

# The Influences of the Lecturers' Beliefs on Teaching Functions on Teaching Practices

Samah Ali Mohsen Mofreh  
School of Educational Studies, Universiti Sains  
Malaysia  
samahm09@gmail.com

M. Najib Ghafar  
Faculty of Education, Universiti Teknologi  
Malaysia  
mnajibghafar@gmail.com

*Abstract.* An understanding of the relationship between lecturers' beliefs on teaching functions and lecturers' teaching practices is important for the improvement of lecturers' professional development. There have been few types of research conducted regarding lecturers' beliefs about teaching and the interrelationship with teaching practices. Therefore, there are questions on the influence of beliefs on teaching functions and practices among lecturers at community colleges. This research aims to study the influences of the lecturers' beliefs on teaching functions and practices and how the demographic factors affect this relationship. Altogether 314 lecturers of Community Colleges of Yemen responded to the survey. This research used Structural Equation Modeling to test the hypothesis of this study about the relationship and the effect of lecturers' beliefs on teaching functions on their teaching practices. The findings showed that there was a good significant effect on the relationship between lecturers' beliefs on teaching functions and their teaching practices.

*Keywords :* Lecturers' beliefs, teaching functions, teaching practices, structural equation modeling influence, significant effect.

## Introduction

Lecturers are expected to play a crucial role in changing educational institutions and classrooms (Prawat, 1992; Pajares, 1992; Haney, Czerniak, & Lumpe, 2000; Levin, 2006; Mukred, 2010; Esmail, 2010; Mazab 2012, Latshaw, 1995; Baker, 2001, Mofreh et. al., 2013). Thus, it is essential to understand how lecturer beliefs influence and how they conceptualize teaching (Pagares, 1992). However, lecturers are seen as the main obstacles to change, due to their traditional beliefs.

Many studies have examined the relationship between lecturer beliefs and their practice (Mansour, 2009; Thompson, 1992; Pajares, 1992; Aguirre & Speer, 2000). Some researchers doing research in science and mathematics education reported a high degree of agreement between lecturer beliefs and the practice of teaching (Aguirre & Speer, 2000; Ernest, 1989; Standen, 2002; Thompson, 1992) whereas others have identified some inconsistencies (Kynigos & Argyris, 2004). Some studies support the claim that lecturers' beliefs influence classroom practices through interpreting meanings in the classroom (Thompson, 1992, & Mansour, 2008).

On the other hand, some researchers argued that the relationship between lecturers' beliefs and practices is a complex one and that the researcher must question common assumptions made about it (Kynigos and Argyris, 2004). The relationship between lecturer beliefs and practice is controversial and has a complex nature.

The complexity comes from the fact that it is important for researchers and educators to think in terms of connections among beliefs not only in terms of beliefs as independent subsystems (Pajares, 1992). Therefore, it will be more important to investigate the contextual influences and constraints on lecturers' practice and to explore how their experiences of being taught may have shaped their beliefs than to attempt to identify trends related to demographic characteristics across the limited sample. Thus, this study aims to assess the lecturers' beliefs on teaching function based on demographic characteristics in order to figure out if that will impact this study in more or less complex ways, and will raise issues to relate to the contexts of this study.

## Literature Review

The beliefs about the nature of teaching and learning which include "direct transmission beliefs about learning and teaching" and "constructivist beliefs about learning and teaching. These dimensions of these beliefs are well established in educational research at least in Western countries and have also received support elsewhere (Daley et, al. 2010). The direct transmission view of student learning implies that the role of lecturers is to transfer knowledge in a clear and structured way, to explain the correct solutions to give students clear and resolve problems, and to ensure calm and concentration in the classroom. By contrast, a constructivist view focuses on students not as passive participants, but as active participants in the process of acquiring knowledge.

Lecturers who holding this view emphasize facilitate student research, prefer to give students the opportunity to develop solutions to problems on their own and allow students to play an active role in teaching activities. In this sense, the development of thinking and reasoning processes stands out more than the acquisition of specific knowledge (Staub and Stern, 2002).

#### Lecturer beliefs and teaching beliefs

Understanding the beliefs of lecturers is critical in education as we 'cannot effect change in lecturers' behaviors without also effecting change in their personal beliefs' (Kagan, 1992). Lecturer beliefs are the ideas that influence how they conceptualize teaching. These ideas encompass 'what it takes to be an effective lecturer and how students ought to behave' (Pajares, 1992). Pajares (1992) states that beliefs function as a filter through which new phenomena are interpreted. Schommer (1994) argued that beliefs are multidimensional. She suggests that epistemological beliefs evolve with experience, reflecting experiences of both education and home-life and that there is scope for change.

