The Impact of Parent Involvement in Preschool Disabled Children

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Abstract—The purpose of this study was to investigate the relationship between parent involvement and preschool disabled children's development. Parents of 3 year old disabled children (N=440) and 5 year old disabled children (N=937) participating in the Special Needs Education Longitudinal Study were interviewed or answered the web design questionnaire about their actions in parenting their disabled children. These children's developments were also evaluated by their teachers. Data were analyzed using Structural Equation Modeling. Results were showed by tables and figures. Based on the results, the researcher made some suggestions for future studies.

Keywords—Child development, longitudinal data analysis, parent involvement, preschool disabled children.

I. INTRODUCTION

THE relationships between parent involvement and child development usually were explored by many researchers [1] [2]. Many researchers indicated that parent involvement would enhance students' academic achievements [3], prevent school dropouts [4] and behavior problems [5]. Researchers found that children spent only 13% time in school before they were 18 years [6]. Those studies showed that families would influence the children's learning.

The relationship between parent involvement and children education was an important issue in regular education and in special education. According to the Special Education Act in Taiwan, local authorities should establish special education consultation committees [7] and the Special Education Students Diagnosis and Placement Counseling Committees [8], and schools up to senior high, inclusive, should set up the school wide special education implementation committees [9]. All those committees should invite parent representatives to participate. Besides parent representatives should participate in different committees, schools under senior high should invite parents to develop the individualized education plan for their children together and, where it needs, encourage professionals to accompany parents for participation [10]. Parents would be able to file a complaint to authorities concern for controversy over diagnosis, placement and counseling services and file a complaint to the school for infringements of student's rights in learning, counseling, support services and other learning activities [11]. Although parent involvement was itemized in the Special Education Act in Taiwan explicitly, it only promised that parents have the involving rights to their children,

did not guarantee the qualities of parent involvement.

There were many studies exploring the parent involvement attitude, the current situations, and difficulties in Taiwan. However, few studies explored the relationship between the parent involvement and disabled children' development. The current study was to find the relationships between parent involvement and preschool disabled children's development using the empirical data of the Special Needs Education Longitudinal Study in 2007. Researcher constructed the relationship model using the data of 3 year old disabled children at first, and tested the model using the 5 year old disabled children data.

II. METHOD

A. Participants and Procedures

Participants and data for this study were drawn from the Special Needs Education Longitudinal Study (SNELS). SNELS, a nationwide study through funding from the Ministry of Science and Technology of R. O. C., was conducted from 2007-2013 school years. Data of this study based on the concept of ecological system theory were collected from age 3 to 18 disabled students' parents, teachers, staffs of schools' administrations, and staffs of local governments through interviews and web design questionnaires systematically. Middle school students with disabilities would also receive student assessments directly. The framework of the data included the demographic information of disabled students, the families' conditions, the support services provided by schools', students' performances, and the overviews of special education provision in the local government areas. Because the study was designed to get the student-based data, the valid samples were those who completed the parents' questionnaires [12].

Participants of the SNELS were selected from the Special Education Transmit Net which contained the basic information of all disabled students in the nationwide from preschool to graduate school. The sampling procedures were: A. getting the anonymous data of population by year or grade through the Special Education Transmit Net; B. determining the sample size according the characteristics of population in different disability categories; C. comparing the characteristics of population and samples after sampling; D. returning the anonymous sample list to the Special Education Transmit Net; and E. getting the names and schools of samples. Through the sampling procedures and random sampling, the samples size were 895 for 3 year old children, 2,054 for 5 year old children, 2,385 for 1st grade students, and 4,159 for 3rd grade students. Total samples were 9,493, about 66% of population in 2007.

