

The Differences and Stability of Children's Career Expectations

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ABSTRACT

Each child has different career expectations, which offers different opportunities in deciding future careers. The study aims to explore the differences and stability of children's career expectations. The participants were kindergarten children and sixth-grade elementary school children. The data was analyzed by using percentage and average analysis as well as regression analysis to investigate the relation between the parents' occupation and the children's career expectations. Among the categories of careers, police officer, painter, doctor, teacher and entrepreneurs were the most popular careers from the children's aspirations. Further, there is a significant gender difference in the children's career expectations. In addition, children show stable development in career expectations. Moreover, the parents' careers are often related to their children's career expectations. The parents' career are highly related with the children's career expectations.

Keywords: Children, Career Expectation, Career Aspiration, Occupational Interest

1. INTRODUCTION

The social scientists (Sewell and Hauser, 1975; Spenner and Featherman, 1978) generally agree that career expectations influence an individual's career fulfillment. They reported that the higher are the individual's career expectations, the higher are the prestige and salary expectations for the adulthood occupation. This also influences the individual's future school achievement, cognitive ability and other socio-psychological areas. Becker (1994) claimed that children's career expectations could be viewed as the early preferences toward their future occupation and planning for a family role.

Vondracek and Porfeli (2002) reported that career expectations have been involved with a variety of human development, including physical, cognitive and socio-psychological perspectives. Savickas (2002) reported that scholars adopting the Development Theory claimed that children's basic attitudes, imagination, decision making and ability in exploring the future were based on sufficient necessary experiences which are related to career expectations. These mentioned abilities were largely

built during the early childhood period (Hartung *et al.*, 2008) We take Gottfredson (1981; 1999; 2002) Negotiation and Limited Theory as an example. Career expectations were derived from the pre-school stage. Therefore, many occupational theory scholars (McMahon and Patton, 1997) have adopted and considered the pre-school stage as the key stage for children's future career development. Moreover, Hoffman and McDaniels (1991) stated that the kindergarten children's interest in occupations has highly influenced the children's future development stability in career preferences or expectations.

But from what stage do the children's career expectations start to be stabilized? From the continuous research with 317 teenagers (age 15), Beal and Crockett (2010) indicated that the children's ambitions and expectations toward work and education were appropriately developed from teenagers to early adulthood. In addition, (Tracey, 2002; Tracey and Ward, 1998) revealed that children (ages 10-12) had relatively stable career expectations and the stability increased gradually with their increasing age. Furthermore, the concepts related to career expectations were explained from a career development viewpoint. With respect to a

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multi-developed career development theory, different category and viewpoint analysis could be summarized into three groupings: (1) Development and stage theory: process approach (2) Genre and characteristics approach theory: content approach and the (3) Demand and environment approach theory: entirety approach.

2. MATERIALS AND METHODS

2.1. Theories Related To Children's Career Expectations

Children of various ages differ in career knowledge and recognition, representing different career expectations and demands (Nelson and Smith, 2001) proved that the third grade elementary school children possessed well-developed occupation concepts. Low *et al.* (2005) claimed that the stage that he mentioned about the career development mission was to promote the children's self-understanding, self-identification with the same gender-parent, the children's understanding of different occupations and the children's choosing of activities appropriate for individual abilities.

Leo (2008) recommended that Holland's explanation of career development from personality characteristics and the ability in matching appropriate occupation categories was appropriate in exploring the strong relationship between individual personality stereotypes and the relative behavior or interests. In the elementary and secondary school stages, Kammer (1985) stated that there were significant differences in occupation expectations and development between students of different gender. Birk and Blimline (1984) revealed that kindergarten and elementary boys favored the career options of engineer, researcher, businessman and entrepreneur. This is in contrast to the elementary school girls who favored the career options of artist, teacher, or business person. Yowell (2000) found that Latin-American elementary school children had expectations in the following occupations: doctor (10%), professional athletes (10%) and lawyer (8%). Nhundu (2007) for example, in Zimbabwe, the girl's favored un-traditional occupations more than the boys. To conclude, boys and girls differed in occupation selection and expectations. Gender is the main factor in the children's choice of an occupation. However, the results of the research presented an inconsistent phenomenon. Research from Care *et al.* (2007) demonstrated that four to five year old children of different genders had different career

expectations and role playing abilities in fantasizing about the adult world.

