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Personality Types Of Hong Kong Kindergarten Teachers: Implications for Teacher Education

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Abstract: While an individual's personality is related to his or her well-being, little research has examined kindergarten teachers' personality. This research was the first to investigate Hong Kong kindergarten teachers' personality types using the Myers-Briggs Type Indicator (MBTI). Three hundred and seventy-one kindergarten teachers voluntarily responded to the MBTI. Findings showed that Hong Kong kindergarten teachers were predominantly of the sensing-feeling-judging personality types, characterized by being realistic, conventional, and considerate to others' feelings. In addition, principals and head teachers in kindergartens tended to be extraverted. Results also suggested a very low percentage of intuitive kindergarten teachers, indicating that teachers' personality types might be field-bound. Implications of these findings in relation to teacher education are discussed.

Introduction

Research has shown that kindergarten work environments have been unfavourable (e.g., Jorde-Bloom, 1986; Whitebook & Sakai, 2003). Kindergarten teachers, in reaction to these work environments, have inevitably experienced high levels of stress (Li, Wong & Wang, 2010; Tsai, Fung, & Chow, 2006). In particular, stress-vulnerable teachers are more prone to burnout, resulting in minor to severe psychological malfunctioning (Chan, 2002) that will eventually influence school effectiveness (Jimmieson, Hannam, & Yeo, 2010) and children's long-term development (Taggart, 2006). In this connection, teacher education programs need to prepare teachers for effective stress management by facilitating teachers' self-understanding of their own stress-vulnerability (Harris, 2011) so that the quality of early childhood education to children is ascertained.

Past research has shown that an individual's personality is related to his or her well-being (e.g., Diener & Lucas, 1999) and stress vulnerability (Matthews et al., 2006). Furthermore, personality types can be value-laden (Zhang & Sternberg, 2005). For instance, the personality trait of extraversion has been found to be associated more with sociability, adaptiveness, positive emotions, and less with psychopathologies than that of the introversion and neuroticism (Diener & Larsen, 1984; Robinson, 2007). It is thus not surprising that extraversion has been found to be strongly associated with leader emergence and leadership effectiveness (Ng, Ang, & Chan, 2008).

In Hong Kong, statistics from the Education Bureau (former Education and Manpower Bureau, 2007) indicate that there were 950 early childhood education organizations in Hong Kong employing more than 10,000 teachers to care for about 140,000 children. While these figures are substantial enough to make a strong case for examining teachers' personality and

its implications to teacher education, there is no such research in Hong Kong. In view of this lack of personality research, the researchers see an urgent need to fill this research gap. Identification of teachers' personality types has two practical implications. First, the present findings can provide evidence-based information for education policy makers and school principals to review teacher education policy that target on promoting teachers' well-being. Second, the findings can inform school principals about potential candidates with specific personality types in recruitment and promotion.

In this research, the Myers-Briggs Type Indicator (MBTI, Myers & McCaulley, 1985) was used to measure kindergarten teachers' personality types. The MBTI is based on Jung's theory of psychological types (Jung, 1921/1971) and comprises four pairs of personality type dichotomies, including (1) Extraversion-Introversion (attitudes towards the outside environment): extraverted (E) people are prone to act on the environment by interacting with the outside world, whereas introverted (I) people tend to focus on internal thoughts; (2) Sensing-Intuition (ways of perceiving and collecting external stimuli): Sensing (S) people prefer to focus on concrete reality with collected facts and details, whereas intuitive (I) people tend to look at concepts and ideas associated with "tacit knowledge and expertise" (Pretz & Totz, 2007, p. 1255); (3) Thinking-Feeling (preferences in decision making): Thinking (T) people prefer to apply specific criteria and principles to make a reasonable and objective judgment, whereas Feeling (F) people concern more about others' feelings before making decisions; and (4) Judging-Perceiving (developed by Katherine Briggs to identify the preferred dominant mental functions): Judging (J) people are more attuned to quick decision making and characterized by being organized, structured, and comfortable with deadlines and Perceiving (P) people concern with collecting outside information by being flexible, adaptive, and prefer to rush to meet deadlines.

The MBTI interprets an individual's personality types using three approaches: (1) use of single types (e.g., E-I, S-N) that generates eight single personality types, (2) use of mental function types (e.g., E-S, I-N) that also generates eight function types, and (3) use of whole types (e.g., ESFP, ISTP) that produces 16 personality types. For instance, the sensing-feeling-judging (SFJ) type is identified as "implementer who seeks order and uncomfortable with ambiguity" (Myers, McCaulley, Quenk, & Hammer, 1998, p.64), whereas the intuitive-feeling-judging (NFJ) type is more comfortable with uncertainty and innovative. In this sense, the MBTI accommodates a repertoire of personality types that represent a variety of human behavior. The MBTI is a unique and important personality assessment inventory (Harrington & Loffredo, 2001). Therefore, it is a common personality instrument that is utilized by two million users each year (Furnham, Moutafi, & Crump, 2003). Vacha-Haase and Thompson (2002) summarized the popularity of MBTI as being due to the fact that it focuses on normal variations in personality and the fact that it is value neutral. In addition, Myers, McCaulley, Quenk, and Hammer (1998) reviewed previous studies associated with the MBTI and concluded that the MBTI showed acceptable reliabilities and validities (detailed in the Method Section).

