

THE READINESS OF PARENTAL INVOLVEMENT IN TECHNICAL VOCATIONAL EDUCATION AND TRAINING FOR SPECIAL EDUCATION NEEDS: CONFIRMATORY FACTOR ANALYSIS APPROACH (CFA)

Nazeri Mohammad.PhD. (Nazeri@ipgmksm.edu.my)

*Department of Technical Education, Institute of Teacher Education Perlis Campus,
01000
Kangar, Perlis. MALAYSIA*

Zachary Farouk Chai. (farouk2210@gmail.com)

*Department of Technical Education, Institute of Teacher Education Perlis Campus,
01000 Kangar, Perlis. MALAYSIA*

Abstract

Parental involvement in technical and vocational education is vital to enable primary school teachers in carrying out their daily tasks in school. This particular study aims to identify and to validate the conceptual framework of the study and determine the validity and reliability of the instruments used. The instrument used in this study was composed of 25 items that will measure five key constructs defined. Exploratory factor analysis (EFA) and Confirmatory Factor Analysis (CFA) was conducted in this study. Parental involvement in technical and vocational education can be measured through sub-construct parenting, communicating, volunteering, home-learning, decision-making, and collaboration with the community. The sample was composed of 453 men and women in some selected primary schools in several areas in Negeri Sembilan. The findings of the CFA analysis found that the model used to measure the readiness of parent involvement in technical and vocational education with the reliability of each sub-construct between 0.78-0.86

Keywords: Parental involvement in technical and vocational education, Confirmatory Factor Analysis (CFA), Exploratory Factor Analysis (EFA)

Introduction

Nowadays, parents are dealing with various challenges in educating children with special needs. They need to make sure that the children can grow up in perfect and suitable aspects such as in material aspect, physical aspect, emotional aspect and many more. In addition too, it is also important for the parents to provide and nurture the children's soul with education that covers the formation of cognitive, physical, spiritual, morals and social. Such atmosphere pressures the parents in dealing with these challenges. Modern income reality requires both parents to be involved with workforce has deprived of time together with the children. In this context, readiness of technical

vocational and training for special needs need to be seen as an ongoing developed process which simultaneously in relation with the development of an individual who learns what is in the environment and with knowledge or skills obtained, he/she will apply it in a various context or as a preparation for his/her life in the future.

Research Background

Family involvement can be seen from the various aspects that particularly rely on a respective context. Parenting principles need to be seen from the micro and macro angles as parenting skills are the basis of family welfare, society and country. Parenting is not confined to the parents but also in relating to the maturity and willingness of other institutions to work together. There are some parenting principles that can be used to help parents in undertaking their responsibilities. This positive practice will bring positive impression of children. There are six types of parent involvement in refer to Epstein which are:

- Parenting: Assist families with parenting and child-rearing skills, understanding child and adolescent development, and setting home conditions that support children as students at each age and grade level. Assist schools in understanding families.
- Communicating: Communicate with families about school programs and student progress through effective school-to-home and home-to-school communications.
- Volunteering: Improve recruitment, training, work, and schedules to involve families as volunteers and audiences at the school or in other locations to support students and school programs.
- Learning at home: Involve families with their children in learning activities at home, including homework and other curriculum-linked activities and decisions.
- Decision making: Include families as participants in school decisions, governance, and advocacy through school councils, committees, and other parent organizations.
- Collaborating with the community: Coordinate resources and services for families, students, and the school with businesses, agencies, and other groups, and provide services to the community.

Research Objectives

This study is aimed to identify and confirm the conceptual framework for measuring the readiness of parental involvement in technical vocational education and training for special need children and determine the validity and dependability instrument that is used. Exploratory Factor Analysis (EFA) is conducted for uncertain and confirms the framework of concepts that is built whereas Confirmatory Factor Analysis (CFA) is conducted in order to determine Structural Equation Model (SEM) which is built to measure the stage of readiness of parental involvement in technical vocational education and training for special need children in few kindergartens and nurseries that have been selected in a number of areas in the Negeri Sembilan.

Research Methodology

This study is conducted through the overview of method studies involving sample review of 453 people that consists of 226 male samples and 227 female samples. The sample comprises of in few selected nurseries and kindergartens in some districts in Negeri Sembilan with a range of sending their children to nurseries and kindergartens

that comprise of 1-2 children. Parents who are involved comprise of Malay with 33 %, Chinese with 29 % and Indian with 29% and others races with 8 %.

