purpose of this study to examine teachers' beliefs about their role in the classroom was sent to 30 randomly selected teachers in each of 9 participating schools (n=270). The Abu Dhabi Education Council (ADEC) schools were all located in the emirate of Abu Dhabi and had been participating in the education reform for five years since the 2007/2008 academic year. Five of the schools were all-boy schools and four were all-girl schools. The teachers and staff in the boy's schools were exclusively male and those in the girl's schools were female. 198 surveys were returned and considered to be complete and usable.

Phase 2, a case study approach, involved 15 Arab Middle School teachers drawn from the same nine middle schools as above, to provide a sample that represented a range of views, experiences and understandings. The selection of the teachers for this stage was purposeful insofar as they needed to be teachers-of-English to alleviate the need for translators (thereby minimising translation issues that could affect the data and interpretations). However, the selection of the sample was random within the group of teachers-of-English in each of these schools and depended upon the teachers' schedules. Of the 15 teachers that formed the case study, nine were male (53%) and eight were female (47%). Ten of the case-study teachers were Arab expatriates and five were UAE nationals. All five of the UAE nationals were female. The Arab expatriates came from Jordan, Egypt, Tunisia and Syria.

At the time of writing this paper, all of the teachers who had been employed to teach in Abu Dhabi government schools were required to have a university qualification (i.e. Bachelor of Arts or Bachelor of Science). All Arab teachers had studied to tertiary level in Arabic speaking nations such as Egypt, Jordan, the Kingdom of Saudi Arabia, UAE, Syria and Tunisia and had received their education, up to tertiary level, in these countries. A professional teaching qualification, such as a Higher Diploma in Education or equivalent teaching certification was not a requirement for Arab teachers. As such, 10 of the 15 teachers who formed the case study did not have professional qualification or certification. This figure corresponded to the larger sample in which approximately 65% of the 198 teachers did not have any teaching certification.

Instruments

Teacher Belief Survey:

A Teacher Belief Survey was developed for this study with the objective being to create an instrument that would provide an indication of whether teachers' beliefs about teaching were more constructivist or traditional. The validated TBS consisted of five scales, these being: the role of the teacher, the teacher's philosophy of learning and knowledge acquisition, teachers' choice of delivery (pedagogical beliefs), use of collaboration and the use of the physical environment. Table 1 provides a description and sample item for each of the six scales of the TBS.

Table 1 Description and sample items for each scale of the newly-developed Teacher Beliefs Survey

Scale name	Description *To assess …*	Sample item
Role of the teacher	the beliefs teachers have of the expectations of them in their classrooms.	As the teacher it is my role to deliver factual information to students.
Teacher's philosophy of learning	the teachers' philosophy as to what constitutes learning and how students acquire knowledge.	Students learn best when they all complete the same worksheet.
Pedagogy – choice of Delivery	teacher beliefs of delivery of teaching and learning in the classroom.	My lessons involve students working on different activities at the same time.
Collaboration	the extent to which teachers believe collaborative activities constitute learning or whether learning is an individual activity only.	In my lessons students collaborate to decide how a task should be approached.
Physical Environment	the teachers' beliefs as to the importance of the classroom environment with respect to teaching and learning.	In my classroom all the students have the opportunity to display their work.

The items in each scale were arranged in groups with a header provided in order to provide contextual cues (Aldridge, Fraser, Taylor & Chen, 2000; Aldridge, Fraser & Huang,1999). Each item was responded to by teachers using a five-point frequency-type scale of *Almost Never; Seldom; Sometimes; Mostly; Almost Always.* A frequency scale was preferable to either a true-false or paired statements as either of these could be viewed, by the respondents, as having a correct answer.

Lesson Observations and interviews:
Observations, one lesson of 45 minutes for each teacher, were carried out in the classrooms of each of the 15 case study teachers and were used to examine the pedagogical practices of the teachers and how they were transferring their espoused beliefs into classroom practice. The observations afforded me an opportunity to examine the classroom practice of the teacher and to gain insights into the teachers' understanding of their role in the classroom and the implementation of the reform initiatives. A lesson observation checklist was used to standardise and record the observations. Each of the case study teachers was interviewed twice (once during a pre-lesson observation - which ranged in length from 35 minutes to 1 hour - and again after the lesson observation - which were about 20 to 30 minutes long) providing insights into their beliefs, knowledge, understandings and perspectives of the reform.

All the interviews were in-depth and semi-structured, during which the dialogue was steered with the use of an interview guide to ensure that the conversation stayed on track. Participants were given the opportunity to ask questions, so that a dialogic form of interviewing was provided, to ensure that the participants were treated as co-owners of the process rather than as subjects answering questions posed by an authority (Henning et al., 2009; Yin, 2011). Before each lesson observation, the interviews were used to gain information about the lesson objectives and activities to be provided during the lesson. These interviews were used to determine the teacher's beliefs and understanding of his role in the classroom, philosophy of learning and pedagogical beliefs. The second interview, held after the lesson observation, provided an opportunity for the teacher to explain any deviations from what had been planned as well as to comment on what had transpired during the lesson. These interviews provided insights into the teachers' views of their lessons and how they believed they performed in terms of aligning with a constructivist philosophy.

In addition to the observations made as part of the research, in the first author's capacity as an education reform agent, working in the schools assisting teachers in their implementation of the curriculum, she was afforded immersion and was, therefore, in a position to make comparisons between data and understanding through engagement with the phenomenon.