Cartoonist and Tabachnick (1981) gave an explanation, namely that the thousands of hours that lecturers and students spend in the classroom shape their beliefs. These conservative beliefs remain latent for formal training in pedagogy in college and become a major force once the candidate is in its own class. Later, Kennedy (1997) points out this situation in part to the belief that candidates and lecturers bring to lecturer education. It is unclear what the source of those beliefs might be, a product of their education, a reflection of their life experiences, or because of the socialization process.

Kennedy says that these beliefs are used to evaluate new ideas about teaching that lecturers face in their classes. Those teachings that their beliefs are recognized and characterized as "what's new?" Lessons to question their beliefs are dismissed as theoretical, impractical, or even simply wrong. Aguirre and Speer (2000) provided details on how those beliefs inform practice particularly in the formulation of objectives in the classroom. They argue that the way lecturers' beliefs play a vital role in their practice. In their study, a collection of specific beliefs that are connected to each other and influence the formulation of a goal can be called a "bundle of belief". A bundle includes a number of beliefs (beliefs about learning, beliefs about teaching, beliefs about science, .that go along). The belief bundles played a vital role in the formulation of objectives that influence lecturers sharing during activities.

Ernest explained that the two key factors for a mismatch between beliefs and teaching practices were full power influence of the social context and the level of awareness of their own beliefs of the lecturer. He thought that this gap could be overcome. However, he noted that "the thought of higher level allows the lecturer to reflect on the gap between beliefs and practices and reduce it. According to Yero (2002), "Beliefs not only affect the

way people behave but what they see (or pay attention to) in their environment".

However, some previous studies found that lecturers' beliefs are mostly consistent with their practices (Savasci and Acikalin, 2009; Thompson, 1992; Yero, 2002). However, most of these studies have collected self-reported data by rating their use of teaching strategies without observation (Ravitz et al., 2000; Haney et al., 1996) or limited observation (Haney and McArthur, 2002; Levitt, 2002). Therefore, this may be one reason that has determined the consistency between lecturers' beliefs and practices. The relationship between beliefs and practice is not a simple one-way relationship from belief to practice, but a dynamic two-way relationship in which beliefs are influenced by practical experience. However, seeking to account for the beliefs of lecturers hold in terms of discrete demographic variables is unlikely to be productive (Borg & Burns, 2008). Andrews (2008) found that lecturer beliefs about grammar were not significantly correlated to aspects of background such as "place/subject of first degree and years of teaching experience" but there's seems to be a link between beliefs and the particular school context in which the lecturers worked. The influence of classroom contexts and factors such as educational experience has been widely cited in the broader literature relating lecturer belief to practice (Lam and Kember, 2006).

#### Method

This study used quantitative method based on its objective, which is to study of the influences of Lecturers' Beliefs on Teaching Functions (LBTF on the Lecturers' Teaching Practices (LTP) based on the demographic factors. A total number 314 of lecturers from 8 community colleges served as the population in this research. This study used Structural Equation Modeling (SEM) analysis which required minimum sample size of 100. Hair et al, (2010) suggested that for minimum sample size in SEM depending on the model complexity and basic measurement model characteristics related to number of items for each construct. This design is commonly used to collect data for variables of interest and the theorized relationships among those variables investigated through the use of Structural Equation Modelling (SEM) (Munro, 2005). SEM combines Confirmatory Factor Analysis (CFA) and multiple regression analysis to research both the measurement and structural properties of the model. In other words, the moderator variable M is "moderating" the strength of X-Y relationship

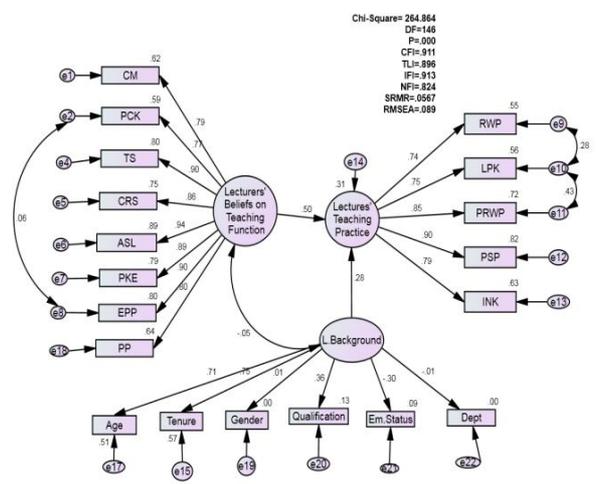
#### Result and Discussion

In this study, the structural model was used to test the effect of demographic traits on relationship between lecturers' beliefs on teaching functions and teaching practices. In Structural model, the causal effect of independent variable X on its dependent variable Y must be significant. When the moderator variable M enters the

