

Research on Multiple Intelligences of Junior High School Students with

Different Background Variables

Min-Ying Tsai^{1,2}

(1. Zuoying Junior High School, Kaohsiung, Taiwan;2. Department of Special Education, National Taiwan Normal University, Taiwan)

Abstract: The main purpose of the study was to explore the differences of multiple intelligences on junior high school students with different gender, grade, and students' types. The study adopted survey research design, and the samples including 341 participants from the seventh and the eighth grade junior high school students in Taiwan. The research instrument used in the study was Chinese Version of Multiple Intelligence Developmental Assessment Scales Form-B. All data was analyzed by applying descriptive statistics, and t-test, one-way analysis of variance. The results of the study were as following:

(1) Depending on the average scores of multiple intelligences, seventh grade students got the highest scores on interpersonal intelligence, and got the lowest scores on natural intelligences. Eighth grade students got the highest scores on interpersonal intelligence, and got the lowest scores on bodily-kinesthetic intelligences.

(2) General students and special needs students got the highest scores on interpersonal intelligence. However, the former got the lowest scores on natural intelligence, and the latter got the lowest scores on logical-mathematical intelligence. Gifted students got the highest scores on logical-mathematical intelligence, and the lowest scores on bodily-kinesthetic intelligence.

(3) Seventh grade students significantly got the higher scores than eighth grade students on spatial, music, bodily-kinesthetic, and natural intelligences.

(4) Girls significantly got higher grades than boys on linguistic, spatial, music, interpersonal, and existential intelligences. Boys only got higher grades than girls on logical-mathematical intelligence.

Gifted students significantly got higher grades than general students and special needs students on linguistic, logic-mathematics, music, intrapersonal, interpersonal intelligences. Gifted students and general students significantly got higher grades than special needs students on spatial, bodily-kinesthetic, and existential intelligences. There was no difference on natural intelligence among gifted students, general students and special needs students.

Key words: junior high school students, multiple intelligences, background variables

1. Introduction

Since Binet and Simon developed the first intelligence test, many nations tried to evaluate the degree of

Min-Ying Tsai, Ph.D., Zuoying Junior High School; Department of Special Education, National Taiwan Normal University; research areas/interests: gifted education, affective education. E-mail: tminying@gmail.com.

individuals' intelligence quotient which was based on the scores of the intelligence test. Educational researchers tried to use the intelligence test to assess students' intelligence quotient to find special needs students and gifted students. However, the intelligence test only included general ability and academic aptitude, and didn't include all areas of human abilities. Until Howard Gardner who challenged the too narrowly defined intelligence proposed multiple intelligences, he proposed the multiple intelligences theory (MIT), which included linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal and natural intelligences (Saricaoğlu & Arikan, 2009). The theory proposed that every child had more unique knowledge area than others, and people could understand the knowledge and message process through the different ways of these unique knowledge areas (Tsai, 1998). Everyone could make use of his/her advantages to develop their talents or make up their disadvantages. So the researcher would like to know what are the differences between multiple intelligences among general junior high school students, gifted students, and special needs students. Whatever students' ability is good or bad, teachers should help students find their potential and cultivate their advantages of intelligent.

Studies had shown that the multiple intelligences of different grades, gender, family state, parents' educational level, parents' occupation, social status of parents, parents of native nationality contextual students were significant different (Bai, 2009; Hon, 2007; Zhu, 2011; Wei, 2009). Above all, the development of students' multiple intelligences were significantly affected by grades, gender, family state, parents' educational level, parents' occupation, social status of parents, and cram school experiences. The researcher would like to explore whether the multiple intelligences of junior high school students with different grades, gender, and parenting styles are significant different. There were three research purposes of the study, as follows. The first purpose was to understand multiple intelligences of junior high school students with different grade and types of students. The second purpose was to analyze the differences on multiple intelligences of junior high school students with different grade, gender, types of students, and parenting style.