Data Analysis

TBS was used to assess teachers' beliefs about their pedagogical practice. In the analysis of the data collected (*N*=198) the scores for the first two scales (Role of the Teacher and Philosophy of Learning) were reversed as the items for these scales were related to a more traditional philosophy of teaching. By reversing these scores, it was easier to compare them to the other scales whose items are related to a more constructivist philosophy of teaching. The average item mean (calculated by adding the responses for each item in a scale and then dividing it by the number of items in a scale) was then calculated to allow the comparison of scales with different numbers of items. Further descriptive analysis included the calculation of the standard deviation and the generation of a box plot, used to examine the variation of responses for each scale.

Analysis of the qualitative data involved a process of *Disassembly* and *Reassembly* (Yin, 2011). When the interview/observation process was underway, data analysis began as an "on-going, emerging and iterative or non-linear process" (Henning, 2009, p. 277). Analysis and interpretation occurred as data collection and observations proceeded, thus allowing me the opportunity "to test ideas in the field" (Anderson, 1998, p. 158), to make comparisons and check literature in order to clarify and "assure unbiased interpretations and analysis" (Berg. 2009, p. 320). Once the qualitative data collection was complete the data was disassembled onto spreadsheets, in which all responses to the same questions were collated. The results were then analysed for themes that emerged and responses ordered within these themes. The responses were quantified according to the number of responses in each category and the total number of references to and responses to each question. The percentages obtained were graphed to create a visual reflection of the qualitative data.

Results

Describing Teachers' Beliefs

The section describes teachers' beliefs, as reported on the TBS with respect to their role in the classroom (The role of the teacher) and their philosophy of learning (Philosophy of learning and knowledge acquisition) and what was happening in their classrooms (Choice of delivery, Collaboration, Physical Environment). The response format involved a five-point frequency response with 1 being indicative of more traditional classroom practice and 5 being indicative of more constructivist-oriented classroom practice.

The results indicated that the scales assessing teachers' beliefs about their role as teachers (average item mean = 2.54, SD = 0.56), and their philosophy of learning (average item mean, 2.45, SD = 0.74), were lower than the remaining three scales. Conversely, the three scales that assess teachers perceptions of what was happening in their classes were all higher, these being Choice of Delivery (average item mean = 3.53, SD = 0.60), Collaboration (average item mean = 3.78, SD = 0.69) and Physical Environment (average item mean = 3.85, SD = 0.75).

A box plot was generated using SPSS version 20, to examine the distribution of the responses to the different scales (Figure 1). In each case, the length of the box contains 50 per cent of cases. The line across the inside of the box represents the median value. The 'whiskers' protruding from the box go out to the smallest and largest values for each scale. Inspection of the variability in scores provides a visual inspection of the differences. The results indicated that, whilst there is some variability between scores for each of the scales, the pattern shows that although teachers' beliefs, as to their role as a teacher and their philosophy of learning, were more traditional than their perception of the delivery, use of collaboration in classes and the physical environment than was present in their class.

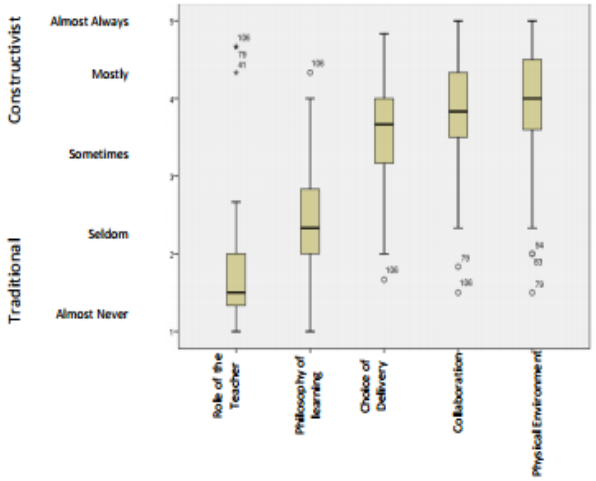


Figure 1 Box plot showing variation in teachers responses to scales of the TBS (*N*=198)

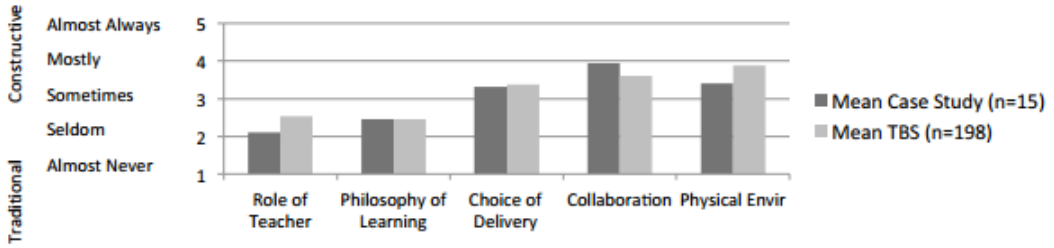
The results indicated teachers' beliefs about their Role as the Teacher was the least constructivist, with responses ranging between *seldom* and *almost never*. This scale had the smallest range of responses with mostly traditional beliefs. Teachers' responses to the Philosophy of Learning scale, which assessed their beliefs about knowledge acquisition suggested slightly more constructivist views, however, the mean response was still close to *seldom*. This scale had the largest range of responses from teachers as indicated in Figure 1 where response ranged from *mostly* to *almost never*.

Responses to Choice of Delivery, Collaboration and Physical Environment, indicated that teachers believed that their classroom practice was more constructivist than traditional; that is that they believed they were *mostly* applying constructivist principles. Although the means for these three scales were relatively high, there was much variation between responses ranging from *seldom* to *almost always* for all scales.

This large-scale overview, although interesting, was also somewhat confusing on two fronts. First, teachers' beliefs about their role as the teacher and about how students' learned (that was more traditional), appeared to be in conflict with the teachers' views of what they were doing in the classroom (in terms of their choice of delivery, use of collaboration, and the physical environment). Further, the teachers' views of what they were doing in the classroom were not the experience of the first author (who had, in the course of her work, observed many classrooms in Abu Dhabi). Qualitative information was used to shed light on these two anomalies.