Research instruments

The instrument used in this study is the questionnaire instrument with 5-points Likert scale that is adapted from previous studies. The instrument used in this study has been tested in order to prove its validity and dependability. With that, this study is conducted in order to test how far the items that are used can measure the construction that is specified as in Table 1.

Table 1- Questionnaire items according to Sub-Construct

Sub Construct	Source	Item No.	
		Factor Analysis 1	Factor Analysis 2
Parental (PI)		pi1,pi2,pi3,pi4,pi5*	pi1,pi2,pi3,pi4
Communication (CM)		cm1,cm2,cm3,cm4,cm5,c	cm1,cm2,cm3,cm4,cm5,c
Volunteering (VL)		vl1,vl2,vl3,vl4	vl1,vl2,vl3,vl4
Learning at home (SH)		sh1,sh2,sh3	sh1,sh2,sh3
Decision Making (DM)		dm3,dm4	dm3,dm4
Collaborating with the community (CN)		cn1,cn2	cn1,cn2
Number of items		22 items	21 items
Number of samples		226 people	227 people

*Invalidated item

Research Findings

Exploratory Factor Analysis (EFA) is conducted by using the IBM SPSS software version 21. Exploratory Factor Analysis (EFA) is conducted to determine the structure of factors that is formed from the respective items that are used for measuring each construct taken from the previous studies (Nazeri, Ruhizan & Ramlee, 2010). The first exploratory factor analysis was conducted on 22 items that represent specified 6 constructs. The finding of exploratory factor analysis 1 found out that item pi6 has a weight of two different constructs of parenting and volunteering. According to Hair et al, (2010), this item should be invalidated or repaired. Exploratory factor analysis 2 was conducted on the 21 items. This analysis produced a measuring value of Kaiser - Meyer - Olkin as stated in Table 2 and this shows the index that measures the adequacy of the sample is 0.81. Sample adequacy index values between 0.7-0.9 are good (Field, 2009). Researchers have used the criteria that is set by Kaiser which is all components have equal Eigen values or more than the calculated for further analysis. The analysis shows that the six factors accounted for 66.28 % of the variance of the readiness of parental involvement in technical and vocational education for children. The percentages of variance are shown in Table 3.

Table 2 - Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Sphericity Bartlett Test

<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</i>		0.806
Bartlett's Test of Sphericity	Approx. Chi-Square	3523.346
	Df	210
	Sig	.000

*Table 3 - The Exploratory Factor Analysis of the constructs
by using Principal Component Analysis (PCA) and varimax rotation.*

Sub-Construct	Items	% variance
Parenting (PI)	pi1,pi2,pi3,pi4	14.50
Communication (CM)	cm1,cm2,cm3,cm4,cm5,cm6	16.11
Volunteering (VL)	vl1,vl2,vl3,vl4	13.15
Learning at home (SH)	sh1,sh2,sh3	10.27
Decision Making (DM)	dm3,dm4	12.15
Collaborating with community (CN)	thecn1,cn2	12.25

Table 4 shows the distribution of the mean and standard deviation for the six constructs the have been set. Analysis shows that all constructs have mean distribution in excess of 3.50 and the standard deviations are between 0:52 to 0.63. The instrument has good reliability index values as recommended by Cohen and Swerdlik (2010) which is higher than 0.70.

Table 4 - Descriptive analysis by sub-constructs

Constructs	Mean	Standard Deviation	Cronbach Alpha
Parenting	4.04	0.61	0.85
Communication	3.65	0.52	0.86
Volunteering	3.58	0.59	0.78
Learning at home	3.82	0.63	0.80
Decision making	3.65	0.63	0.82
Collaborating with the community	3.65	0.63	0.82

Confirmatory Factor Analysis (CFA) was conducted to determine the ability of the constructs in order to measure the readiness of parental involvement in technical and vocational education of children with special needs. Amidst that, Confirmatory Factor Analysis (CFA) was conducted to determine the validity of the constructs from the aspects of convergent validity and discriminant validity (Nazeri , Ruhizan & Saemah , 2010) . The findings of the CFA analysis found that that item VL1 and cm3 have the loading factor of <0.6 . Kline, (2011) recommends that a good factor loading value of the instruments that have tested their validity and reliability of previous studies is ≥ 0.6 . Therefore, the item VL1 and cm3 was invalidated. The CFA analysis findings show that the model used is fit with the value of χ^2 is 265,274 at significant level ($p = .00$, $df = 141$). The index value of Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and Goodness of Fit Index (GFI) is used to test the suitability of the model developed to measure the readiness of parental involvement in technical and vocational education of children with special needs. The findings of the analysis found that the index of CFI = 0.957, GFI = 0.920. Both values were above the recommended value > 0.900 Byrne (2010) and the RMSEA 0.053 also complies the value suggested between 0:05 to 0:08 Byrne (2010).