2. Literature Review

2.1 MI Theory: The Construct and its Components

Gardner (1983) initially identified seven forms of intelligence, which, he argued, every normal individual should develop intelligences to some extent. Subsequently, Gardner (1993, 1999) considered other possible candidates and added naturalist intelligence as an eighth intelligence. These eight intelligences are verbal-linguistic intelligence (that is related to words and language), musical intelligence (that includes the ability to perceive and create pitch and rhythm patterns), logical-mathematical intelligence (that includes the ability to reason logically and solve numerical problems), spatial intelligence (that includes the ability to navigate the environment and to form and manipulate mental images), bodily-kinesthetic intelligence (that includes the ability to carry out motor movement and to express oneself through movement), intrapersonal intelligence (that includes the ability to understand oneself and to develop a sense of identity), interpersonal intelligence (that relates to observing patterns in nature, identifying and classifying objects, and understanding natural and human-made systems). Educational staff would especially emphasize verbal-linguistic intelligence and logical-mathematical intelligence which are closely related to the academic abilities. As the development of 12-year national education, educational staff would gradually focus on the multiple intelligences to develop students' different abilities of daily life.

Gardner thought that students' talent development shouldn't be limited by test scores, we should see other natural resources. Researchers should understand how to development important life skills and observe that surgeons, engineers, hunters, fishermen and others in the use of intelligent in their life. Some intelligences couldn't be seen and be measured, they were diverse and neurological potential. Everyone really has his advantage and disadvantage intelligences. However, educational staff could help students find their advantage intelligence and instruct them to make use of their advantage intelligences to attain their goal. So the researcher trys to investigate the different multiple intelligences of general students, gifted students, and special needs students.

2.2 Relative Research of Multiple Intelligences

When children gradually grew up, they would gain a lot of information and learn different knowledge areas. Their intelligences might be enhanced through their rich life and learning experiences. However, some research findings found that younger students got higher scores than older students on multiple intelligences (White, 2009; Hun, 2007; Wan, 2003). Wan (2003) pointed that fourth grade students got higher scores than sixth grade students on linguistic, logical-mathematical intelligence, spatial, musical, intrapersonal and natural intelligences, because four grade students learn new course outline, have more active teaching content, and free time to deeper thinking. White (2009) found that third grade foreign spouses' students got higher scores than eighth grade students on linguistic intelligence. Lin (2005) indicated that seventh grade students got higher scores than eighth grade students on natural intelligence. Hun (2007) found that fifth grade foreign spouses' students got higher scores than eighth grade students on multiple intelligence. It showed that when students grew up and had more life experiences, their multiple intelligences didn't enhance.

Gardner (1997) indicated that woman's special problem solving ability was worse than men's in western society, however, spatial ability is the indispensable ability for boys and girls in the Eskimo society. In the different society, the gender differences on people's multiple intelligence would likely disappear. Researchers have investigated the relationship between gender and MI of specific learners. With an aim of finding out whether or not there were any gender differences in students' intelligence profiles, Loori (2005) found that English language learning males showed higher preference in logical-mathematical intelligence. Razmjoo (2008) found that the use of intrapersonal intelligence by females was higher than that of the males whereas no significant difference was found between male and female participants regarding types of intelligences. Furnham, Wytykowska, and Petrides (2005) found that males gave higher self-estimates than females, and the gender differences tend to be more pronounced in estimates of mathematical and spatial intelligence from past literatures. Girls got higher scores than boys on linguistic, music, interpersonal, and intrapersonal intelligences (Chang, 2002; Han, 2007; Jiang, 2001; Wan, 2003; Wu, 2002), and boys got higher scores than girls on mathematical-logical and bodily-kinesthetic intelligences (Lee, 2006; Lin, 2005). Hence, contrasts exist between the results of these two studies which studied the relationship with gender and MI. Researchers acknowledge that parental beliefs about children's intelligence is a potentially important area of research due to the effect these ideas have on parental rearing and expectations (as cited in Furnham & Budhani, 2002; Goodnow, 1980; Goodnow & Collins, 1990; Siegal, 1985). The researcher would try to explore the different multiple intelligences of junior high school students with different grade, gender, and types of students.

3. Research Method

3.1 Participants

Participants were 142 girls and 199 boys from five schools in Kaohsiung, Taiwan. A total of 341 individuals took part, of which 185 were seventh grade students and 156 eighth grade students. There were 142 general students, 141 gifted students, and 58 handicapped students.