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However, there were only 4,896 parents agreed to participate in this study, and 451 for 3 year old children' parents, 966 for 5 year old children's parents, 1,337 for 1st grade students' parents, and 2,109 for 3rd grade students' parents completed the questionnaires. The current study was focused on the relationship between parent involvement and preschool disabled children. After deleting the uncompleted teachers' questionnaires for preschool disabled children, the final samples were 440 for 3 year old children and 937 for 5 year old children. The director of the SNELS compared the characteristics of population and samples and found the significant differences by disability categories and placement. However, the current study would not analyze data by these two variables. That why the study did not construct weight variables.

B. Measures

1. Dependent Variable

There were four factors in this study extracted from teachers' questionnaires with Likert-type questions to reflect the dependent variable of preschool disabled children's developments. The four factors were: A. interacting with others; B. following the direction; C. comprehending the information; and D. identifying living things. Factor of interacting with others was extracted from the items asked teachers to evaluate whether children could ask question, answer question, discuss with others, and solve problems. Factor of following the direction was extracted from the items such as whether the children could seat quietly, listen stories carefully, work alone etc. Factor of comprehending the information was extracted from the items such as whether the children could recognize the sounds, basic gestures, expressions etc. Factor of identifying living things was extracted from the items such as whether the children could point out the basic shapes, basic colors, and match the same shapes etc.

2. Predictor Variable

Parent involvement was the predictor variable in this study. There were five factors extracted by using Likert-type scale and multiple choice items from parents' interviews or web design questionnaires to represent the degree of parents' involvement. The five factors were: A. talking to children; B. using different resources; C. constructing positive support; D. believing in one's parenting abilities; and E. setting living rules. Factor of talking to children was extracted from the items such as whether the parents talked to children or played with children, shared with children about their school activities, read books together etc. Factor of using different resources was extracted from the items about how many kinds of people who could give the different supports to the parents, what kinds of the school activities that parents attended, and whether the parents discussed with teachers actively. Factor of constructing positive support was extracted from the items of whether the family members accepted the children who were disabled, whether the family relationship was changed after the disabled children had born, and how many family members or friends

could help the parents when they needed. There were two items extracted from parents' data as measure the factor of believing in one's parenting abilities. One item asked the parents to report whether they believed in themselves that they could parent the disabled children, and the other item asked parents that did they have difficulties in parenting the disabled children. The items, what kinds of the living rules did parent set for their disabled children, were used to measure the last factor, setting living rules.

3. Demographic Variable

One demographic variable in this study was the socioeconomic status. The factors of socioeconomic status were parents' educational degree, parents' occupations, and the incomes each month.

C. Data Analysis

Structural Equation Modeling (SEM) provided the technology to examine of numerous relations between predictor and dependent variables at the same time. In this study, the descriptive statistics, correlation analysis and SEM were using the Amos (18.0).

III. RESULTS

A. The Descriptive Statistics and Correlation Analysis for 3 Year Old Disable Children

The means, standard deviations, and correlation analysis of the of the factors of demographic variable, dependent variable, and predictor variable for 3 year old children were conducted and presented in Table I.

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TABLE I
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS FOR 3 YEAR OLD DISABLED CHILDREN

V	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1	12.78	2.84	1											
2	2.87	1.44	0.55	1										
3	3.60	1.46	0.41	0.52	1									
4	6.19	3.58	-0.04	-0.04	0.03	1								
5	10.20	3.27	0.01	0.02	0.02	0.63	1							
6	27.42	7.13	0.07	0.06	0.08	0.73	0.65	1						
7	13.42	5.78	0.14	0.12	0.13	0.71	0.54	0.70	1					
8	12.83	2.28	0.33	0.27	0.26	0.29	0.18	0.28	0.36	1				
9	6.06	1.43	0.31	0.18	0.26	-0.05	-0.07	-0.08	0.03	0.36	1			
10	9.79	1.37	0.17	0.18	0.19	0.13	0.08	0.09	0.11	0.22	0.09	1		
11	5.98	1.03	0.04	0.07	0.13	0.32	0.21	0.25	0.30	0.25	0.04	0.25	1	
12	2.53	1.83	0.20	0.17	0.15	0.26	0.24	0.30	0.29	0.43	0.21	0.12	0.27	1

The underline means significant correlation.