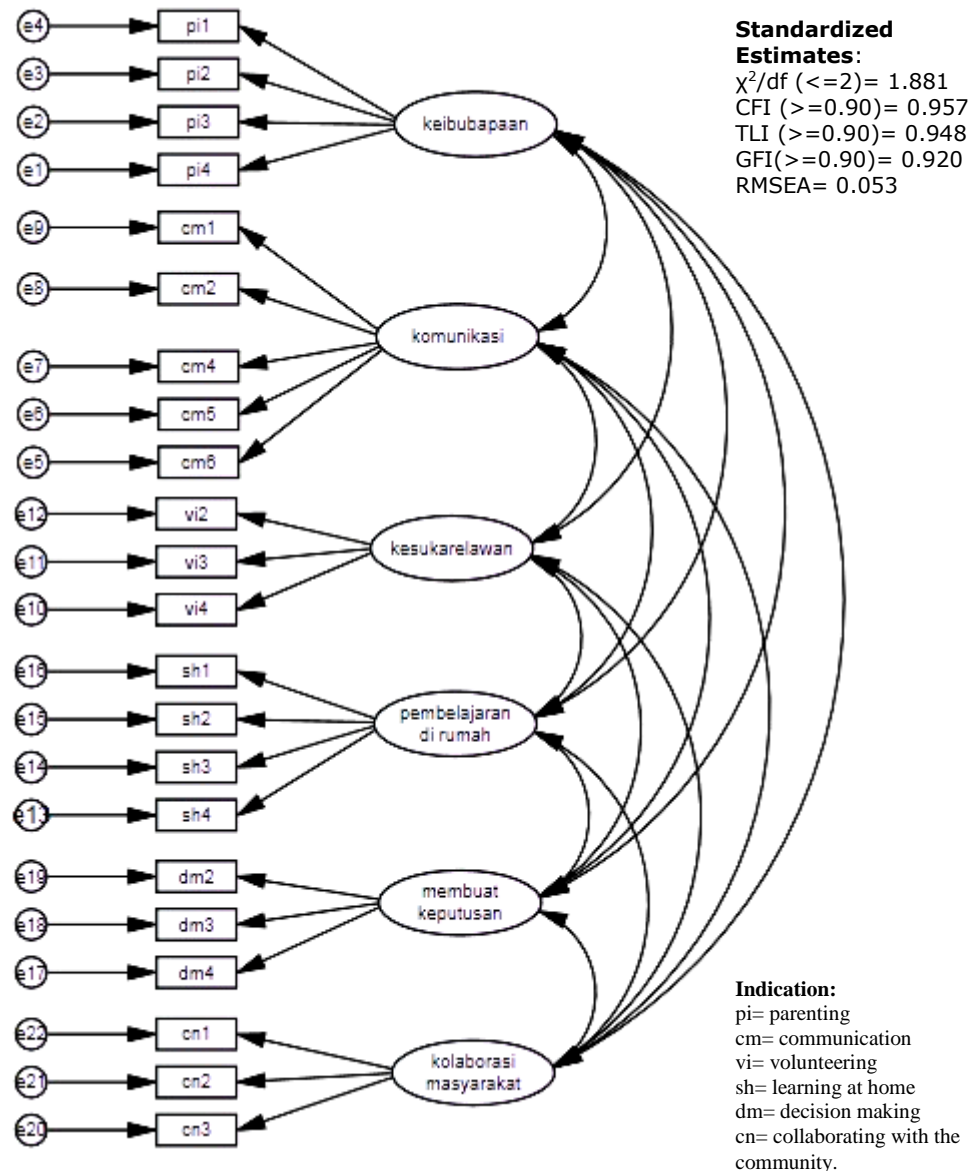


Diagram 2: Confirmatory Factors Analysis (CFA)

Therefore, it is concluded that the model built is constructed in accordance with the sample and can measure the readiness of parental involvement in technical and vocational education for children with special needs as in the conceptual framework of the study that have been built by researchers . The analysis also shows that the instrument used has its good construct of the convergent validity and discriminant validity (Schumacher & Lomax, 2010 & Ullman, 2007). Each factor used has a high value of loading factor and the correlation value between factors is < 0.8 . Kline (2011) and Brown (2006) stated that a high factor loading proves that the item has its good convergent validity and the value of correlation between factor < 0.8 indicates that the instrument has its good discriminant validity (Byrne 2010).