A case study was used to provide insights into the quantitative findings. Figure 2 provides an overview of the responses (average item mean) for the case study teachers when compared to the whole sample. The profile shows that the large sample had a similar pattern, when compared to the case study sample showing that the case study was reflective of the larger sample.

Figure 2 Comparison of TBS results of whole sample and case study for each of the TBS scales



To investigate whether teachers' self-reports were reflected in their practice, observations and interviews with the case study teachers were used. Using the disassembly, reassembly method, the qualitative information were analysed in terms of the teachers' understanding of concepts associated with constructivism. Data, analysed to examine the understanding illustrated by the teachers in terms of constructivist understanding, were categorised in terms of having limited, some or good understanding of concepts.

Themes with more than ten references were further analysed to determine whether teachers indicated knowledge or skill and areas where teachers understanding of terminology were not congruent with that of the reform. These responses were quantified and displayed visually as profiles. Figure 3 reports concepts that teachers demonstrated poor understanding, these being, assessment, the curriculum, the teachers' role, constructivism, how to assist students who were not coping, lesson planning, lesson outcomes /objectives and child psychology.

In all cases, more than 70 per cent of the responses showed little to no knowledge of the concepts. For example, there were 28 responses/references to lesson planning and lesson objectives. Of these 19, indicated little understanding of lesson planning and the use of lesson objectives. One teacher's response, "I recently heard about the exam task so I am planning to train my students to do the task" (Teacher 11), indicated a lack of understanding of the use of lesson objectives or lesson planning and a lack of aligning teaching to the curriculum. Approximately 85% of the responses showed that teachers had no knowledge of constructivist perspective of assessment of learning as a means of diagnosing learning in the classroom, 90% indicated a lack of knowledge of the curriculum, 90% indicated that teachers were not clear about their role, 70% indicated limited knowledge of constructivism and 80% showed poor understanding or skill for lesson planning, lesson objectives or outcomes and 90% of responses indicated having no knowledge of child psychology.

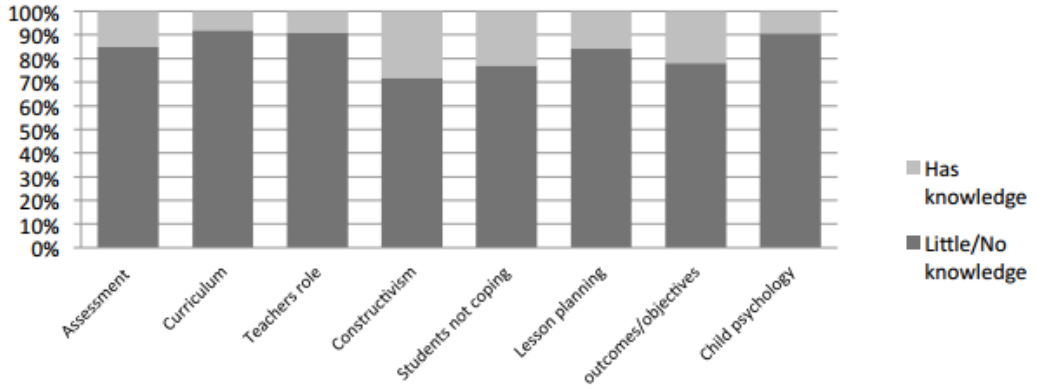


Figure 3. Percentage of responses for interview and observation data as to teachers' knowledge in different categories

Figure 3. Percentage of responses for interview and observation data as to teachers' knowledge in different categories

In some cases, teachers' responses to interview questions indicated that they seemed to understand the concepts, however, when observed in the classroom and questioned further, it became apparent that their understandings were not congruent with that of the accepted constructivist understanding. These findings helped to explain the results of the TBS and are explained below.

Role in the Classroom

As described previously, responses to the Role of the Teacher scale indicated that teachers' beliefs about their role was largely traditional. (The nomenclature of the y-axis has been reversed to make sense for the reader – as this scale was reverse scored). The average means for individual items in this scale are reported in Figure 5, the results of which indicate that, by and large, teachers considered their role to include the delivery of factual information to students, to establish classroom rules, to control discussions and to ensure that students have the correct answers in their answer books. These beliefs correspond more with the requirements of the traditional approach where the teacher was seen as the source of information, disciplinarian, and to ensure that students were given correct information, which only the teacher was seen to be able to provide. The scale also questions the authority of the teacher in the classroom, an important aspect for the traditional approach.

