Structural Model of Teaching Quality Improvement Factors for Academics Professional Development of UAE Higher Education Institutions

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ABSTRACT

UAE government has allocated fund to improve teaching and learning in the higher education institutions. However, several studies found that the professional development programmes conducted still not much improvement as expected. Hence this paper is to present a structural model of factors in Teaching Quality Improvement for Academics Professional Development of UAE Higher Education Institutions. The data used for this model was collected through structured questionnaire survey and the respondents were selected using sample purposive sampling technique. The structural model was developed using AMOS SEM software. Each of the measurement model was assessed using confirmatory factor analysis (CFA) of the software until it achieves goodness of fit. Then these models are tied up into structural model according to the hypothetical model. The structural model was initially assessed using CFA to find the goodness of fit. Once it achieved the goodness of fit, it used path analysis for hypotheses testing. Results of the testing found that that five of the seven hypotheses are significant. It seems that the two hypotheses are not significant to Academics Professional Development which are Policy and strategy and Technological factors. However, as a whole, it can be concluded that the teaching quality improvement factors are significantly required for Academics Professional Development of UAE Higher Education Institutions.

Introduction

United Arab Emirates (UAE) was officially formed in 1971 from seven autonomous sheikh-governed emirates which are Abu Dhabi; Ajman; Dubai; Fujairah; Ras al-Khaimah; Sharjah; and Umm Al-Qaiwain. South east of the Arab Peninsula in south-western Asia on the Persian Gulf, this Middle Eastern country is located. There are many nationalities living in UAE such as Indians, Pakistanis, Arabs, Chinese, Bangladeshi, European and others (Ashour, 2019). Presently, higher education has become the main economic and social growth of UAE society (Aufi and Ali, 2014, Ma et al., 2016). In an effort to enhance the quality of their higher education, Higher Education Institutions (HEIs) are under heavy pressure to adapt an accelerating change in modern society. The evolving essence of university study and teaching/learning technologies emphasises for better quality of education (Norton, 2018). HEIs have recently been pushed to use quality methods to take advantage of developments in education and optimise educational and learning processes (O'Sullivan, 2016). Reimers et al. (2019), emphasise that quality education is considered to be one of the fundamental necessities for providing the nation with the information, skills and competences to resolve the challenges emerging from globalisation (ICT).

Universities and colleges around the world have embraced new approaches to quality management (QA) and Total Quality Administration (TQM) in order to sustain and boost quality education (Aufi and Ali, 2014). Increased attention was given to promoting the professional development (PD) of academics in introducing new methods in the field of teaching quality (Biggs, 2011). In other words, enhanced HE training includes PD from teaching professionals. Bryan and Clegg (2019) emphasise that teachers have to keep up-to-date with best practises and overall development in programme quality in order to develop professionally. It also considers that PDPs provide academic workers with appropriate and up-to-date skills to help them function efficiently. Currently, PD is important to upgrade academics' awareness and practise to sustain and improve the quality of education.

In UAE, the government has funded Human Resource Development (HRD) policies on academics' professional development in higher institutions (Ashour, 2019). Therefore, the government has allocated money for the provision of all the support it needs to create, retain and train the staff in all aspects, particularly HEIs

(Gallagher, 2019). The UAE administration also offers educational opportunities to allow academics to obtain useful knowledge and experience and essential technical skills on the labour market as needed in the various fields of sustainable development (Ashour, 2017). Zanqar et al. (2019), stresses the need for teachers/academics to upgrade and enhance their skills through professional development in the face of fast evolving, expectations for high standards and demands for higher quality. HEIs are able to increase the quality of teaching by concentrating on and linking academic PD to improved teaching quality. These institutions are also responsible for enhancing the quality of faculty positions, in particular teaching practises, along with government emphasis on human resources growth. Enhancing the standard of education requires adequate academic advancement in order to learn new and developed knowledge (Kvasnicka et al., 2017).

Literature Review

Professional Development Programme (PDP) for academics should be first evaluated and identified in order to achieve the goals of PDPs with regard to improvement in teaching quality. Any programme designed should recognise the need for professional improvement of workforce. Heras et al. (2015) suggest that needs evaluation helps a business enhance work efficiency by finding differences between employee's current skills and the skills needed. "Training needs analysis (TNA) refers to the specific task of identifying the appropriate training programme format and content" says Kornevs et al. (2009). That is why evaluation or review of the PD needs of academics is needed to set practical objectives and create a content that is applicable with suitable formats for PDP to improve the quality of teaching. The application of TNA to meet university PD requirements is necessary for the improvement of university quality according to Heras et al. (2015). In order to establish effective PD programmes related to improved teaching efficiency, it is important to recognise and assess academic PD needs. To what degree do current PDPs respond to academics' real requirements to enhance the quality of education? Many studies have shown that the current PDPs do not fulfil the PD requirements of academics and emphasise integrating their requirements with PD activities.