3.2 Measures and Procedure

There were two parts of each questionnaire. The first part was Chinese Version of Multiple Intelligence Developmental Assessment Scales Form-B, and the second part was demographic information. Participants were asked to rate themselves and write their demographic information in class over a period of approximately 45 minutes.

3.2.1 Chinese Version of Multiple Intelligence Developmental Assessment Scales Form-B (CMIDAS-B)

The CMIDAS-B measures nine dimensions of Gardner's MI theory: (1) linguistic, (2) logical-mathematical, (3) musical, (4) spatial, (5) bodily-kinesthetic, (6) interpersonal, (7) intrapersonal, (8) natural, and (9) existential intelligence. The instrument consists of 108 items on a Likert-scale from 1 (totally disagree) to 5 (totally agree). The internal consistency reliability (α coefficient) are .83~.90. The correlation coefficient for each subscale interaction are .35~.77.

3.2.2 Demographic Information

Participants provided some demographic information, including gender, and age, types of students.

3.3 Data Analysis

SPSS 18.00 was used to analyze the data collected for the study. Independent samples t-test analysis was used to determine whether there were different multiple intelligences of junior high school students with different gender and grade. In order to identify multiple intelligences of junior high school students with grade, and types of students, the data were analyzed descriptively. The data analyzed by ANOVA analysis to investigate whether students with different types of students, family state, and parenting style have difference on multiple intelligences.

4. Results

4.1 The Multiple Intelligences of Seventh Grade Students

The multiple intelligences of seventh grade students included the description of boys', girls' and all students' multiple intelligences (as Table 1).

In Table 1, the seventh grade boys got the highest scores on interpersonal intelligence, and the lowest scores on linguistic intelligence. The seventh grade girls got the highest scores on interpersonal intelligence, and the lowest scores on natural intelligence. All seventh grade students got the highest grade was interpersonal intelligence, followed by intrapersonal intelligence, logical-mathematical intelligence, music intelligence, spatial intelligence, existential intelligence, linguistic intelligence, bodily-kinesthetic intelligence, and natural intelligences.

intelligences	Boys (1	V=81)	Girls (1	V=78)	All students ($N = 159$)		
interligences	М	SD	М	SD	М	SD	
linguistic	32.91	8.22	38.36	8.02	35.58	8.54	
logical-mathematical	39.58	11.10	37.86	9.10	38.74	10.17	
spatial	33.09	10.80	40.06	10.14	36.51	11.02	
musical	34.16	11.94	41.97	9.43	37.99	11.44	
bodily-kinesthetic	34.60	11.03	34.92	8.97	34.76	10.04	
intrapersonal	37.79	9.79	41.21	8.92	39.47	9.50	
interpersonal	39.99	11.31	44.68	8.24	42.29	10.17	
natural	34.86	10.47	34.17	9.55	34.52	10.00	
existential	36.43	11.12	39.44	8.71	37.91	10.09	

 Table 1
 The Multiple Intelligences of Seventh Grade Students

4.2 The Multiple Intelligences of Eighth Grade Students

The multiple intelligences of eighth grade students included the description of boys', girls' and all students' multiple intelligences (as Table 2). In Table 2, the eighth grade boys got the highest scores on logical-mathematical intelligence, and the lowest scores on spatial intelligence. The eighth grade girls got the highest scores on interpersonal intelligence, and the lowest scores on bodily-kinesthetic intelligence. All eighth grade students got the highest grade was interpersonal intelligence, followed by logical-mathematical intelligence, intrapersonal intelligence, existential intelligence, music intelligence, linguistic intelligence, spatial intelligence, natural intelligences, and bodily-kinesthetic intelligence.

intelligences	Boys (1	V=92)	Girls (<i>N</i>	V=64)	All students ($N = 156$)		
intelligences	М	SD	М	SD	М	SD	
linguistic	33.48	7.66	34.52	8.44	33.90	7.98	
logical-mathematical	40.25	11.55	36.27	8.78	38.62	10.66	
spatial	29.76	8.97	36.19	9.59	32.40	9.73	
musical	32.92	10.45	38.53	9.50	35.22	10.41	
bodily-kinesthetic	32.33	9.18	30.48	8.94	31.57	9.10	
intrapersonal	37.85	9.07	37.92	8.29	37.88	8.73	
interpersonal	39.58	9.23	41.00	9.09	40.16	9.17	
natural	32.47	10.11	32.05	8.13	32.29	9.32	
existential	35.90	10.97	37.50	9.59	36.56	10.42	