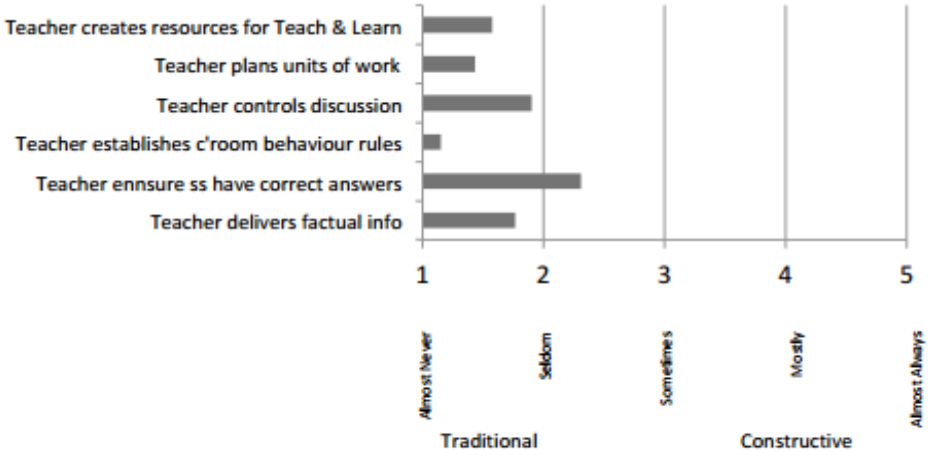


Figure 5 Mean results for questions for Role of Teacher

Observations of the case study teachers indicated that the teachers were not comfortable in the role of a facilitator and tended to use whole class didactic instruction even when students were seated in groups. Observations indicated that teachers tended to alternate between instructing students and allowing them perform simple tasks while watching the students. One teacher summed up the feelings of many "For the last three years there is a radical change. Now we are trying, really, to make the student the centre of the classroom, though I believe the role of the teacher is the one who provides the information. We are trying to cooperate and digest the change …" [Teacher 6]. It would appear that this confusion of the new role required of teachers in the constructivist approach is further compounded by the teachers' lack of knowledge of the new curriculum (reported in Figure 3).

Philosophy of Learning

Teachers' responses to the scale philosophy of learning and knowledge acquisition were more constructivist than to that of the scale role of the teacher with teachers reporting *seldom* to *sometimes*

using constructivist practices (Figure 6). The range of responses to this scale was greater than the responses to the other scales (see Figure 1). There was, however, a similarity between the responses of this scale and the teachers' role scale in that most responses are more reflective of traditional practice. As with the previous figure, the nomenclature of the y-axis has been reversed so as to make sense for the readers. This scale was also reverse scored. Thus Teachers believed they were sometimes to mostly explaining facts and giving their views and opinions.

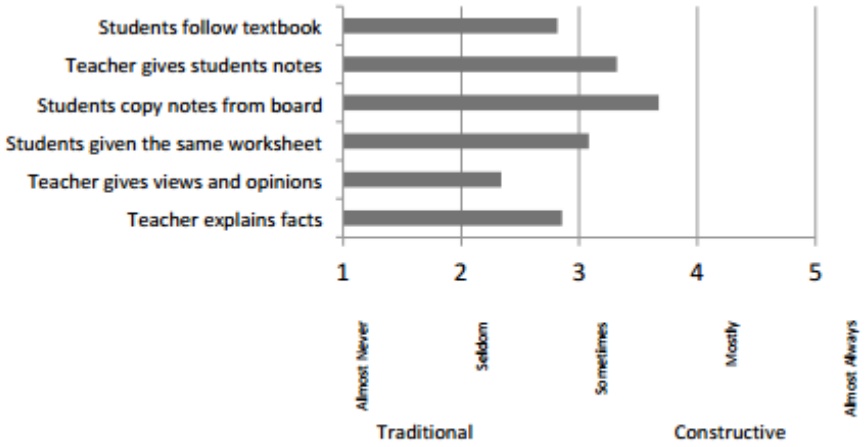


Figure 6 Mean case study responses to questions for philosophy of teaching and learning.

According to the responses on the TBS, teachers believed that, to be effective they should *mostly* explain facts to students and give students their views and opinions. This showed that teachers' epistemological beliefs were that knowledge was largely a body of facts that needed to be memorised, believing that if they, the teacher, explained then the students would thus be prepared for the examinations. This was emphasised by Teacher 9 who responded to a question as to why she was teaching a particular topic, because she knew this would be in the exams. She did not reference the curriculum specifications as to the reason to teach certain topics. Teachers reported that they 'sometimes' used the same worksheet. Observations however, showed that all teachers used the same worksheet for all students in lessons. Differentiation was seen as some students doing more questions than others of that same worksheet.

The item response for this scale indicates that most teachers view the role of the teacher as being teacher-centred. Figure 4 reported that 80% of the responses as to an understanding of a student centred approach were incongruent with that of constructivism. Teachers reported that they were now no longer the centre of the classroom but the students were, and their role as teachers was to stand and watch the students.

Choice of delivery, collaboration and physical environment

Teachers' responses to items in the three scales, choice of delivery (pedagogy), collaboration and physical environment, were more constructivist, ranging from *sometimes* to *almost always* (Figure 1). Figures 7, 8, 9 show the mean responses to individual items in these scales (n=15).

Choice of Delivery

Although the responses to the TBS indicated that teachers believed they *sometimes* challenged students to make connections, to question information, and that they use differentiation and cater for students with different abilities observations show that this was not the case. Interviews with teachers indicated that teachers' understanding of the terminology used to describe constructivist pedagogy was often incongruent with the meaning espoused in the literature (regarding constructivism).

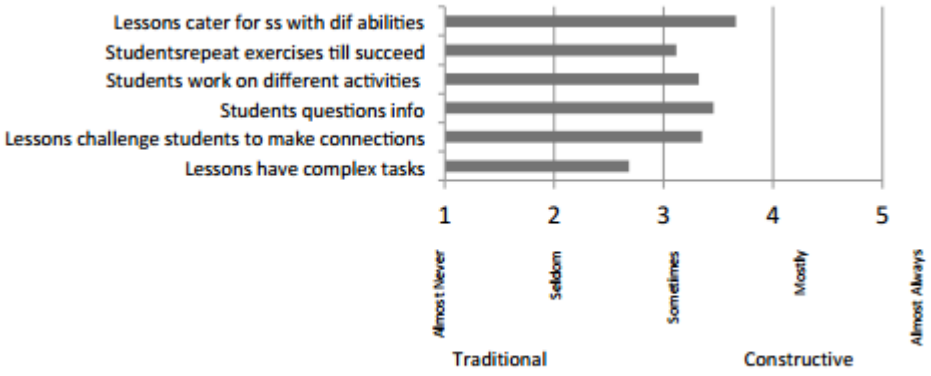


Figure 7 Mean responses to items for choice of delivery, case study teachers (*n=15*)

Table 2 provides a list of examples of incongruent understandings associated with commonly used terms in constructivism. For example, when asked about what inquiry-based learning was, one of the teachers said "I think inquiry-based learning is when they research using the internet".