2.2. Theory Related to Career Expectation Stability

Low *et al.* (2005) reported that in terms of career expectations, there was instability before one was 16 years old. In contrast, Harmon *et al.* (1994) argued that some interference before age 16 were not appropriate for school students. However, Low *et al.* (2005) adopted meta-analysis reliability for the sample in different-age groups to discover that between the ages of 12 to 14, children have already obtained moderate stability and furthermore, the stability reached gradually matured when they were 18 to 20. In addition, Tracey and Robbins (2005) adopted a constructive formula/equation model to investigate the variance between different age periods and the results showed that teens that were 15 to 16 had a notable variation in career expectations.

Further, (Tracey and Robbins, 2005; Tracey *et al.*, 2005) examined the Holland RIASEC grade within American representative samples in two period students presented more numbers (quantity) and profound interest (quality) in career expectation categories. The samples of elementary and junior high school students presented different results. Tracey (2002) reported that except for the enterprising category, with the passing of time, students decreased in all categories of interests. Furthermore, Tracey (2002) found that except for the enterprising category, female students exhibited decreasing career interest grades in the other categories compared to male students. Creed *et al.* (2009) adopted 498 students and further revealed that make students devote into investigative occupations; while girls into conventional ones.

2.3. Research Framework

In the current research framework table, the background variables are the children's gender and age variables for the children's career expectations. The data was analyzed by using quantitative analysis of descriptive statistics, averages, reliability analysis, F test and the regression analysis to explore the children's current career expectations situation, difference and absolute value of stability. In addition, the McNemar test was adopted to investigate the relative stability between two measurements (reliability). Finally, Cramer's V value was used to understand the relation between the parents' career and children's career expectations. The related research framework is shown in Fig. 1.

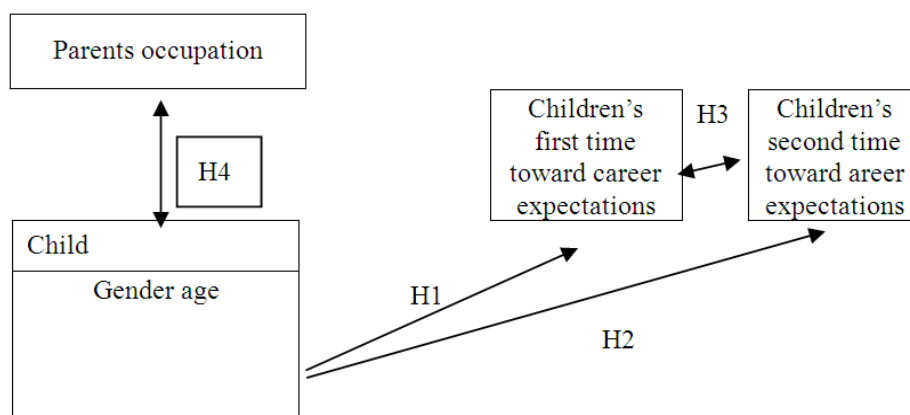


Fig. 1. Research framework of children's career expectation differences and stability

Based on the research framework and related literature, the related hypotheses stated in the null form are presented below:

- Hypothesis 1: There is no significance between age and occupation expectations and between gender and occupation expectations.
- Hypothesis 2: With children's getting older, the grades of their occupation expectations are decreasing.
- Hypothesis 3: There is no linear relationship between the first time and the second time of their occupation expectation grades.
- Hypothesis 4: There is no relationship between the parents' occupation and the children's career expectations.

2.4. Subjects

The subjects were from six kindergartens and elementary schools in Tainan. Their ages are from 5 to 11. The total valid samples were 278 questionnaires.

2.5. Instruments

2.5.1. Related Instruments

The questionnaire was composed of the children's basic background and research questions. Concerning the career expectations, Holland (1985) occupation personality six categories and Lee (2010) occupation categories are popular and in favor by the children. Each category consisted of three to four kinds of occupations and there were 19 items in total.

2.6. Variables Measurement

2.6.1. Gender (b) Age (c) Parents' Degree and Occupation (d) Career Expectations

The data proceeds with data factor analysis, with the main analysis registering a factor of $\lambda > 1$, which adopts Oblimin to enter, which results in six factors. This could explain the variety value of 70.4%. (e) Stability: There are absolute and relative stabilities. The absolute stability adopted the F test to investigate whether there are differences between the two test occupation categories. In the determination of relative stability, the McNemar test was adopted to investigate the stability of reliability of children's occupation expectations. **Table 1** indicates the subjects basic background information.

2.7. Validity and Reliability test

2.7.1. Validity

In accordance with **Table 2** factor analysis, in the validity metric, these 19 occupations could clearly measure our six factors. It explains that the variety value reached 70.439, which indicates construct validity.