Discussions and Conclusion

The readiness of parental involvement in technical and vocational education for children with special needs should be taken into account by the management of kindergartens or nurseries in determining the results for the performance of an activity or decision involving their children. This research has been done to see the readiness of parental

involvement in technical and vocational education for their children. With that, this study found that in determining the readiness of parental involvement in technical and vocational education as a child element of parenting knowledge and spirit of volunteerism of parents should be taken into account in the information and management judgment of particular kindergarten or the nursery. Besides, parents' ability to learn at home and awareness of the collaboration with the community should be emphasized by the parents themselves in the parental involvement readiness in technical and vocational education for children. The results of the analysis revealed that 19 items used to measure the readiness of parental involvement in technical vocational education for children with special needs involves six constructed set.

References

- Brown, T.A. (2006) *Confirmatory Factor Analysis for Applied Research*. New York: The Guilford Press
- Byrne, B.M.(2010) *Modeling with AMOS: Basic Concepts, Application and Programming*. Second Edition. Routledge: New York
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L.(2010) *Multivariate Data Analysis*. (7th edn). Upper Saddle River, NJ: Pearson Education
- Harrington, D.(2009) *Confirmatory Factor Analysis: Pocket Guides to Social Work Research Methods*.New York: Oxford University Press
- Hong, J.-C., Horng, J.-S., Lin, L.-J., Chang, S.-H., Chu, H.-C., Lin, C.-L.(2009) A Study of Influential Factors for Creative Teaching online: 15 February 2010
<http://conference.nie.edu.sg/paper/Converted%20Pdf/ab00202.pdf>
- Kline, R.B. (2011) *Principles and Practice of Structural Equation Modeling*.. New York: The Guilford Press
- Nazeri Mohammad, Ruhizan Mohd Yasin, Ramlee Mustapha, (2010).A survey on the Design and Technology-based subjects: Students' perspective. *Procedia-Social and Behavioral Sciences*, 7, pp. 363-368.doi: 10.1016/j.sbspro.2010.10.049
- Nazeri Mohammad, Ruhizan Mohd Yasin, Saemah Rahman, (2010). Review of teaching and learning technical skills (basic electrical and electromechanical) form one the district of Besut, Terengganu. *Proceeding of 1st UPI International Conference on Technical and Vocational Education and Training*, pp. 323-330. Aston Tropicana Hotel, Bandung, Indonesia. 10-11 November 2010. ISSN: 2087-4782
- Palaniappan, A.K. Excellence through creative teaching. (2004) *International Conference on Managing Teacher Education for Excellence*. Working paper presented at Faculty of Education, Chulalongkorn University, Bangkok, Thailand.
- Yasin, R.M., Mustapha, R., Azami. (2011).Promoting Creativity Through Problem Oriented Project Based Learning in Engineering Education at Malaysian Polytechnics: Issues and Challanges. *Proceedings of the 8th WSEAS International Conference on Education and Educational Technology*, pp. 253-258. ISSN: 1790-5109
- Schumacker, R.E., Lomax, R.G.(2010) *A Beginner's Guide to Structural Equation Modeling*,Mahwah, NJ: Lawrence Erlbaum Associates
- Starko, A.J.(2010) *Creativity in the Classroom: Schools of Curious Delight*. New York: Routledge
- Tabachnick, B.G., Fidell, L.S.(2007) *Using Multivariate Statistics*. (5th ed.). Boston: Allyn and Bacon
- Ullman, J.B. *Structural Equation Modeling*.(2007) *Using Multivariate Statistics*, pp. 676-780. Tabachnick, B.G. & Fidell, L.S. (Pnyt.), Boston, MA: Pearson Education, Inc.
- Woolfolk, A.(2007) *Educational Psychology*. 10th Ed. Boston: Allyn dan Bacon.