model, the causal effects would change due to some interaction effects between X and M. As a result, the effect of X on Y could either be reduced or enhanced (Byrane, 2010; Klane, 2011; Awang, 2012). In other words, the moderator variable M is “moderating” the strength of X-Y relationship effect of X on Y could either be reduced or enhanced. This research adopted Cohen (2002) in determining the effect sizes as shown in Table 1. Figure 1 showed the initial model with low factor loading of gender, qualification, and employment status less than 0.6. The variables with low factor loading were deleted to test the second research hypothesis.

**Table 1:** The effect of casual effect by Cohen (2002)

Effect size	Effect
≤ 0.2	Small
0.5	Medium / good
0.8	Large



**Figure 1:** Model with low loading factors of demographic factors

Multi-group Confirmatory Factor Analysis was used to as a method for assessing the effect of the moderator variable in the model. Therefore, CFA was used to identify the path of interest where the moderator variable was to be assessed. The particular path was constrained with parameter = 1 and the model was termed as constrained model 2. Thus, two models were estimated. One was the constrained model (with parameter constrained to 1) as illustrated in Figure 2 while the other one was the unconstrained model (with no parameter constrained) as illustrated in Figure 3.

For this hypothesis test to be significant, the difference in Chi-Square value must be higher than the value of Chi-Square which was 3.84 (Zinudin, 2012). The difference between the chi-square of the constrained model and the unconstrained model was 24.694 which was higher than 3.84, while the difference in the degree of freedom was 1. This result indicated that the

moderation effects of age and tenure status of lecturers are significant and moderated the casual effects of Lecturers’ Beliefs of Teaching Functions on Lecturers’ Teaching Practices. Furthermore, the results indicated that lecturers who have further development of practices needed to consider the impact of their beliefs on teaching functions. In addition, other factors such as demographic traits could play a role in changing the impact of lecturers’ beliefs on their teaching practices.

The unconstrained model showed the casual effect value of Lecturers’ Beliefs about Teaching Functions on Lecturers’ Teaching Practices was 0.50 as shown in Figure 4.9. This result indicated that lecturers’ beliefs on teaching functions have a direct influence on lecturers’ teaching practices and may make medium change on lecturers’ teaching practices. The modified and unconstrained model showed the casual effect of the demographic traits of respondents such as age and tenure status affects and moderates the influence of lecturers’ beliefs on teaching functions on lecturers’ teaching practices with value of 0.29 as shown in Figure 2. The unconstrained model as shown in Figure 3 showed that the casual effect value of lecturers’ beliefs on teaching functions on lecturers’ teaching practices was 0.67. The unconstrained model showed the casual effect of the demographic traits of respondents such as age and tenure status affects and moderates the influence of Lecturers’ Beliefs about Teaching Functions on Lecturers’ Teaching Practices with value of 0.27 as shown in Figure 3. The result of casual effect of unconstrained model showed that the direct influence of Lecturers’ Beliefs about Teaching Functions on Lecturers’ Teaching Practices was greater than the influence unconstrained model. The result of unconstrained model showed the casual effect of the demographic traits of respondents such as age and tenure status had less effect on Lecturers’ Beliefs about Teaching Functions on Lecturers’ Teaching Practices than the unconstrained model.

The figure of the respondents of SEM gives more confirmation about the relationship between the LBTF and LTP. The figures 2 and 3 with their results answered the research questions: (1). To what extent, if any, does the LBTF relate to the LTP?. (2). To what extent, if any, does lecturers’ background moderate the casual effects of LBTF on LTP?

The result of casual effect of unconstrained model showed that the direct influence of Lecturers’ Beliefs about Teaching Functions on Lecturers’ Teaching Practices was greater than the influence unconstrained model. The result of unconstrained model showed the casual effect of the demographic traits of respondents such as age and tenure status had less effect on Lecturers’ Beliefs about Teaching Functions on Lecturers’ Teaching Practices than the unconstrained model.