2.8. Reliability

In terms of reliability, an inner insistence Cronbach's α was adopted. The reliability of these 19 item career expectations was 0.6989. In each, a six factor Cronbach's α would be "Realistic" 0.656, "Investigative" 0.704, "Social" 0.624, "Conventional" 0.703, "Enterprising" 0.657 and "Artistic" 0.737. From the above results, the reliability of the questionnaire in the current research is good.

Table 1. The subjects basic background information table/list

Item/category n = 278	Times	(%)	Item/category n = 278	Times	(%)
Gender			Age		
Female	124	44.6	Kindergarten (age 6)	134	48.2
Male	154	55.4	The sixth grade in elementary school	144	51.8
Father's education			Mother's education		
Below high school	126	45.3	below high school	133	47.8
College	126	45.3	College	125	45.0
Grad school or higher	24	8.6	Graduate school or higher	20	7.2
Other	2	0.8			
Father's occupation			Father's occupation		
Non-technical	25	9.0	Non-technical	81	29.1
Technique personnel	56	20.1	Technical personnel	59	21.2
Businessman	56	20.1	Businessman	54	19.4
Semi-professional	31	11.1	Semi-professional	15	5.4
Professional	110	39.7	Professional	69	24.9

Table 2. Factor analysis of children's expectations

	Realistic	Investigative	Social	Conventional	Enterprising	Artistic
Driver	0.750					
Cook	0.729					
Police officer	0.705					
Firefighter	0.596					
Scientist		0.843				
Captain		0.732				
Doctor		0.573				
Teacher			0.835			
Nurse			0.734			
Pastor/Priest			0.349			
Sales clerk				0.765		
Mail carrier				0.527		
Accountant				0.427		
Entrepreneur					0.845	
Government officer					0.827	
Judge					0.664	
Painter						00.773
Musician						00.687
Celebrity						00.660
Factor loading	2.558	2.235	2.215	2.062	2.030	01.579
Explained variance	14.213	12.416	12.303	11.454	11.278	08.774
Total variance	14.213	26.629	38.932	50.368	61.666	70.439

3. RESULTS

First, from **Table 3**, we found that the police officer, painter, doctor, teacher and entrepreneur were the children's most expected careers. While in the second investigation, the children's career expectations presented small range growth. With the samples' separate explanations, we found that for kindergarten children (age 5), the most expected careers were doctor, scientist, musician, painter, teacher, judge, sales clerk and police officer. The elementary sixth grade children admired the careers of doctor, scientist, painter, celebrity, teacher, entrepreneur, police officer and cook. The items of the

kindergarten children's highly expected careers, such as musician, sales clerk and judge were replaced and transformed with the children's sixth grade in elementary school. This will be discussed later in the research.

The significant difference in career expectations between different ages could be clearly illustrated from **Table 3**, especially in realistic, social and conventional jobs. What deserved attention would be on the whole, with the increasing of grade, the children's grade in career expectations exhibited descending trends; even for different age children, the twice administered investigation (after 6 months) seemed to remain with the same descending trend.

Table 3. The average analysis of different-age-children’s career expectations between two measurements