Predicting the Personality Types of Kindergarten Teachers

While no research has directly examined kindergarten teachers' personality types in Hong Kong, the present researchers believe that two areas of research should support a sound prediction of personality types of Hong Kong kindergarten teachers. One area concerns past findings about teachers' personality types across school levels, whereas the other relates to previous research that examined kindergartens' work characteristics.

Past Findings About Teachers' Personality Types Across School Levels

Macdaid, McCaulley, and Kainz (1995), based on the data submitted to the test development organization during the 1970s and 1980s, reported that kindergarten teachers tended to be the Extraversion/Introversion-Sensing/Intuition-Feeling-Judging (E/I-S/N-F-J) types. Unfortunately, to our best knowledge, Macdaid et al.'s (1995) findings have not been validated in any oriental culture. Nevertheless, it is reasonable to believe that although culture plays an important role in people's personality types (Myers et al., 1998), the nature of an occupation also plays an important role in the formation of personality (Zhang, in press). In view of the similar nature between elementary education and early childhood education (i.e. both are categorized as fundamental level of education), findings about elementary school teachers' personality profiles are believed to be able to shed light on predicting kindergarten teachers' personality characteristics.

Lawrence (1979) studied 5,366 teachers' personality types and found that they were predominantly of the sensing-feeling-judging (SFJ) type. However, Sears, Kennedy, and Kaye (2001) noted that the sample in Lawrence's study was heterogeneous such that the findings could not be safely generalized to either elementary or secondary school teachers. While McCutcheon, Schmidt, and Bolden (1991) did not find SFJ personality types in secondary school teachers, in line with Lawrence's (1979) research, other studies consistently found that elementary school teachers were predominantly of the SFJ types (Brown, 2000; Hinton & Stockburger, 1991). In addition, Brown (2000) showed that elementary school teachers who were also categorized as effective classroom behaviour managers were NFJ types. Brown asserted that compared with sensing teachers, intuitive teachers tended to show more humanistic pupil ideology and were more effective to handle children's behavioural difficulties by using this approach. On the basis of one of the major contentions articulated in the Threefold Model of Intellectual Styles (Zhang & Sternberg, 2005) that proposed that personality types/styles are partially socialized, the present researchers argue that the primary reason for some elementary school teachers to be of the intuitive types may be due to the demand from their work environment. Supporting this argument, effective employees tend to fit in with their employers' values (Stewart & Barrick, 2004). The theory of person-environment fit (Pervin, 1989) proposed that workers select work environments that share the same characteristics and values (Holland, 1997). A close match between the person and the working environments leads to job satisfaction (Diener & Lucas, 1999; Holland, 1997). For instance, in several studies, the level of satisfaction for teachers in primary schools was different from teachers working in mentally handicapped schools in Hong Kong (Cheung, 1995; Lo, 1994). This was echoed by another study in the US showing that those teachers who work in public schools and private schools tended to show significantly different levels of job satisfaction (U.S. Department of Education, 1997). Thus, we believe that kindergarten teachers' personality types tend to match with the characteristics of kindergartens' work environment.

Kindergartens' Work Characteristics that may Influence Teachers' Personality Types

In kindergartens, children tend to prefer teachers who are communicative, caring, and flexible in their teaching (Saracho, 2003). At the same time, kindergarten school principals facing financial and staff management problems (Wong, Cheuk, & Rosen, 2001) have been found to favour teachers who adhere to their policies and follow their instructions. Thus, it is not surprising to find that teachers are required to comply with existing teaching packages to

plan and execute the school curriculum (Li, 2005) and are not generally encouraged to be innovative (Cheng, 2006). Based on this general situation, it can be assumed that those kindergarten teachers who show preferences for communicating and caring for children and following school principals' instructions under tight time constraint match better with the present work characteristics in kindergartens. Thus, the first prediction of this research is that the personality types of kindergarten teachers would be of the sensing-feeling-judging types.

Personality is strongly associated with leadership. For instance, extraversion has been found to be strongly associated with leader emergence and leadership effectiveness (Hofmann & Jones, 2005; Ng, Ang, & Chan, 2008). Rushton, Morgan, and Richard (2007) identified teacher leaders are of the extraverted-intuitive personality types. Thus, the second prediction is that principals and head teachers, who have higher work positions than regular teachers in kindergartens, would tend to be more extraverted.