1= D_edu= parents' educational degree, 2= D_occ= parents' occupations, 3= D_inc= incomes each month, 4= DV_int= interacting with others, 5= DV_fol= following the direction, 6= DV_com= comprehending the information, 7= DV_ide= identifying living things, 8= PV_tal= talking to children, 9= PV_use= using different resources, 10= PV_con= constructing positive support, 11= PV_bel= believing in one's parenting abilities, 12= PV_set = setting living rules

The three factors of demographic variable, parents' educational degree, parents' occupations, and the incomes each month, significant correlated with the factors of parent involvement, except the factor, believing in one's parenting abilities. The three factors of parent involvement, talking to children, believing in one's parenting abilities, and setting living rules, significant correlated with the factors of children development. The factors, using different resources, and constructing positive support, contained low degree of significant correlation and insignificant correlation with the factors of children development.

B. The Relationship between the Parent Involvement and Children Development for 3 Year Old Disables Children

The modified model of the relationship between the parent involvement and children development for 3 year old disabled children was showed in Fig. 1. A significant chi-square indicated the model's lack of satisfactory model fit ($\chi^2_{(49)}$=144.07, N=440, $p<.001$). However, chi square value was sensitive to sample size. One of the alternative indices to assess model fit that researchers suggested was normed chi square. In current analysis, the normed chi square value (χ^2/dg) was 2.272. It was an acceptable ratio for this statistic [13]. Regarding the other model fit indices, the Root-mean-square error of approximation (RMSEA) value was 0.065, Goodness- of- fit index (GFI) value was 0.949, standardized root mean square residual (SRMR) value was 0.056, Non-Normed Fit index (NNFI) value was 0.929, and Comparative fit index (CFI) was 0.946, this modified model was acceptable.

There was a covariance between the residual of the factor, using different resources, and the residual of dependent variable of children development. The demographic variable, SES, was contained significant positive influence on predictor variable, parent involvement, and the predictor variable, parent involvement, was also contained significant positive influence on the dependent variable, preschool disabled children' development. However, the SES was contained significant negative influence on preschool disabled children' development directly.
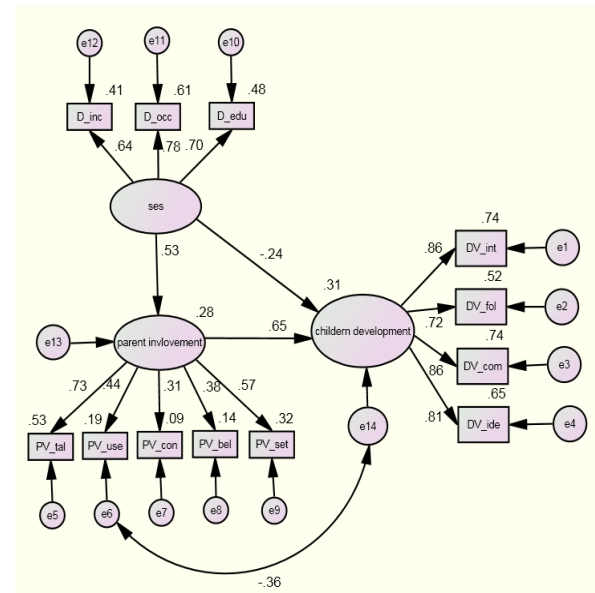

Fig. 1 The model for 3 year old disabled children

C. The Descriptive Statistics and Correlation Analysis for 5 Year Old Disable Children

Table II was showed the means, standard deviations, and correlation analysis of the factors of demographic variable, dependent variable, and predictor variable for 5 year old children.

All three factors of demographic variable also significant correlated with all of the factors of parent involvement. However, the degrees were not high. The two factors, parents' educational degree and parents' occupations, contained low degree of significant correlation with all of the factors of children development. And the factor, incomes each month, insignificant correlation with the factors of children development, except the factor of identifying living things.