Mean (No.)		Total 1st /2nd	Sixth grade in elementary school 1st /2nd	Kindergarten 5 years 1st /2nd old children	F/ Sig.
Realistic	Police officer	3.70(268)/3.63(276)	3.60(137)/3.36(141)	3.81(131)/3.92(135)	2.58*/5.92*
	Cook	3.49(264)/3.43(271)	3.51(134)/3.38(138)	3.46(130)/3.48(133)	0.13*/11.8*
	Firefighter	3.22(266)/3.10(273)	2.91(139)/2.79(141)	3.57(127)/3.42(132)	22.9*/ 8.72*
	Driver	2.79(257)/2.72(263)	2.61(136)/2.54(135)	3.00(121)/2.91(128)	7.79*/14.1*
Investigative	Doctor	3.52(264)/3.51(278)	3.18(136)/3.14(143)	3.87(128)/3.90(135)	22.5*/12.4*
	Scientist	3.44(249)/3.47(275)	3.35(134)/3.23(141)	3.54(115)/3.72(134)	1.39/7.25*
	Captain	3.06(256)/2.99(271)	2.84(135)/2.72(139)	3.31(121)/3.28(132)	9.59*/11.7*
Artistic	Musician	3.34(257)/3.32(273)	3.16(135)/3.07(140)	3.54(122)/3.57(133)	6.66*/8.82*
	Painter	3.72(260)/3.60(275)	3.40(139)/3.28(141)	4.09(121)/3.93(134)	24.7*/12.0*
	Celebrity	3.45(258)/3.30(273)	3.49(138)/3.23(141)	3.42(120)/3.37(132)	0.19/6.96*
Social	Teacher	3.49(266)/3.51(274)	3.25(138)/3.14(142)	3.76(128)/3.90(132)	13.1*/9.47*
	Pastor/Priest	2.34(223)/2.50(240)	2.04(128)/2.13(134)	2.75(095)/2.97(106)	20.6*/11.6*
	Nurse	3.04(263)/2.83(272)	2.67(137)/2.57(141)	3.44(126)/3.11(131)	22.9*/15.6*
Enterprising	Judge	3.18(246)/3.28(262)	2.88(139)/2.85(139)	3.56(107)/3.76(123)	18.2*/11.2*
	Entrepreneur	3.55(262)/3.45(267)	3.53(140)/3.45(137)	3.57(122)/3.44(130)	0.10/3.03*
	Gov officer	3.08(230)/3.01(246)	2.90(130)/2.81(135)	3.31(100)/3.25(111)	6.31*/9.99*
Conventional	Accountant	3.14(222)/3.10(239)	2.85(119)/2.85(128)	3.49(103)/3.38(111)	16.9*/5.72*
	Mail carrier	3.06(263)/3.04(270)	2.71(135)/2.67(139)	3.44(128)/3.42(131)	30.4*/12.1*
	Sales clerk	3.37(268)/3.29(267)	3.11(139) 3.09(136)	3.66(129)/3.50(131)	20.3*/11.9*

※*: p<0.05

Table 4. The average analysis of children of different genders’ career expectations

Mean (No.)		Total 1st /2nd	Male 1st /2nd	Female 1st /2nd	F Value ½
Realistic	Police officer	3.70(268)/3.63(276)	3.91(149)/3.83(154)	3.45(119)/3.37(122)	3.80*/12.7*
	Cook	3.49(264)/3.43(271)	3.40(144)/3.42(151)	3.59(120)/3.44(120)	4.36/1.64
	Firefighter	3.22(266)/3.10(273)	3.39(147)/3.34(149)	3.02(119)/2.80(124)	2.28/6.77*
	Driver	2.79(257)/2.72(263)	2.99(139)/2.96(143)	2.56(118)/2.44(120)	3.70*/9.68*
Investigative	Doctor	3.52(264)/3.51(278)	3.49(144)/3.47(154)	3.55(120)/3.56(124)	0.18/3.36*
	Scientist	3.44(249)/3.47(275)	3.68(140)/3.71(153)	3.13(109)/3.16(122)	7.30*/12.3*
	Captain	3.06(256)/2.99(271)	2.41(143)/3.29(151)	3.31(113)/2.62(120)	26.8*/7.94*
Artistic	Musician	3.34(257)/3.32(273)	2.99(141)/3.00(152)	3.78(116)/3.71(121)	8.39*/7.61*
	Painter	3.72(260)/3.60(275)	3.48(140)/3.33(152)	4.01(120)/3.93(121)	4.36*/5.41*
	Celebrity	3.45(258)/3.30(273)	3.30(141)/3.04(150)	3.63(117)/3.62(123)	1.34/4.44*
Social	Teacher	3.49(266)/3.51(274)	3.22(144)/3.22(152)	3.81(122)/3.86(122)	4.84*/17.6*
	Pastor/Priest	2.34(223)/2.50(240)	2.29(119)/2.51(134)	2.39(104)/2.48(106)	0.58/0.46
	Nurse	3.04(263)/2.83(272)	2.50(141)/2.33(152)	3.66(122)/3.46(120)	16.3*/58.3*
Enterprising	Judge	3.18(246)/3.28(262)	3.39(134)/3.52(147)	2.93(112)/2.97(115)	3.33*/8.29*
	Entrepreneur	3.55(262)/3.45(267)	3.77(149)/3.76(150)	3.26(113)/3.04(117)	3.91*/13.2*
	Gov officer	3.08(230)/3.01(246)	3.28(131)/3.25(136)	2.81(099)/2.71(110)	2.43*/8.51*
Conventional	Accountant	3.14(222)/3.10(239)	3.02(121)/3.13(133)	3.29(101)/3.06(106)	2.69/ 3.22
	Mail carrier	3.06(263)/3.04(270)	3.15(144)/3.16(149)	2.97(119)/2.88(121)	0.78/1.66
	Sales clerk	3.37(368)/3.29(267)	3.32(145) /3.21(149)	3.44(123)/3.39(118)	0.92/0.84

※* p<0.05

Furthermore, with the gender variable in children’s career expectations, **Table 4** suggests that most children’s career expectations have obvious gender differences. Males received higher grades in the enterprising category

than females. While females received higher grades in the artistic category than males. The most admired occupations for males would be the realistic category: Scientist, police officer and the enterprising entrepreneur.