 Table 2
 The Multiple Intelligences of Eighth Grade Students

4.3 The Multiple Intelligences of Students with Different Types

In Table 3, general students got the highest sores on interpersonal intelligence, followed by intrapersonal intelligence, existential intelligence, logical-mathematical intelligence, music intelligence, spatial intelligence, linguistic intelligence, bodily-kinesthetic intelligence, and nature intelligence. Special needs students got the highest sores on interpersonal intelligence, followed by intrapersonal intelligence, nature intelligence, existential intelligence, bodily-kinesthetic intelligence, spatial intelligence, music intelligence, linguistic intelligence, existential intelligence, bodily-kinesthetic intelligence, spatial intelligence, music intelligence, linguistic intelligence, and logical-mathematical intelligence. Gifted students got the highest sores on logical-mathematical intelligence, followed by interpersonal intelligence, music intelligence, existential intelligence, followed by interpersonal intelligence, intrapersonal intelligence, music intelligence, existential intelligence, existential intelligence, music intelligence, existential intelligence, existential intelligence, existential intelligence, music intelligence, existential intelligence

General	students	Special needs st	udents($N = 64$)	Gifted students $(N = 156)$	
(14 -	92)			(N - 130)	
М	SD	Μ	SD	М	SD
34.76	7.45	28.79	8.49	37.75	7.61
37.65	8.82	28.66	9.55	45.00	7.95
35.96	10.77	29.62	11.20	35.09	9.35
36.75	10.62	29.47	11.95	40.07	9.23
33.86	9.15	29.81	12.10	34.04	8.70
38.90	8.94	32.38	9.54	41.58	7.57
41.27	9.15	35.40	12.11	44.14	7.62
33.54	9.24	31.86	12.77	34.05	8.46
38.47	9.89	31.83	11.43	38.44	9.24
	General (<i>N</i> = M 34.76 37.65 35.96 36.75 33.86 38.90 41.27 33.54 38.47	General students ($N = 92$)MSD34.767.4537.658.8235.9610.7736.7510.6233.869.1538.908.9441.279.1533.549.2438.479.89	General students ($N=92$)Special needs stMSDM34.767.4528.7937.658.8228.6635.9610.7729.6236.7510.6229.4733.869.1529.8138.908.9432.3841.279.1535.4033.549.2431.8638.479.8931.83	General students $(N=92)$ Special needs students $(N=64)$ MSDMSD34.767.4528.798.4937.658.8228.669.5535.9610.7729.6211.2036.7510.6229.4711.9533.869.1529.8112.1038.908.9432.389.5441.279.1535.4012.1133.549.2431.8612.7738.479.8931.8311.43	General students $(N=92)$ Gifted s $(N=64)$ MSDMSDM34.767.4528.798.4937.7537.658.8228.669.5545.0035.9610.7729.6211.2035.0936.7510.6229.4711.9540.0733.869.1529.8112.1034.0438.908.9432.389.5441.5841.279.1535.4012.1144.1433.549.2431.8612.7734.0538.479.8931.8311.4338.44

linguistic intelligence, spatial intelligence, natural intelligence, and bodily-kinesthetic intelligence.

 Table 3 The Multiple Intelligences of Students with Different Types

4.4 The Significant Differences between Seventh and Eighth Grade Students on MI

In Table4, there were significant differences on spatial, music, bodily-kinesthetic, and natural intelligences between seventh grade and eighth grade students. There were no differences on linguistic, logical-mathematical, intrapersonal, interpersonal, and existential intelligences between seventh grade and eighth grade students. Seventh grade students got the higher scores than eighth grade students on spatial, music, bodily-kinesthetic, and natural intelligences.