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TABLE II
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS FOR 5 YEAR OLD DISABLED CHILDREN

V	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1	12.56	2.81	1											
2	2.77	1.47	0.58	1										
3	3.53	1.51	0.49	0.56	1									
4	7.36	3.79	0.11	0.10	0.04	1								
5	10.90	3.32	0.10	0.11	0.06	0.67	1							
6	30.11	6.55	0.11	0.08	0.06	0.72	0.63	1						
7	18.32	6.42	0.16	0.14	0.09	0.72	0.56	0.74	1					
8	12.94	2.28	0.37	0.27	0.32	0.38	0.32	0.39	0.41	1				
9	6.15	1.50	0.28	0.18	0.17	0.01	0.02	0.05	0.04	0.37	1			
10	9.65	1.43	0.19	0.14	0.23	0.21	0.18	0.21	0.21	0.28	0.08	1		
11	6.02	1.11	0.11	0.08	0.10	0.35	0.29	0.31	0.37	0.31	0.03	0.36	1	
12	3.35	2.07	0.24	0.17	0.16	0.31	0.28	0.33	0.37	0.41	0.31	0.15	0.30	1

The underline means significant correlation.

1= D_edu= parents' educational degree, 2= D_occ= parents' occupations, 3= D_inc= incomes each month, 4= DV_int= interacting with others, 5= DV_fol= following the direction, 6= DV_com= comprehending the information, 7= DV_ide= identifying living things, 8= PV_tal= talking to children, 9= PV_use= using different resources, 10= PV_con= constructing positive support, 11= PV_bel= believing in one's parenting abilities, 12= PV_set = setting living rules

The three factors of parent involvement, talking to children, believing in one's parenting abilities, and setting living rules, significant correlated with all the factors of children development. The factors, using different resources, and constructing positive support, contained low degree of significant correlation and insignificant correlation with the factors of children development.

D. The Relationship between the Parent Involvement and Children Development for 5 Year Old Disables Children

Fig. 2 was presented the modified model of the relationship between the parent involvement and children development for 5 year old disabled children. The modified model for 5 year old disabled children also contained a significant chi-square value ($\chi^2_{(45)}$=153.02, N=937, *p<.001*). However, the normed chi square value (χ^2/dg) was 3.40, the RMSEA value was 0.051, the value of GFI was 0.974, value of SRMR was 0.038, value of NNFI was 0.962, and the CFI was 0.974. According to these indices, the modified model for 5 year old disabled children was also acceptable.

Just like the model for 3 year old disabled children, there was also a covariance between the residual of one factor of the predictor variable, using different resources, and the residual of dependent variable of children development. Besides, the covariant relationship between the residuals of factors of the predictor variables, using different resources, believing in one's parenting abilities, and constructing positive support were existed respectively. The residuals of the believing in one's parenting abilities contained positive covariance with the residuals of constructing positive support, and negative covariance with the residual of using different resources respectively.

The covariant relationship between the residuals of the dependent variables, interacting with others, following the direction, comprehending the information, and identifying living things were also existed respectively.
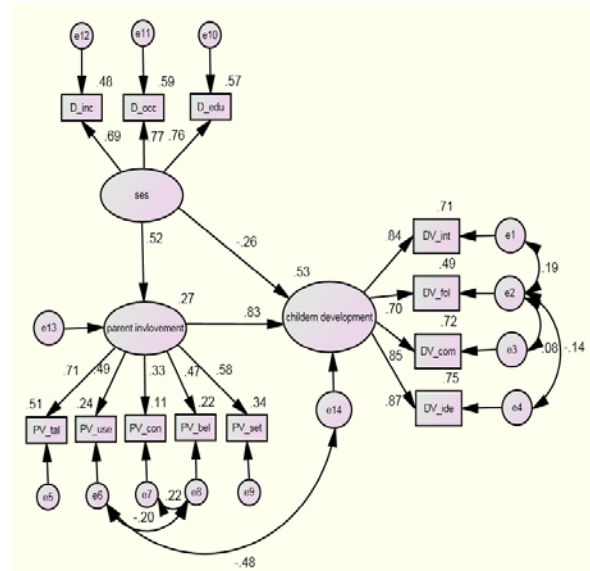