Table 5. Regression of the children’s gender and age in six career expectations

	Items	B	Beta	t	Sig
Realistic R Square = 0.040	Gender	-0.399	-0.200	-2.423	*
	Age	0.017	0.008	0.102	
	Constant	0.563		1.469	*
Investigative R Square = 0.073	Gender	-0.538	-0.270	-3.247	*
	Age	-0.142	-0.069	-0.836	
	Constant	1.026		2.583	*
Social R Square = 0.347	Gender	1.029	0.516	7.570	*
	Age	-0.480	-0.238	-3.496	*
	Constant	-0.765		-2.419	*
Conventional R Square = 0.126	Gender	-0.210	-0.105	-1.336	
	Age	-0.793	-0.349	-4.428	*
	Constant	1.416		3.873	*
Enterprising R Square = 0.097	Gender	-0.335	-0.168	-2.098	*
	Age	-0.561	-0.279	-3.477	*
	Constant	1.378		3.707	*
Artistic R Square = 0.103	Gender	0.577	0.289	3.538	*
	Age	-0.225	-0.110	-1.346	
	Constant	-0.492		-1.259	

The most admired occupation for females would be the artistic category: musician, painter, celebrity and the social teacher. The results confirm with the former related research.

From **Table 5**, it is obvious that the males had a higher interest in the realistic, investigative and enterprising categories than the females. While the females received a higher grade in the social and artistic categories than the males. The kindergarten children had higher career expectations in the social, conventional and enterprising categories than the sixth grade elementary school children.

Then, we used the McNemar test to investigate the children’s stability in career expectations which is depicted in **Table 6**. It reveals that the children received significant levels in each categories’ career expectations. Each career category in the two grades received significant levels as well. This represented that during the six months, the kindergarten children (age 6) and the sixth grade elementary school children remained stable in their career expectations.

Considering different gender children’s stability in career expectations, from **Table 7**, it reveals that after six months, different gender children presented stability. This illustrates that different gender children’s career expectations remained stable after six months.

From **Table 8**, it reveals that the parents’ occupations were highly related to the children’s career expectations (Cramer’s V value would be 0.358 and 0.388 and they are significant).

Table 6. McNemar test of two measurements for different age children

	Total McNemar	Kindergarten children(Age 5) McNemar	Sixth grade in elementary school McNemar
Mean (No.)			
Realistic	0.446*(238)	0.389*(099)	0.410*(133)
Investigative	0.463*(249)	0.284*(115)	0.561*(133)
Artistic	0.545*(257)	0.370*(120)	0.643*(137)
Social	0.476*(223)	0.333*(095)	0.497*(127)
Enterprising	0.360*(230)	0.242*(099)	0.414*(129)
Conventional	0.389*(222)	0.260*(091)	0.373*(117)

Table 7. Reliability analysis of children of different genders

Mean (No)	Male McNemar	Female McNemar
Realistic	0.517*(122)	0.497*(108)
Investigative	0.441*(138)	0.517*(106)
Artistic	0.550*(136)	0.515*(113)
Social	0.498*(110)	0.482*(096)
Enterprising	0.324*(118)	0.451*(095)
Conventional	0.375*(110)	0.425*(091)

Table 8. The relationship between the parents’ occupation and the children’s career expectations

	Father’ occupation and children’s career expectations	Mother’ occupation and children’s career expectations
Cramer’s V	0.358*	0.388*
N	263.000	201.000

4. DICUSSION

Each child has different career expectations, which offers different opportunities in deciding future careers. Hence, to investigate children’s career expectations would help them in planning their future career selection. From the research results, the categories of police officer, painter, doctor, teacher and entrepreneur were all highly admired occupations. The results were similar with Lee (2010) research in kindergarten children (aged six) where the categories of teacher, police officer, doctor, entrepreneur and artist were highly admired by children. Another explanation may be that the occupations were related to children. For example, on the children’s way to school, they might have many opportunities to see a police officer. The children might develop close relationships with their kindergarten teacher or art instructor in after-school activities. The children would see a doctor when they are sick and finally, the students might meet a boss or sales clerk when shopping with the family. The children’s surrounding environment and culture influenced the children’s career recognition.