Intelligence	Seventh grade $(n = 159)$		Eighth grade ($n = 156$)		t	Р	95% <i>CI</i>		η2	1-β
	М	SD	М	SD			LL	UL		
linguistic	35.58	8.54	33.90	7.98	1.804	p > .05	153	3.515	.010	.436
logical- mathematical	38.74	10.17	38.62	10.66	.103	<i>p</i> > .05	-2.188	2.429	.000	.051
Spatial	36.51	11.02	32.40	9.73	3.512**	p < .01	1.808	6.416	.038	.938
Musical	37.99	11.44	35.22	10.41	2.246*	p < .05	.343	5.196	.016	.610
bodily- kinesthetic	34.76	10.04	31.57	9.10	2.953**	<i>p</i> < .01	1.065	5.316	.027	.837
intrapersonal	39.47	9.50	37.88	8.73	1.543	p > .05	436	3.611	.008	.337
interpersonal	42.29	10.17	40.16	9.17	1.951	p > .05	019	4.277	.012	.494
Natural	34.52	10.00	32.29	9.32	2.043*	p < .05	.083	4.372	.013	.531
Existential	37.91	10.09	36.56	10.42	1.166	<i>p</i> > .05	926	3.622	.004	.214

Table 4 T-Test Summary Table for the Multiple Intelligences of Students with Different Grade

* *p* < .05 ** *p* < .01

The results found that there were significant differences between different grades which were consistent with other researches (Wang, 2003; White, 2009; Lin. 2005; Hung, 2007). The results indicated that seventh grade students got higher scores than eighth grade on spatial, music, bodily-kinesthetic, and nature intelligences. The result that lower grade students got higher scores than higher grade students on multiple intelligences was consistent with the research results of Wan (2003), Lin (2005), and Hung (2007).

4.5 The Significant Differences between Boys and Girls on MI

In Table 5, there were significant differences on linguistic, logical-mathematical, spatial, music, interpersonal, and existential intelligences between boys and girls, and no significant differences on bodily-kinesthetic, intrapersonal, and nature intelligences between boys and girls. Girls got higher scores than boys on linguistic, spatial, music, interpersonal, and existential intelligences. Boys got higher scores than girls on logical-mathematical intelligence. Reference on the standard norm, nine intelligences of junior high school boys were higher than 60% boys, and nine intelligences of junior high school girls were higher than 55% girls.

Intelligence	Boys		Girls				95%CI		η2	
	(<i>n</i> =	(n = 159)		(<i>n</i> = 156)		Р				1-β
	М	SD	М	SD			LL	UL		
Linguistic	33.21	7.911	36.63	8.402	-3.704***	<i>p</i> < .001	-5.226	-1.600	.042	.958
logical- mathematical	39.94	11.312	37.14	8.961	2.447*	p < .05	.548	5.043	.018	.665
Spatial	31.32	9.981	38.32	10.050	-6.174***	<i>p</i> < .001	-9.230	-4.768	.109	1.00
Musical	33.50	11.154	40.42	9.584	-5.921***	<i>p</i> < .001	-9.219	-4.620	.098	1.00
bodily- kinesthetic	33.39	10.126	32.92	9.192	.428	<i>p</i> > .05	-1.694	2.635	.001	.071
Intrapersonal	37.82	9.383	39.73	8.767	-1.846	<i>p</i> > .05	-3.934	.125	.011	.452
Interpersonal	39.77	10.227	43.02	8.795	-2.989**	<i>p</i> < .01	-5.393	-1.112	.028	.846
Natural	33.59	10.323	33.21	8.965	.343	<i>p</i> > .05	-1.791	2.547	.000	.064
Existential	36.15	11.007	38.56	9.139	-2.126*	<i>p</i> < .05	-4.647	180	.014	.548

 Table 5
 T-test Summary Table for the Multiple Intelligences of Students with Different Gender

* p < .05 ** p < .01 *** p < .001

The results indicated that boys and girls had significantly different multiple intelligences which were consistent with other researches (Wan, 2003; White, 2009; Jiang, 2001; Wu, 2002; Lee, 2006; Lin, 2005; Hung, 2007; Chang, 2002; Hun, 2007; Wei, 2009). The result that girls got higher scores than boys on linguistic, music, interpersonal, and existential intelligences was consistent with most researches (Wan, 2003; Jiang, 2001; Wu, 2002; Hung, 2007; Chang, 2002; Hun, 2007). The result that boys got higher scores than girls on logical-mathematical intelligence was consistent with the researches of Lee (2006) and Lin (2005). The result that girls got higher scores than boys on spatial intelligence was identical with the researches of Wu (2002) and Lin (2005), but discordant with the research of Lee (2006).