In addition, Shareef (2008) researched mentorship in Maldivian primary school as a PD technique for teachers. He disclosed that the approach was not suited for their PD requirements. While current PDPs are facing new challenges, the management of HEIs must concentrate more on planning for these programmers the required schedule, execution and evaluation. In the preparation of such PDPs for enhancing the standard of teaching, not necessarily the essence of developing academic and related professional activities should be taken into account. Hence this paper presents the theoretical model of teaching quality improvement factors for academics' professional development programmes of UAE Higher Education Institutions.

Due to their interrelation with various components within a learning context, it seems difficult to describe the standard of teaching. In addition to a nuanced definition of education as a multi-dimensional term, a debate on the concept of 'quality' and 'quality of education' contributes to the difficulty in defining teaching quality. For example, Steinhardt et.al (2017) argue that the interpretation of these various concepts of quality should consider "Quality can be seen as an exception as perfection, as fitness for purposes, as value-for-money and as transformational," and the quality evaluation in HE. Johnston (2015) maintains the conversation on 'quality' concept by identifying four qualitative words to apply to higher education: 'Normal quality; 'quality for 'value for money'; 'quality for fitness';' and 'quality for value added.' quality is a standard of quality. Barandiaranet al. (2012) recognizes a difficulty in defining factors that influence education quality because of the absence of empirical methods in the nature of education, the absence of a well-defined "quality of education" definition and the significance of matters dependent on human characteristics. There should be a discussion not only on the "quality" and "quality of education," but also on the application of the word "teaching quality." The topic should not only be addressed. The words 'efficient education,' 'successful education' and 'excellence in teaching' can refer to the quality of teaching. For instance, "Effective Teaching is synonymous with good teaching' and is the same as 'effective teaching,'" Lally and Myhill (2014) raise the issue. Devlin and Samarawickrema (2010) argue that successful education needs to be understood to ensure the

standard of teaching and education in HEIs. Besides these two definitions, 'teaching excellence' is often used in literature and perhaps interpreted as a definition of 'teaching efficiency.' Hammer et al. (2016) show that teaching excellence can be described differently, based on various variables "like who it is, learners, subject matter, methods used, many other factors" (e.g. students vs. fellows). Kaplan and Owings (2014) conclude that quality of teaching requires the "creation of a positive learning environment, selection of appropriate educational objectives and evaluations, efficient use of the curriculum and the adoption of various educational behavements to support all students in their learning activities." Kaplan and Owings clearly connect teaching quality that integrates various elements of the educational process with student's ability to achieve a high level of learning. The instruments Spooren, Mortelmans, and Denekens (2017) have produced to assess the standard of teaching in HE from the perspective of students. The scholars propose that eight key dimensions and 22 sub-dimensions provide a theoretical construction of teaching efficiency. Even if the system is mechanical and detailed, the assessment of teaching quality can be taken as a potential indicator (from a scholar's perspective).

Recently, stakeholders have been demanding and trying to improve education quality in HE. The desired change stems from current regional and global challenges to enhance the standard of student training by placing pressure on HEIs. However the standard of teaching should cover any variables and aspects used by the educators to boost the student learning (in relation to the teaching/learning background and based on a HEI vision). In order to increase teaching efficiency, HEIs follow unique qualitative methods (such as QA and TQM), in an attempt to improve student learning, to benefit from those approaches.