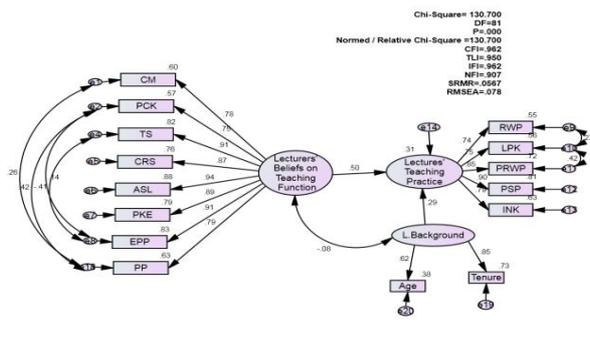


Figure 2: The unconstrained Model

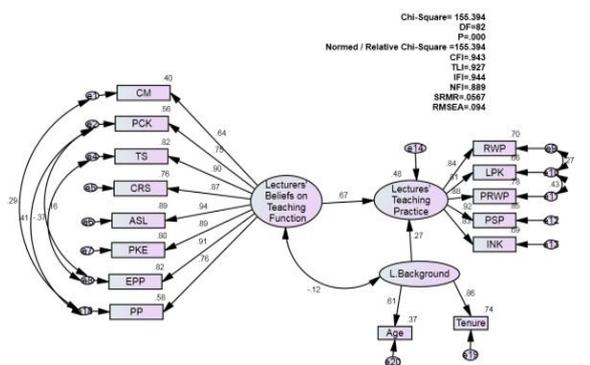


Figure 3: The unconstrained model

The findings of this study show that lecturers with high belief on teacher functions have higher teaching practices than those with low belief on teaching functions. Professional development of lecturers can be enhanced when their teaching practices are high as a result of high belief on teaching functions. Savasci-Acikalın (2009) reached a similar result that lecturers' beliefs are consistent with classroom practices. The findings of Mansour (2008) study suggested that lecturers' personal religious beliefs and experiences played a significant role in shaping beliefs and practices. The effects of Lecturers' Beliefs on Teaching Functions on Teaching Practices were more visible at a certain age, the researcher could claim that age of lecturers moderates the casual effects of beliefs on teaching functions on their teaching practices. Similarly, tenure status could serve as a moderator variable and change the effects of beliefs on lecturers' functions on their teaching practices. Mofreh et al. (2014) reached similar findings in their study by finding there was a difference between levels of lecturers' beliefs on teaching functions and teaching practices among respondents' age and tenure status. Similarly, Alwadi and Saravanan (2013) concluded in their study that lecturers' epistemological beliefs were changed based on their experience. Thus, the length of university education and socialization do not seem to significantly influence teachers' beliefs and practices.

Conclusion

The effective evaluating of lecturer' beliefs and understandings of teaching as well as learning play an important role in their classroom practices and in their professional growth and improvement of the effectiveness of teaching in education.

The study conclude that the influence of these different sets of variables lecturers' beliefs on teaching functions as an independent variable and demographic factors such as age and tenure status as moderate variable on lecturers' teaching practices was tested. Thus, the lecturers' beliefs on teaching functions had greater influenced on their teaching practices with those lecturers who were younger and more experienced than others. Thus, age and tenure status (i.e. experiences) may play as positive role in changing the relationship between lecturers' beliefs on teaching functions and practice which may lead to improving their professional development.

References

Aguirre, J., and Speer, N. M. (2000). Examining the relationship between beliefs and goals in lecturers practices. *Journal of Mathematical Behaviour*.

Aguirre, J., and Speer, N. M. (2000). Examining the relationship between beliefs and goals in lecturers practices. *Journal of Mathematical Behaviour*.

Andrews, H. A. (2004). *Accountable Teacher Evaluation! Toward Highly Qualified and Competent Teachers*. Stillwater, Oklahoma: New Forums Press.

Awang, Z.(2012). *A handbook on SEM: Structural Equation Modeling*. Centre of Graduate Studies.Universiti Teknologi MARA Kalantan.

Borg, S., & Burns, A. (2008). Integrating grammar in gdult TESOL classrooms. *Applied Linguistics*, 29 (3), 456–482.

Byrne, B.M. (2016). *Structural Equation Modeling With AMOS: Basic Concepts, Applications, and Programming*, Third Edition. Routledge .New York.

Daley, G., and Kim, L. (2010). *National Institute for Excellence in Teaching A Teacher Evaluation System That Works*.

Ernest, P.(1989).The knowledge,beliefsandattitudesofthematematics teacher:Amodel. *Journal of Education for Teaching*.