Table 2 Examples of teachers' conceptual incongruence of pedagogical terminology

Concept	Examples
Problem-based learning	When we have a problem, such as an issue related to the classroom. I try to talk to them about it, and ask them for their suggestions and how can we solve it? [Teacher 3]
Inquiry based learning	I think inquiry means they research from the internet [Teacher 9]
Complex task	Complex tasks - those are not challenging tasks. Complex is like a variety … [Teacher 4]
Reflection	Researcher's notes from lesson observations. Students were given a checklist from which to check instructions for a worksheet. This was deemed 'reflection'.
Active engaged learners	They are working; they are helping each other in collaborative work [Teacher 4]
	It means every single girl in the team should have a role in doing the activity or the task. Nobody is going to get a mark unless points, reward whatever, unless every single girl … [Teacher 13]
Differentiation	The problem is that most of the students here are really very weak, so I have to put one of these excellent with the other girls … [Teacher 6].
	I prepare them with a summary, so they just fill in the blanks [Teacher 5]
Collaboration	Students should sit together and make groups here [Teacher 6]
Sharing ideas	When students give each other 'correct answers', this is seen as sharing ideas [Researcher's notes]

Collaboration

Responses to the TBS, indicated that teachers felt that, during their lessons, students were collaborating on tasks, that there was dialogue between students and that the teacher was encouraging students to work together (Figure 8). In reality, however, the observations did not show this. Analysis of interviews indicated that, for many teachers, the notion of collaboration involved students sitting in groups to enable stronger students to provide the answers to weaker students. For example, one teacher said, "I organise them. For example, I have the leader and the low achievers in a group. They're together to help each other" [Teacher 3]. The findings suggest that, given the teachers' conceptual

understanding of what constituted collaboration, they believed that they were using collaboration in ways that were consistent with constructivist practices.

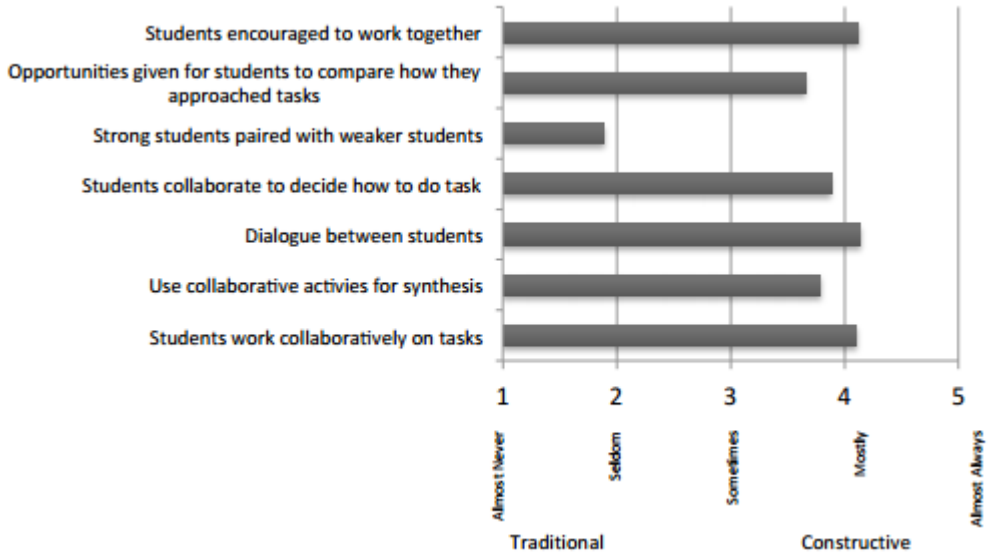


Figure 8 Mean responses for Collaboration, , case study teachers (*n=15*)

While teachers may have espoused to the Constructivist approach for collaboration among students, observations revealed that students were never given opportunities to compare how to approach tasks, to decide on how to do a task or to work collaboratively for synthesis. The traditional approach of pairing weaker students so that they may benefit from the stronger students was very evident. Part of the reason for the lack of collaborative dialogue and interaction may be attributed to the style of the tasks that were worksheets where missing words needed to be inserted. Such a 'task' does not warrant collaborative input as to how to address the task. The incongruent understanding of the teachers with respect to 'tasks' was evident in their responses to the questionnaire. Dialogue between students was regarded as the higher achieving students sharing their answers with the weaker ones.

Physical Environment

Figure 9 shows the mean response for items in the Physical Environment scale. These results indicate that teachers generally feel that they displayed a range of student work; gave all students the same opportunity to display their work; create interactive displays; change displays regularly and invite students to create displays. Observations indicated that displays were rarely interactive, were not changed regularly and generally only excellent examples of work (that had been corrected by the teacher) were displayed. One teacher reported not wanting to display work of weaker students as this may create issues of self-esteem. The teachers and not the students created classroom displays. Only one teacher encouraged students to create displays, however, these were displays which were created outside of the classroom in the passage way were of students' personal interests outside of the classroom.