Hypothetical Model

Theoretical framework of this study is the relationship of teaching quality improvement factors for academics' professional development programmes of UAE Higher Education Institutions. In this study identified seven main factors which are design teaching plan; communication skills; expertise skill in the lesson content; individual and occupational; policy and strategy; technological factors; teaching skills;

that are needed for the academics' professional development (Aufi and Ali, 2014; Mackey, A., & Gass, S. M, 2015; Ma et al., 2016; Clegg, 2019). Hence the hypothetical model is as figure 1.
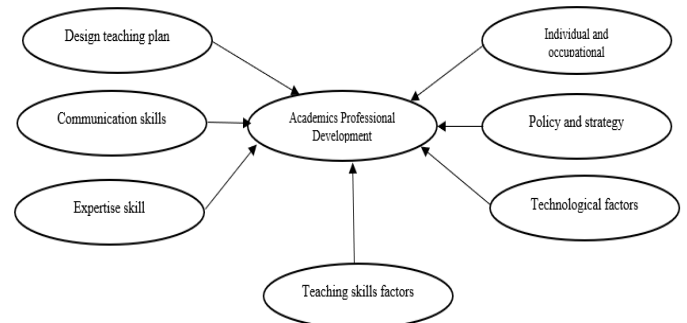

Figure 1 the hypothetical model

Based on figure 1, there are seven independent constructs and one dependent construct and the hypotheses that can be drawn from this figure are as follows, (Byrne, B. M, 2013);

H1: Design teaching plan has substantial and significant effects on Academics Professional Development.

H2: Communication skills has substantial and significant effects on Academics Professional Development.

H3: Expertise skill in the lesson content has substantial and significant effects on Academics Professional Development.

H4: Individual and occupational has substantial and significant effects on Academics Professional Development.

H5: Policy and strategy has substantial and significant effects on Academics Professional Development.

H6: Technological factors has substantial and significant effects on Academics Professional Development.

H7: Teaching skills factors has substantial and significant effects on Academics Professional Development.

Research Methodology

The study adopted quantitative approach where the data was collected through structured questionnaire survey and the respondents were selected using simple stratified sampling technique. A total of 350 questionnaire were distributed however 269 sets of the structured questionnaires were received with valid data. These collected data were used in the

development of Structural Model of Teaching Quality Improvement for Academics Professional Development of UAE Higher Education Institutions. The structural model was developed using AMOS SEM software. Before it is developed all the constructs in the model were developed individually to form measurement model and was assessed using confirmatory factor analysis (CFA) of the software. After all the measurement models had achieved the fitness criteria, then these models were tied up to form structural model according to the formulated conceptual model. Then the developed structural model was assessed using path analysis of the software to decide the agreement with the hypotheses.

Before the collected data can be used for the modelling, the data was examined at univariate level and multivariate level definitions of normality. The recommendation is that the skew and kurtosis values for measuring items should be between -1 and +1 and which means that the hypothesis is fulfilled and does not imply any variance from the normality of the information. Multicollinearity occurs when the model is associated with two or more variables and provides repeated response information. Variance inflation factors (VIF) and sensitivity were used to calculate multicollinearity. There is an issue with multicollinearity on the off chance that the VIF value reaches 4.0, or by sensitivity under 0.2 (Hair, J. F, 2010; Hair, J. F. et at, 2014; Byrne, B. M, 2013).

Analysis for structural equation modelling

The structural model was developed based on the hypothetical model in figure 1. The analysis on this model was conducted using covariance-based structural equation modelling (CB-SEM) technique using Analysis of Moment Structure (AMOS) software. The analysis was done in two stages that are at measurement stage and at the structural stage. At the measurement stage, the analysis was conducted at individual and entire measurement models. All the constructs in the model are considered as measurement models. Each of the measurement model was analysed individually until it achieved goodness of fit, then these measurement models were tied up to form the entire measurement model where it was again analysed to achieved goodness of fit. The analysis at measurement level was conducted using

Confirmatory Factor Analysis (CFA) technique of the software. After the entire measurement model achieved the goodness of fit, the structural model was specified and analysed for goodness of fit. The goodness of fit analysis is as follow (Hair, J. F. et at, 2014; Byrne, B. M, 2013);

o   Specification of the model;
o   Model identification;
o   Estimation of parameters;
o   Assessment of goodness-of-fit and
o   Finally model re-specification.

