# Construct validity of Malcolm Baldrige TQM Questionnaire based on Bohrnstedt Model in Payame Noor University

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**Abstract**: The aim of the current study was to evaluate the construct validity of the TQM in Payame Noor University. The method of the study was measuring construct validity of Malcolm Baldrige Questionnaire using Bornstat methodology. A sample of 326 faculty members of Payame Noor university were selected using Morgan and Krejcie 's table by stratified categorical sampling method. The results of item's factor analysis shows that the TQM is a 7 dimensional construct with the following dimensions: Leadership, the use of technology, planning, human resources, education, the results of institute performance, and costumer centricity. To assess the relationships between latent variables with the theoretical structure of Baldrige's TQM, at the first, using factor analysis the above 7 dimensions were confirmed. Then for assessing the fit of the model, Jorskag and soriom statistics and indexes were used. From 60 items of the questionnaire, 9 items were deleted due to their low levels of factor loadings and 51items confirmed.

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#### 1. Introduction:

The development of higher education in Iran and the successful implementation of Total Quality Management (TOM) in the industry have caused the development of TQM in education. TQM is a new approach that is conveyed from industry to higher education. As the scientific management has impacted the higher education since the start of the 20<sup>th</sup> century, the industry also has impacted the implementation method of TQM in Universities (Callahan, 1962). From the Cornesky's point of view, the important trends in the higher education are three categories: 1- the discussion sessions implementing TOM in higher education, 2- the competition of big industries (such as IBM) in universities for gaining or developing their market share, 3- the creation of Baldrige award in higher education based on Malcolm Baldrige model. Baldrige award introduced in 1987 and helped to thousands of American companies to develop their profitability and performance based on it. The first applications of Baldrige award applied by National Institute of Standard and Technology and American Society for Quality Control in 19 volunteer institutions such as Babson College, Belmont University, and North West University (Cornesky, 1996).

Most o the scholars believe that the universities are changing after some decades of preservation and fixation. Some universities are seeking new ways for high rates of registration fees

and low quantity of students (MC Williams, 1991). The different researches that have been done on the application of TOM in different institutions shows that although the level of success is not as high as business enterprises but, the Baldrige award created the opportunity for comparing quality standards specifically in higher education (Rohan and Luthy, 1996). Hansen (2003) believes that educational environments want to apply TQM due to its executive applicability. Although some of experts such as Ho and Wearn (1996), Salis (2002), Chadwick (1995) attempted to use TOM in learning and educating processes. So, the current research uses items of MBNOA as a framework for evaluating TQM tool based and Malcolm Baldrige model and construct validity stages of Bohrn-stat in Payame Noor University.

### 2. Research Methodology:

Stratified categorical sampling method were employed and 326 individuals selected based on suggestions provided by Krejcie and Morgan (1970) Table. This sample size is sufficient for casual investigations.

The research instrument is TQM questionnaire that is introduced based on Baldrige suggestions by and Thomas (1997).

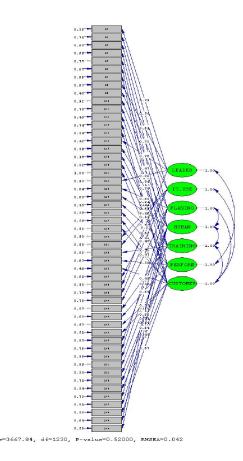


Figure 1- The relationship between dimensions of TQM in construct validity.

## 3. Findings:

Model fit indices were calculated using LISREL software and confirmatory factor analysis (Ghazi Tabatabaee, 1998). For measuring the fit of a model many indices have been introduced but each of these indices measures the fit from specific aspects so for measuring the fit of any model, usually 4-5 indices will be calculated. For example Klain (2005), suggests the following parameters and indices: RMSEA, CFI, and SRMR. Sun (2005) suggest the following indices: RMSEA, TLI, NNFI, CFI, and SRMR. JOrskag and Surium suggest that totally for parameters should be calculated: GFI, AGFI, Chi Square, and RMR. In current research the JOrskag and Surium indices have been calculated. Also P.V has been added as an index for better discussion.