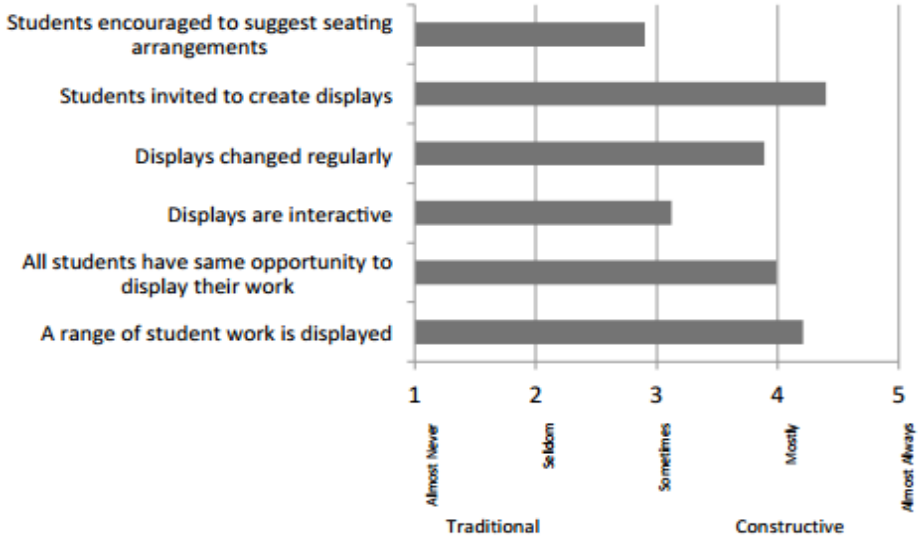


Figure 9 Mean responses to items for physical environment, case study teachers.

The three teachers, who were observed as having no displays in their classroom, indicated that they were mostly using such and were waiting for materials to be provided for them. In some cases the used of the display boards in the classroom had previously been banned by the principals as being distracting to students for their learning as well as problematic for the paintwork of the classroom. While principals had been advised to allow the use of these display boards, the old habits of some teachers persisted. It is doubtful whether their response as to believing that the use of the physical environment is a good thing, were a true reflection of their belief. Similar teachers, under similar restrictions prior to the reform had seized the opportunity to use the walls of the classroom for teaching and learning purposes.

Discussion

Overall, the results indicated that the teachers' views of their role and their philosophy of learning and knowledge acquisition were largely traditional while surprisingly they viewed their classroom practice, in terms of choice of delivery, use of collaboration and the use of the physical environment, to be more constructivist. Classroom observations, however, indicated that this was not the case. It would appear, however, that the teachers' practice was in line with their conceptual understanding of much of the terminology used and what they believed constructivist practice to be.

The results indicated that the teachers of this study held firm traditional beliefs with regard to their Role as the Teacher and their Philosophy of learning and knowledge acquisition. These findings reflect those of Dunn and Rakes (2011, p. 42), who remark that 'where teachers have in the past experienced success in teacher centred processes (i.e. direct lecture, rote memorisation) they are unlikely to implement learner centred practices suggested by reform advocates". Savasch and Berlin (2012, p. 65) found that shared control, as promoted by constructivist curricula, "was the least preferred, least perceived and least observed constructivist component" as did Şeker (2011), whose study in Turkey reported that teachers were reluctant to lose control because the traditional role of the teacher was one of control and strong discipline. Our findings corroborate past research in which the role of the teacher was found to affect the identity of the teacher and, therefore, were resistant to change (Pajares, 1968; Rokeach, 1986). The findings also support those of Taylor (1990) who reported that teachers believe their accountability is firstly to the school authorities for enacting what they desire and this "outweighed the teachers' responsibility for providing meaningful learning opportunities for all students" (Taylor, 1990, p. 20).

A number of reasons may be cited as contributing to these strongly held beliefs and practices, inter alia, culture, prior knowledge and experience, fear and school leadership demands.

Prior to the education reform, teachers in Abu Dhabi were held accountable for classroom discipline, covering the required material and ensuring high-test results. In many cases, teachers who were given poor reviews were dismissed if they did not meet these criteria. Controlled, quiet classes, good examination results and discipline were highly valued and thus were the values implemented by the teachers. Successful implementation implied success as a teacher. Further, these aspects continued to be criteria against which teachers are judged by students, school administration and parents, and established the success or otherwise of the teacher. The Arab world at the time of this research, heralded by the 'Arab Spring' was in a state of economic and political uncertainty and in some areas, turmoil. Coupled with the very low remuneration of teachers in the other Middle East countries, Arab teacher in Abu Dhabi were very conscious of needing to be seen as good teachers in order to hold onto their jobs.
Noisy classrooms, poor student results, unusual tasks and alternate pedagogies may result in teachers being reprimanded for appearing to lack control of their class and may result in them being dismissed, contracts terminated and having to return to their home countries.

Furthermore the authoritarian culture of the region, in which the leader is in control, is one upon which leadership and parenting is also modelled. Thus, controlling discussion and establishing the rules, places the teacher firmly in control of the class. Buchmann (1986) emphasises that "it is crucial to appreciate the fact that 'teacher' is a role word (and) roles are parts people play in society" (Buchmann, 1986, p. 531). The role and therefore, the identity of the teacher, was one of authority and control formed through successful practice and the culture of the region.
Sheehy postulated that the relationships between the students and teacher are "locked into stable, hierarchical positions" outside of which they are unable to act (Sheehy, 2002, p. 282). Sheehy (2002) comments that when change in the teachers' role is introduced, it affects the entire social order and "identities become shaken" (Sheehy, 2002, p. 296). A change from a traditional curriculum would necessitate changes in the social and structural relations of a past curriculum whereby "the problem of promoting fundamental professional change is first a problem of dealing with the natural emotional reactions to the threat of losing certainty, predictability or stability. This relates to the identity of teachers" (Hargreaves, in Hoekstra & Korthagen, 2011, p. 77). Orafi and Borg (2008) make a valid point that teachers who felt ill equipped to implement changes that challenge their beliefs and experiences because it threatens their authority and thus status in the eyes of the students and the community. The conceptions held by the community were that teachers were the presenters of knowledge and learning is a matter of reproduction where students all complete the same worksheets. This would discourage teachers from changing (Tsai, 2002). Lastica (2009) commenting on cross-cultural reform (labelled border crossings in the literature), makes a strong point that "borders create a necessity to struggle because they impose contradictory requirements" (Lastica, 2009, p. 58). This would seem to be a fitting summation of the challenges that the Arab teachers have with their role as the teacher. The role and the identity of being a teacher lies deep within the Arab teachers. It is linked with who they are, their identity and their values. "It is not possible for me to leave my classroom teaching experiences behind. They have been subsumed deep within me and are now part of who I am" (Lastica, 2009, p. 59).