Hair, J. F., Sarstedt, M., Pieper, T. M., and Ringle, C. M. (2012). *The Use of Partial Least Squares Structural Equation Modeling in Strategic Management Research: A Review of Past Practices and Recommendations for Future Applications*. *Long Range Planning*, 45(5-6), 320–340. <http://doi.org/10.1016/j.lrp.2012.09.008>

- Haney, Czerniak Cabaroglu, N., and Roberts, J. (2000). Development in student teachers' pre-existing beliefs during a 1-year PGCE program. System.
- Haney, Czerniak Cabaroglu, N., and Roberts, J. (2000). Development in student teachers' pre-existing beliefs during a 1-year PGCE program. System.
- Kagan, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist*, 27, 65-90.
- Kennedy (1997). Defining an ideal lecturers education.
- Kuzborska, I. (2011). Links Between Teachers' beliefs and practices and research on reading
- Kynigos, C., and Argyris, M. (2004). Teacher beliefs and practices formed during an innovation with computer-based exploratory mathematics in the classroom. *Teachers and Teaching*, 10(3), 247-273
- Kynigos, C., and Argyris, M. (2004). Teacher beliefs and practices formed during an innovation with computer-based exploratory mathematics in the classroom. *Teachers and Teaching*, 10(3), 247-273
- Lam, B.H., & Kember, D. (2006). The relationship between conceptions of teaching and approaches to teaching. *Teachers and Teaching*, 12(6), 693-713.
- Latshaw, J. D. (1995). Evaluation Contribution of University Professors.
- Levin, T. (2006). Teachers' Beliefs and Practices in Technology-based Classrooms: A Developmental View.
- Levitt, K. E. (2001). An analysis of elementary teachers' beliefs regarding the teaching and learning of science. *Science Education*, 86(1), 1-22.
- Mansour, N. (2008). The experiences and personal religious beliefs of Egyptian science teachers as a framework for understanding the shaping and reshaping of their beliefs and practices about Science-Technology and society (STS). *International Journal of Science Education*, 30(12), 1605-1634.
- Mansour, N. (2009). Science Teachers' Beliefs and Practices: Issues, Implications and Research Agenda.
- Mazab, A. (2012). Yemeni Universities participating in spreading unemployment. Article journal. Published by Mareb Press.
- Mofreh, S. A., Abdul Gahfar, M., N., Omar, A., and Ma'ruf, A. (2014). Teaching Appraisal in Higher Educational Institutions, Yemen. The 1st Academic Symposium on Integrating Knowledge, UN Makassar, Indonesia.
- Mofreh, S.A., M., Ghafa, M., Omar, A. (2013). Study on Lecturers' Perceptions On Teaching Functions Among The Lecturers Of Community Colleges, Yemen". Published in the International Journal of Scientific and Technology Research, [Impact Factor: 0.675].
- Mukred, A. (2010). Scientific research in universities in light of the right - wing global expertise. Fourth science conference, Aden University.
- Norris, A.E. (2005). Structural Equation Modeling. In Barbara Hazard Munro, (Ed), *Statistical Methods for Health Care Research* (5th ed.)(pp. 405-434). Philadelphia: Lippincott Williams and Wilkins.
- Pajares, M. F. (1992). Teachers' beliefs and education research: Cleaning up a messy construct. *Review of Education Research*, 62, 307-332.
- Prawat, R. S. (1992). *Teachers' Beliefs about Teaching and learning: A Constructivist Press.*
- Raths, J. (2001.). Teachers' Beliefs and Teaching Beliefs. Journal article. Vol. 3.
- Ravitz, J. L., Becker, H. J., and Wong, Y. (2000). *Teaching, Learning, and Computing: Constructivist-compatible beliefs and practices among U.S.*
- Schommer, M. (1994b). Synthesizing epistemological belief research: Tentative understandings and provocative confusions. *Educational Psychology Review*, 6(4), 293-319.
- Standen, R. P. (2002). The interplay between lecturers' beliefs and practices in a multi-age primary school.
- Staub, F., Stern, E., 2002. The nature of teachers' pedagogical content beliefs matters for students' achievement gains: quasi-experimental evidence from elementary mathematics. *Journal of Educational Psychology* 93, 144-155.
- Thompson, A.G. (1992) 'Teachers' beliefs and conceptions: a synthesis of the research', in D.A.Grouws, *Handbook of Research on Mathematics Teaching and Learning*, New York: Macmillan.
- Thompson, A.G. (1992) 'Teachers' beliefs and conceptions: a synthesis of the research', in D.A.Grouws, *Handbook of Research on Mathematics Teaching and Learning*, New York: Macmillan.
- Yero, J. L. (2002). That elusive spark [Electronic version]. *Education Week*.
- Zeichner, Kenneth M., and Tabachnick, B. Robert. (1981). Are the effects of university teacher education 'washed out' by school experience? *Journal of Teacher Education*, 32(3), 7-11. EJ 249 37.