Table 1 - Calculated indices for fit of the model

The index	Value
GFI	0.97
AGFI	0.96
RMR	0.00954
Chi Square	92.90
P.V	0.07

The values of GFI and AGFI shows high fit of the model. The RMR value is 0.00954. This fit index is the most appropriate if it be very small. So this number confirms the good fit for the current model. Also the value of Chi square is 92.90 with df=57 shows a good fit for the model. The following model shows the relationships between the variables in the construct validity. Figure 1 shows Tthe relationship between dimensions of TQM in construct validity.

### 4. Discussion and Conclusion:

The current research investigated TQM in higher education based on Baldrige theory. At the first glance, the aim of the study was to show how to measure construct validity and then was to evaluate the validity of the questionnaire in the higher education setting. Therefore, the Thomas (1997) model based on Baldrige's priorities employed for measuring TQM elements and the steps of Bohr-Nestat for construct validity applied. The current research pays to two fundamental questions; firstwhat are the quality elements of TQM for higher education in Iran? and the second- how is the validity of the applied measure and how much the Persian version is compatible with the original version of the questionnaire. In this regard the study shows the convergence of the gained factors with Thomas (1997)'s dimensions.

For the internal validity of the all factors, the Cronbach alpha gained above 0.7 for all of the factors. Considering the reliability and validity coefficients and exploratory and confirmatory factor analysis 7 factors discovered for the measure in the Iranian conditions with a good compatibility with its original version. So it can be said that the mentioned questionnaire is an appropriate measure for studies in Iran as well. Also it is a good reflection of quality in higher education of Iran based on Baldrige theory.

# References:

- 1. Klain, P. (Translated by Jalal Sadr Alsadat and Asghar Minaee),. An Easy Guide to Factor Analysis, Tehran, Samt, 2011.
- 2. Hooman, H. The multivariable analysis in behavioral researches, Peyke Farhang, Tehran, 2006.
- Callahan. Raymond E. Education and the Culture of Efficiency: A Study of the Social Forces that Have Shaped the Administration of the Public Schools. Chicago. IL: The University of Chicago Press, 1962.
- 4. Fisher, J. L. TQM: A warning for higher education. Educational Record.pp.15-19, 1993
- 5. Fritz, S.M. A quality assessment using the Baldrige criteria: Non-academic service units in

- a large university (Doctoral dissenation, University of Nebraska, 1993). Dissertation Abstracts International. 54/07,242, 1993.
- 6. Hackett, L.L. Strategy for institutional improvement: Application of Baldrige University of Texas at Austin, 2001.
- 7. Hansen, W. Bringing Total Quality Improvement in the College Classroom. Higher Education, 25 (3),259-79, 1993.
- 8. Ho, S.K. and Wearn, K. A higher education TQM excellence model: HETQMEX, Quality Assurance in Education, 4(2), 35-42, 1996.
- Irvin, A.H. Leadership strategies for the implementation of tatal quality management at five research universities, Unpublished doctoral dissertation, the University of Michigan, 1995 Kline.Principles and practice of structural Equation modeling (2nd Ed).New York: Guilford Press, 2005.
- McWilliams. G. A New Lesson Plan For College: Higher Education Is Just Starting Its Course In Quality." Business Week. Qctober 25, 1991.
- 11. Miller, R.I. Applying the Deming method to higher education for more effective human resource management. Washington, D.C.: College and Personnel Association, 1992.
- Motwani, Jadeep. The need for Total Quality Management in education. International journal of Educational Management, Vol. 11, No.3, 1997.
- 13. Rohan, S. and Luthy, D. Educational pilot program overview, Chronicle of CQI. p. 6, 1996
- Shari Mohd Yosof and Elaine Aspinwall. Critical Success for Total Quality Management Implementation in Small and Medium Enterprises ". Total Quality Management. VOL 10, NO 4, 1999.
- 15. Sun J. Assessing goodness of fit in confirmatory factor analysis". Measurement and Evaluation in Counseling and Development, 37,240-250, 2005.
- 16. Thomas, Constance. D. Perceived levels success of a Total Quality Management program in an institution of higher learning (A Dissertation presented for the Doctor of Philosophy Degree The university of Tennessee, Knoxville), 1997.

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