In the current society, many services are provided by social value exchange and money exchange plays as the most significant medium in our daily life. Thus, for parents' expectations for children's selection of occupations, the job issue is highly related with money exchange value. Parents seem to favor a job which would enable them to create more social value and offer more money. The categories of Musicians and Sales clerks which were favored with kindergarten children were replaced by celebrities, entrepreneurs and cooks. Take the musician for example, the ideal musician or painter is replaced by other occupations because of higher economical/financial costs in the process to become a musician and the lower compensation and social status in their potential future career. Hence, parents don't expect children to devote themselves into those challenging careers. Therefore, children are thoroughly influenced by their parents' guidance and the process of family socialization. This could also be a reason why people (as well as children) are gaining a variety of mediums for easily receiving knowledge every day. Children have greater opportunities to interact with people from various occupations. With the children's recognition development and large contact with social news, it is obvious that children quickly understand the meaning and the characteristics of each occupation. The children's fantasy career expectations may turn into realistic understanding. Therefore, after the sixth grade in elementary school, the occupations which are favored by children include entrepreneur, cook and movie star. This transformation deserves more exploration in further study. In addition to recognition development and experience accumulation, the widespread proliferation of audio-video mass media and family/school socialization, children have obtained knowledge in understanding career selection. Take the most famous baker in Taiwan, Wu Pao-Chen, because of his winning the title of Master Baker in the bread category at the 2010 Bakery World Cup in Paris, children were now familiar with the baker career. Due to the celebrity of Whitney Houston, children became familiar with the singer career. Due to Mark Zuckerberg and the company named Facebook which he founded, the children became familiar with the entrepreneur occupation.

On the whole, compared with different genders, males/boys had a preference for the occupation

categories in Investigative, Realistic and Enterprising topics. Alternatively, the females/girls tended to prefer the Artistic and Social categories. The most popular careers for boys were the Realistic: (scientist, police officer and the enterprising entrepreneur). While the girls had a high preference for the Artistic (musician, painter, celebrity and the social teacher). The results were similar with (Birk and Blimline, 1984; Kay and Miller, 1982) research.

In the current research, the results indicated that kindergarten and elementary school children received stability and reliability in career expectations after 6 months, with a descending trend in the measurement grade. In accordance with the above research, we might explore the topic from two levels. First, for kindergarten children (age 6) and the sixth grade children in elementary school, their career expectations are stable. The results are similar with Low *et al.* (2005) research adopting different age groups and (Tracey, 2002; Tracey and Ward, 1998) research adopting elementary school children from 10 to 12 years old. Children from 10 to 12 or children from 12 to 14 already had relatively stable career expectations and in **Table 4**, we see that the stability matures with the children growing up. Some research in Taiwan contends that stability occurred earlier in kindergarten (age 6). However, the stability lasted for six months in the research. For stability which lasts longer than one year, this will be covered in future studies. However, there is another topic which deserves exploration: (Low *et al.*, 2005) believed that the instability occurred before the children were sixteen years old. The research reported that an individual's expectations tend to become unstable in the end of junior high school or in the beginning of senior high school. With the conclusions from the above research, we predict that children's career expectations might be stable before the elementary school stage. But after the children enter junior and senior high school, their career expectations might have significant changes and this prediction still needs more proof and further research.

Compared to the two previous measurements of occupation expectations from kindergarten children (age 6) and from the children in the sixth grade of elementary, we found that the children exhibited descending grades for most career expectations. The results were similar with Tracey (2002) research adopting junior high school samples. This might be because students in junior/senior high school received more opportunities in peer comparison and competition (Roberts and Petersen, 1992) and physical maturity and recognition resulting in

changes in the teenager's thinking model and social value (Ruble and Seidman, 1996).

5. CONCLUSION

- Police officer, painter, doctor, teacher and entrepreneur are the career occupations which the children most favored in the surveys
- There is an obvious gender difference between career preferences. The children in kindergarten had higher expectations in the social, conventional and enterprise categories than the sixth grade elementary school children
- Kindergarten children (age 6) and the sixth grade elementary school children have stability in their career expectations after six months, but there is a declining trend in the absolute scores for their career expectations
- The parents' career is highly related with the children's career expectations. Due to time and area limitation, future research for the whole period empirical data for the children's career expectations would be adopted for junior and senior high school subjects

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