Fear is a factor that prevents people from acting on their beliefs and prevents people from changing their belief or acting on a belief as espoused by Ruitenberg (2011, p. 43) "the freedom to hold beliefs is broader than the freedom to act on them", so while teachers may respond to the TBS as having more constructivist philosophies, they are not free to act upon these beliefs. Rokeach also reminds one "beliefs that are linked closely to their ego (sense of self) are more important than others" (Rokeach, 1968, p. 4). The emotion is integral to all human functioning and strongly linked to primary decision making processes (Damasio, 1994), thus a problem of "promoting fundamental professional change is first a problem of dealing with the natural, emotional reactions to the threat of losing certainty, predictability or stability relating to the identity of teachers" (Hoekstra & Korthagen, 2011, p. 77). Thus the role of the teacher is one of teacher identity and sense of self, which is a very sensitive area fraught with challenges of fear and danger to the individual.

Blömeke and Paine (2008) remind us "teaching is a cultural practice ... where the structure and content of teacher education depends on a deeper rationale, which is a result of cultural boundaries" (Blömeke & Paine, 2008, p. 2027). The influence of the culture of the region may also have far reaching consequences and influences upon the ability of Arab teachers to change to a student-centred classroom where teachers are empowered to make decisions and share control with students. The notion of empowerment, today, is still a foreign concept for the Arabs, because an individual is never empowered to make independent decisions because, in doing so, responsibility, would need to be invoked (Henderson, 1988). The constructivist curriculum, advocating a learner-centred approach, depends upon the teacher to make decisions, to design tasks and activities through a prior diagnosis of student needs, and then, as a facilitator, to guide students in their knowledge construction and meaning making through task and social interactions. The teacher is required to make many independent decisions in order to do so. Challenges arise from this ideology that seems to be in conflict with the culture where a higher authority makes decisions. In the previous education system neither principals nor teachers would enact a directive unless these were accompanied by a signed decree with an official seal. This was highlighted by a teacher in our study who clearly stated that the new pedagogy is not the Arab way, which she described as being authoritarian in telling and reprimanding students to "Do this, Don't do that". Thus, because of the historical and cultural situation a change in the hierarchy and discipline of the classroom and thus the role of the teacher is a difficult aspect to change or expect a change. Early in my position as adviser in Abu Dhabi schools, a teacher took me in her confidence and said: "Miss Monika, we Arabs cannot design lesson ourselves, but tell us what to do and we will copy this for you" (Teacher Iman, 2010). This response was in keeping with Hooghart's findings and helped me understand the restraints the teachers had with designing tasks and a change of their role in the classroom. I am reminded that "ways of living and thinking vary considerably according to cultural backgrounds" (Jorgensen et al. 2010, p. 163).

The notion of the freedom, responsibility and decision-making that is required by a constructivist curriculum, are new concepts to many of the Arab teachers of the region and teachers may need assistance in understanding these terms. The expectation that the individual must now decide for himself and his students may be daunting for many. With the traditional textbook curriculum the teacher's responsibility was to ensure control over the class and cover the curriculum by completing the relevant sections of the textbook. There was no emphasis on diagnosis for learning or as learning and no responsibility lay with the teacher as to what resources to use, which tasks to design or how students would go about learning (Boghossian, 2006; Bichelmeyer & Hsu, 1999; Taylor, 1990).

The teachers' role was to implement decisions that had been made at higher levels. Their role was not to think, question or make the decisions but to follow the decrees from the Ministry of Education (MoE). The MoE had provided principals with rulebooks and all decisions were made within the guidelines of this rulebook (Koorey, 2009). This corresponds to the framework proposed by Hofstede (1980) where distance reflects an acceptance of an unequal distribution of power without question, which was regarded as normal. This is also reflected in education in the "classroom relationships between student and teacher and between teacher and higher management in the wider school context" (Richardson, 2004, p. 432).

It may be postulated that the Arab teachers, most of them being a product themselves of such traditional education systems, would not have the capacities needed to interpret the mandated curriculum changes into practice. Grosser and Lombard (2008), from research in South Africa where similar tribal systems are common among the Black people, maintain that the various worlds of the teachers "have not prepared them for the execution of critical thinking abilities" (Grosser & Lombard, 2008, p. 1364). A similar reporting of the effect of culture was from Hooghart (2006) who reported that one of the difficulties of reform in Japan was that teachers had been conditioned "by the cultural model of learning and teaching as imitation, rather than innovation" (Hooghart, 2006, p. 297).