4.6 The Significant Differences among Students with Different Types on MI

In Table 6, gifted students significantly got higher grades than general students and special needs students on linguistic, logic-mathematics, music, intrapersonal, interpersonal intelligences. Gifted students and general students significantly got higher grades than special needs students. About the scores of spatial, bodily-kinesthetic, and existential intelligences, gifted students got higher grades than special needs students. However, there were no differences on spatial, bodily-kinesthetic, and existential intelligences of gifted and general students. There were no differences on nature intelligence among general, gifted, and special needs students. The result that gifted students significantly got higher grades than general and special needs students on most intelligences, and special need students

significantly got lower grades than general and gifted students on most intelligences, except for nature intelligence was consistent with the research of Zeng (2001).

Sources of variation	intelligences	SS	df	MS	F test	Scheffe	ω^2	1-β
	Linguistic	3091.622	2	1545.811	26.021***	C>A>B	.137	1.000
Between groups	logical-mathematical	10573.47 4	2	5286.737	70.588***	C>A>B	.307	1.000
	Spatial	1721.989	2	860.994	8.025***	A>B、C>B	.043	.956
	Musical	4339.797	2	2169.898	20.063***	C>A>B	.108	1.000
	bodily-kinesthetic	809.806	2	404.903	4.393*	A>B, C>B	.021	.756
	Intrapersonal	3278.376	2	1639.188	22.249***	C>A>B	.119	1.000
	Interpersonal	2947.132	2	1473.566	17.172***	C>A>B	.093	1.000
	Natural	188.856	2	94.428	.999	n.s.	.000	.224
	Existential	2081.097	2	1040.549	10.476***	A>B, C>B	.057	.988
error	Linguistic	18535.06 3	312	59.407				
	logical-mathematical	23367.49 8	312	74.896				
	Spatial	33472.53 2	312	107.284				
	Musical	33744.24 8	312	108.155				
	bodily-kinesthetic	28758.88 0	312	92.176				
	Intrapersonal	22986.24 0	312	73.674				
	Interpersonal	26773.48 4	312	85.812				
	Natural	29481.83 0	312	94.493				

Table 6 ANOVA Summary Table for the Multiple Intelligences of Students with Different Types

References

White Z. B. (2009). "Study of primary school children of new immigrants correlating their learning style with multiple intelligences: A case study in Jhupei City", master thesis, available online at: https://ndltd.ncl.edu.tw/cgi-bin/gs32/ gsweb.cgi/ccd=duev3q/record?r1=1&h1=1.

Chang C. Y. (2002). "The relationships between multiple intelligences and learning strategies of primary students", master thesis abstract, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=q5.YaQ/record?r1=1&h1=3.

H. Gardner (1997). Multiple Intelligences: The Theory in Practice, Chen Q. (translated by), Taipei: Xinyi.

- Cheng J. T. (2007). "A study on the learning performances of the children of the immigrant mothers with the view of multiple intelligences", master thesis, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=q5.YaQ/record?r1=1&h1=6.
- Furnham A. and Budhani S. (2002). "Sex differences in the estimated intelligence of school children", European Journal of Personality, Vol. 16, pp. 201–219.

Furnham A. (2000). "Parental estimations of their children's multiple intelligences", *British Journal of Developmental Psychology*, Vol. 18, pp. 583–594.

Furnham A., Wytykowska A. and Petrides K. V. (2005). "Estimates of multiple intelligences: A study in Poland", European Psychologist, Vol. 10, No. 1, pp. 51–59.

Gardner H. (1983). Frames of Mind: The Theory of Multiple Intelligence, NY: Basic Books.

Gardner H. (1993). Multiple Intelligences: The Theory in Practice, New York: Basic Books.