Fig. 2 The model for 5 year old disabled children

IV. DISCUSSION

According to the statistics analysis, the models constructed in this study were acceptable, but not perfect. One reason might be the limitation for longitudinal studies. The purposes of longitudinal studies were to get more information instead of exploring the specific topic. The factor loading extracted from a limited items were not high enough and influenced the follow up analysis. However, the larger samples were the strength of a data set. How to resolve the problem just depended on the main purposes of each study.

The results showed that the demographic variable, socioeconomic status, contained significant negative influence on the dependent variable, children development, directly in this study. However, in Tables I and II, all three factors of the demographic variable contained low degree of significant correlation and insignificant correlation with the factors of children development for preschool disabled children. Was the phenomenon suppression? Researchers [14]-[17] had many

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discussions about suppression effects on predictors in their articles. In current study, socioeconomic status contained no direct influence on the dependent variable, children development. On the other side, the demographic variable contained significant positive influence on the predictor variable, parent involvement, and parent involvement was also contained significant positive influence on the dependent variable, children development. Through this analysis, parent involvement showed mediation effects [18] in the relationship between SES and preschool disabled children's development in this study.

Based on the results of analyzing the model for 5 year old disabled children, there were some covariant relationships between the residuals of the factors of parent involvement and the residuals of the factors of children development respectively. The results might show that the factors of parent involvement and children development would be more complicated and the factors, extracted from items, would be correlated with each other easily when children grow up.

The model in Fig. 1 showed that the residual of the factor of predictor variable, using different resources contained the negative relationship with the residual of dependent variable, children development. It meant that some variances that were not extracted by the factor of using different resources might be harmful for disabled children's development. The negative covariance between the residual of using different resources and disabled children' development was also existed in the model for 5 year old disabled children. Exploring the causes of this negative relationship would be an important issue in the future.

Furthermore, in the predictor variable for 5 year old disabled children' model, the residuals of the factor, believing in one's parenting abilities, contained positive relationship with the residual of the factor, constructing positive support, might reflected the parenting self-esteem of parents would benefit to construct a support family, the reverse was also true. The reasons of the negative relationship between the residuals of factor, believing in one's parenting abilities and the residual of the factor, using different resources, would also need to explore in the following study.

As we know that children's development were influenced by many variables. Parent involvement and socioeconomic status of family were only two of these variables. We would explore more data of the SNELS; analyze more variables such as teachers' involvement, the levels of disability, to draw the whole pictures about preschool disabled children's development, and to find the useful interventions.

Finally, the SENELS was conducted for six years. It contained the traits of time-series study, panel study, and cohort study. It was also collected a big amount of information from disabled students, parents, teachers and staffs of schools' administrations, and staffs of local governments. Using the data to explore different themes about disabled children would improve the qualities of special education in Taiwan.

V. CONCLUSION

In this study, the SNELS dataset of 2007 was analyzed to find the relationship between the parent involvement and the preschool disabled children's development. Using the technology of statistics, Structural Equation Modeling, researcher constructed the relationship model for 3 year old disabled children first, and tested the model using the 5 year old disabled children data. The two models were showed the similar results. The SES contained no direct influence on preschool disabled children's development. However, parent involvement showed mediation effects in the relationship between SES and preschool disabled children's development. Besides, the two modified models also were showed some covariant relationship between the residuals of factors in predictor variable and dependent variable.

According to the results, exploring the cause of negative covariance between the residual of using different resources and disabled children' development, analyzing more variables such as teachers' involvement, the levels of disability, drawing the whole pictures about preschool disabled children's development, and using the data to explore more different themes about disabled children were suggested for the future researches.

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