The study reported a greater variation in teacher beliefs with respect to their philosophy of learning and knowledge acquisition with a mean that was, however, largely traditional. This may be attributed to their epistemological knowledge where the TBS showed them believing that the teacher holds the knowledge and is responsible for giving students the facts which students would memorise and help to ensure good examination results. This epistemological belief, that learning and knowledge consisted of

memorising facts, influenced the role that teachers played in the classroom, and was a common finding in research where "whole class activities were most frequently observed – lectures, worksheets, videos, demonstrations" (Savasci & Berlin, 2012, p. 79). A similar finding was reported from Taiwan where teachers' epistemological knowledge was reported to "continue to perform an essential role in mediating the quality of student learning" (Tsai, 2002, p. 771). Chai's research (2010, Singapore) reported that none of the participants believed that knowledge was not transmittable (p. 136), consequently all teachers were observed as practicing traditional, didactic teaching. Richardson (2003) reported this as being a common belief of teachers in the Middle East. Chai attributed this to teachers not being held responsible for their teaching methodology but "were held accountable for students' examination performance" (Chai, 2010, p. 136). This is true of Abu Dhabi where several case-study teachers clarified the need for them to train students for the exams in order to ensure good results.

Önen (2011) points out that "philosophy of education is a discipline or thinking method that gives perspective to educators" (Önen, 2011, p. 294). This is an important point for the Abu Dhabi context because the majority of Arab teachers have had no formal professional educational training and therefore any philosophy of education they may have formed is what they have practiced and observed through their own period in the classroom, endorsed through the textbook and valued by the school administration and parents who mostly come from a common background of traditional teaching.

As with the scale, role of the teacher, the identity and authority of the teacher may be threatened with a change to belief in this scale. James and McCormick (2009) noted that the majority of teachers "struggled to bring practice in line with their stated values" (James & McCormick, 2009, p. 982) showing that teachers may have slightly more constructivist beliefs due to reform professional development, but this was not evidenced in their practice. Wallace and Priestly (2011) reported that for successful change in classroom practice to take place, teachers' beliefs must be congruent with the reform philosophy. Tsai (2002) reports from his research in Taiwan, that, teachers rarely expressed constructivist-oriented pedagogical views or philosophy even though they had been exposed to constructivism for more than 15 years. He reported that "few teachers had constructed relevant conceptual frameworks" (Tsai, 2002, p. 775) within this period. This notion is supported by Roehrig (2005) who reports "reform based curriculum materials often requires a transformation in teachers ideas about and understanding of subject matter, teaching and learning" (Roehrig, 2005, p. 413).

The TBS results indicated that teachers believed they were mostly implementing constructivist approaches in their choice of delivery, the use of collaboration and the physical environment of the classroom. The interview and observation data, however, revealed that even though the teachers believed that they were implementing reform change, by and large they were not. This is reflected in much past research by Bakkenes et al., 2010; Fishbein & Ajzen, 1972; Hoekstra and Korthagen, 2011; Kleve, 2004; Mitchell, 2005. Further investigation showed that although teachers gave the impression of understanding the reform requirements, in reality, their understanding was often incomplete or incongruent to the requirements. Such findings corroborate those of past studies, for example in a study undertaken in Turkey, Kirkgöz (2008) found that the teachers' lack of understanding and knowledge was a factor influencing the teachers' implementation of curriculum reform initiatives. In most previous studies this has not been found to be an influencing factor, as there seems to be an assumption that teachers have a common and congruent understanding of education philosophy, methodologies and terminology. The teachers' understanding and knowledge were therefore not questioned or investigated. As reported few of the Arab teachers had any formal professional teacher education or training, thus it is not surprising that they held traditional understandings of assessment, the role of the teacher, lesson planning and had limited knowledge of the curriculum, how to assist students having difficulties, and lesson planning skills.

Similar observations of non implementation of intended reform initiatives have been reported from Western, Asia-Pacific, South African and Middle-East studies (Fisher, 2006; Kleve, 2004; Muofhe, 2001; Ogan-Bekiroglu & Akkoc, 2009; Roehrig & Kruse, 2005; Savasci & Berlin, 2012; Şeker (a), 2011; Snider & Roehl, 2007; Vermunt & Endedijk, 2011). Teachers in these studies were reported as being positive about the reform but there was "little evidence that teachers are utilising curricular and pedagogical strategies that align with practices promoted by the standards" (Roehrig, 2005, p. 412). In this study this has been attributed largely to the teachers' lack of knowledge and understanding of

constructivist philosophy and approach, an incongruent interpretation of education terminology that made them believe they were following constructivist practices and lack of the necessary skill sets to implement the new curriculum. Research shows that teachers filter information with existing understanding (Alger, 2009; Fives & Buehl, 2008; Önen, 2011; Pajares, 1992) where teachers interpret much of the new terminology within their existing knowledge frameworks. For example, the concept of group work was interpreted by teachers in this study, as students sitting in groups. Furthermore, the culture of authority and compliance inherent in Abu Dhabi was evident when teachers explained that the students were in groups because they had been instructed to do so. In addition the traditional teaching methods modelled to teachers during their own education are likely to have impacted on their views of what a classroom looks and sounds like.

Our findings suggest that teachers in Abu Dhabi believed they were implementing constructivist practices using largely superficial activities that reflected the teachers' limited understandings. These findings, reported in past studies of traditional teachers, have indicated a lack of skills, knowledge and understanding to implement constructivist pedagogy (Bakkenes et al., 2010) Bakkenes et al. (2010) state that the need to be a diagnostician, challenger and model as well as a monitor and to reflect on students' learning processes require a fundamental change to the role of the teacher, but where teachers do not have the skills, understanding or knowledge, they will unlikely to be able to implement the initiatives required. The importance thus, of teachers knowledge and conceptual understanding of the pedagogical model being implemented severely impacts upon their interpretation of the curriculum and thus in the classroom implementation (Shulman and Shulman, 2004). Thus without the knowledge, understanding and necessary skills, the Abu Dhabi Arab teachers may only be able to implement the visual aspects of constructivism e.g. having student sitting in groups as had been described to them during professional development sessions.

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