Gardner H. (1999). Intelligence Reframed, London: Basic Books.

- Goodnow J. (1980). "Everyday concepts of intelligence and its development", in: N. Warren (Ed.), *Studies in Cross-Cultural Psychology*, Vol. 2, pp. 191–219.
- Goodnow J. and Collins W. (1990). Development According to Parents: The Nature, Sources and Consequences of Parents' Ideas, London: Erlbaum.
- Han W. J. (2007). "The correlation between elementary school students' multiple intelligences and English reading proficiency", master thesis abstract, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=q5.YaQ/record?r1=1&h1=4.
- Hun H. H. (2007). "A Study of multiple intelligences of foreign spouses' children in K5 and K6 in Peng-hu Country", master thesis abstract, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=3zoALW/record?r1=1&h1=8.
- Hung T. W. (2006, July). "A data mining case study in the underwear industry for CRM applications", in: *Proceedings of the 2006 International Conference on Business and Information*, CD-Format, Singapore.
- Jiang W. J. (2001). "A study of the relationship between multiple intelligence and self-concept on the elementary students of aborigines in Pingtung County", master thesis, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ ccd=q5.YaQ/record?r1=1&h1=1.
- Lee M. Y. (2006). "A study of college students' multiple intelligences, self-efficacy and learning intention", master thesis abstract, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=q5.YaQ/record?r1=1&h1=5.
- Lin C. P. (2007). "A study on the multiple intelligence and learning style of junior high school students in the five central counties of Taiwan", master thesis abstract), available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=q5.YaQ/record?r1=1&h1=7.
- Lin Y. G. (2005). "A study of the relationship between multiple intelligences, social support, and self-worth on the junior high school students", master thesis abstract, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ ccd=3zoALW/record?r1=1&h1=7.
- Lo S. K., Wang C. C. and Fang W. (2005). "Physical interpersonal relationships and social anxiety among online game players", *Cyber Psychology and Behavior*, Vol. 8, No. 1, pp. 15–20.
- Loori A. A. (2005). "Multiple intelligences: A comparative study between the preferences of males and females", *Social Behavior and Personality*, Vol. 33, No. 1, pp. 77–88.
- Razmjoo S. A. (2008). "On the relationship between multiple intelligences and Language success", *The Reading Matrix*, Vol. 8, No. 2, pp. 155–174.
- Saricaoğlu A. and Arikan A. (2009). "A study of multiple intelligences, foreign language success and some selected variables", *Journal of Theory and Practice in Education*, Vol. 5, No. 2, pp. 110–122.
- Schierholz R., Glissmann S., Kolbe L. M. and Brenner W. (2006). "Don't call us, we'll call you Performance measurement in multi-channel environments", *Journal of Information Science and Technology*, Vol. 3, No. 2, pp. 44–61.
- Siegal I. (Ed.) (1985). Parental Belief Systems: The Psychological Consequences for Children, London: Erlbaum.
- Tsai M. F. (1998). "Implications of multiple intelligences theory in gifted education", Gifted Education, Vol. 68, pp. 9–15.
- Wan S. F. (2003). "A study of the relationship between learning style and multiple intelligence in elementary students", master thesis, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=3zoALW/record?r1=5&h1=0.
- Wei J. M. (2009). "An exploration of the correlation between multiple intelligence and self-concept of foreign spouses' children: A Case study on the fifth and sixth graders of elementary school of Tainan county", master thesis, available online at: https://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=duev3q/record?r1=1&h1=3.
- Wu H. L. (2002). "A study of learning style and multiple intelligences of elementary students and the status quo of instruction", master thesis), available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=q5.YaQ/record?r1=1&h1=2.
- Zeng T. M. (2001). "The analysis on learning ability of elementary students: A trial for multiple intelligences", master thesis, available online at: http://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi?o=dnclcdr&s=au=%22%E6%9B%BE%E6%89%8D%E9% 8A%98%22.&searchmode=basic.
- Zhu X. S. (2011). "The research of art talented students in multiple intelligences and career interests: A case study of the central region", master thesis, available online at: https://ndltd.ncl.edu.tw/cgi-bin/gs32/gsweb.cgi/ccd=duev3q/record?