This procedure was repeatedly followed in the assessment of both the measurement models and the structural models until a valid model is achieved meaning that the model is fit. However, for this paper presents only as structural model analysis. The result of structural model analysis is presented in graphical form as figure 2.
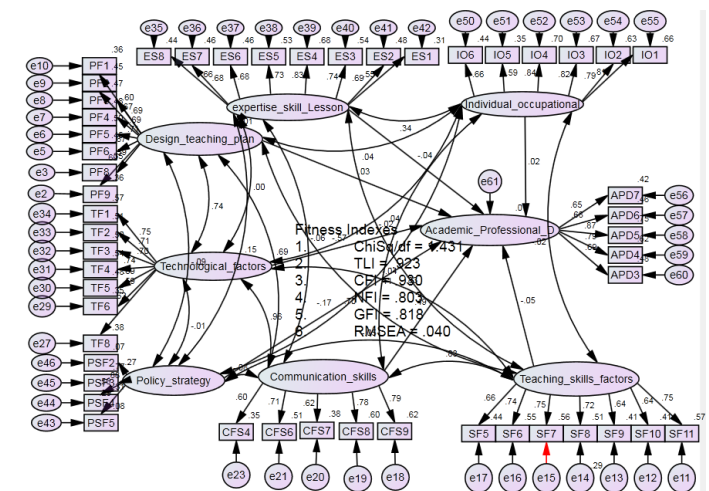

Figure 2 - Final structural model

Figure 2 which shows the graphical final structural model that has achieved the goodness-of-fitness indexes. Table 1 shows that all the fitness criteria as being fulfilled and this indicate that the model is fit.

Table 1: The Fitness Indices of structural model

Name of Index	Level of Acceptance	Index Value	Acceptable limit
Chisq/df	Chisq/df ≤3	1.431	Achieved
TLI	TLI ≥ 0.9 means satisfactory	0.923	Achieved
CFI	CFI ≥ 0.9 means	0.930	Achieved

	satisfactory fit.		
NFI	NFI ≥ 0.80 suggests a good fit	0.803	Achieved
GFI	GFI ≥ 0.80 suggests a good fit.	0.818	Achieved
RMSEA	RMSEA ≤ 0.08 mediocre fit.	0.040	Achieved
Model fitness is achieved			

After that the structural model has achieved the goodness of fit, it was analysed using path analysis of the software to determine whether it achieved the hypotheses that had been defined earlier, (Hair, J. F, 2010; Hair, J. F. et at, 2014).

4.1   Testing of research hypotheses

In this hypothesis testing, path analysis of the AMOS software was used to determine the P-value of each of the path (Hair, J. F, 2010; Hair, J. F. et at, 2014). The results of the path analysis for the model are as in table 2.

Table 2 – results of hypotheses testing

No	Hypotheses	p-value [p≤0.05]	Status
H1	*Design teaching plan* has substantial and significant effects on *Academics Professional Development*	***	Supported
H2	*Communication skills* has substantial and significant effects on *Academics Professional Development*	**0.024**	Supported
H3	*Expertise skill in the lesson content* has substantial and significant effects on *Academics Professional Development*	**0.006**	Supported
H4	*Individual and occupational* has substantial and significant effects on *Academics Professional Development.*	**0.037**	Supported
H5	*Policy and strategy* have substantial and significant effects on *Academics Professional Development*	**0.170**	**Not Supported**
H6	*Technological factors* have substantial and significant effects on Academics Professional Development	**2.32**	**Not Supported**
H7	*Teaching skills factors* has substantial and significant effects on *Academics Professional Development*	**0.016**	Supported

Note: *** represents P-value is less than 0.05

The results from table 2 indicate that 5 out of 7 hypotheses are significant. It seems that the two hypotheses are not significant to Academics Professional Development which are *Policy and strategy* and *Technological factors.* This is due to the collected data are not strong to make the relationship significant as what supposed being hypothesized in the hypothetical model and being perceived by the respondents. However, as a whole, it can be concluded that the teaching quality improvement factors are significantly required for Academics Professional Development of UAE Higher Education Institutions

Conclusion

The paper has presented a study on structural model of factors in Teaching Quality Improvement for Academics Professional Development of UAE Higher Education Institutions. The collected data from the questionnaire survey was used in the development of the structural model in AMOS SEM software.

Before it is developed all the constructs in the model were developed individually to form measurement model and was assessed using confirmatory factor analysis (CFA) of the software. It was found that all the measurement models achieved the fitness criteria, then these models were tied up to form structural model according to the formulated conceptual model. Then the developed structural model was assessed using path analysis of the software to decide the agreement with the hypotheses. It was found that five of the seven hypotheses are significant. It seems that the two hypotheses are not significant to Academics Professional Development which are *Policy and strategy* and *Technological factors.* This is due to the collected data are not strong to make the relationship significant as what supposed being hypothesized in the hypothetical model and being perceived by the respondents. However, as a whole, it can be concluded that the teaching quality improvement factors are significantly required for Academics Professional Development of UAE Higher Education Institutions.

Acknowledgement

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