Method

Sampling and procedure

This research adopted a survey method. The research sample included in-service teachers who studied part-time for either the Certificate of Education or the Bachelor of Education Degree program at the Hong Kong Institute of Education. Potential participants were approached in their classrooms at the end of the lectures. They were then informed of the purpose of research and their consents to take part voluntarily were obtained. Each participant was given the questionnaire that included the MBTI (Form G) and demographic information sheet. They were invited to fill in the questionnaires at home and return the completed questionnaires to the first researcher's mailbox. The first researcher then sent reminder emails one week later to encourage participation. Eventually, 371 out of 570 teachers returned their questionnaires (return rate: 65%). The research participants were predominantly female (99%). Their statuses included teaching assistants (7%), class teachers (67%), deputy head teachers (9%), head teachers or deputy principals (12%), and principals (5%). 68% had tenure of more than ten years of teaching experience.

Inventory

The original MBTI Form G (Myers & McCaulley, 1985) is a 126-item self-report and forced-choice inventory. Of all the items, only 94 items are scored for personality types (E-I: 21 items, S-N: 26 items, T-F: 23 items, and J-P: 24 items), whereas 32 are research items (Myers & McCaulley, 1985) and not scored. To complete this inventory, participants were asked to select either one or two options that best reflected their feelings and attitudes in daily life for each item. An example of an extraversion item: "Are you usually (A) a "good mixer," or (B) rather quiet and reserved?"

The MBTI Form G demonstrated satisfactory construct and concurrent validity with personality assessment inventories such as the Minnesota Multiphasic Personality Inventory and the California Psychological Inventory (Carlson, 1985). Furnham, Moutafi, and Crump (2003) conducted a similar investigation and showed in detail that the Five Factor Model's extraversion trait was strongly correlated with the MBTI's extraversion. In addition, research findings have shown that the MBTI exhibits high Cronbach's alphas and test-retest reliabilities for all four bipolar pairs (Capraro & Capraro, 2002; Myers et al., 1998). Despite the fact that the MBTI is widely accepted, the inventory has attracted criticisms concerning its theoretical and psychometric background. Theoretically, some researchers have criticized the items of the MBTI for being "distorting and contradicting Jung's ideas" (McCrae & Costa, 1989; Spoto, 1989, 1993, cited in Bayne, 1995, p.85). Psychometrically, it has been claimed

that the operationalization of dichotomized personality type is problematic (Parker, 1998). The use of dichotomized scores for each bipolar personality dimension may lead to loss of valuable information. To improve the psychometric properties, the items and scoring format of the MBTI have been revised regularly by its developers [see Myers, McCaulley, Quenk, & Hammer, 1998) for details].

The MBTI has been translated into different languages (e.g., Saggino & Kline, 1995). The Chinese version of the MBTI Form G was first established in mainland China in 1994 (Miao, Hungfu, Chia, & Ren, 2000) and used in career assessment, in the military field (Dong, Miao, & Huangfu, 1997), and in the medical profession (Wu, Miao, Zhu, Liang, Liu, Luo, & Wang, 1998). Its reliability and validity match the original English version (Miao et al., 2000). Since then, Osterlind, Miao, Sheng, and Chia (2004) have translated and revised this inventory substantially to adapt it to the Chinese culture and found that both Chinese versions showed four distinct bipolar clusters, resembling extraversion-introversion (E-I), sensing-intuition (S-N), thinking-feeling (T-F), and judging-perceiving (J-P). To maintain the originality of the MBTI, the present researchers used all items in the inventory. Therefore, the present research translated all original items into Chinese and then these Chinese items were translated back into English. The back translated English version was then matched with the original English version. Any discrepancy between the two versions was then rectified. In addition, all items were used and put in the same order as the original MBTI during the translations such that Jung's theory would be preserved in this inventory. A school inspector was invited to trial score the final version of this inventory.

Data Analyses

The reliability (internal consistency) for each of the four personality type dimensions in the MBTI were examined by computing the Cronbach's alphas, whereas the validity of the MBTI was assessed by factor analyzing the 94 items. The frequency of personality types and its association with the work positions were cross tabulated.

Results

Reliability and Validity of the MBTI

The Cronbach's alphas for each personality type dimensions were: 0.74 for extraversion-introversion, 0.66 for sensing-intuition, 0.65 for thinking-feeling, and 0.69 for judging-perceiving. While these values were somewhat lower than the values of 0.82, 0.84, 0.83, and 0.86 as reported by Myers et al. (1998, p.160), they were generally equal to or above the criterion value of 0.65 as recommended by DeVellis (1991). In Table 1, findings from factor analysis showed that three factors (78.0 % variance explained) emerged and each personality type clustered to its counter-type of the same personality dimension (i.e. 1st factor: Sensing-intuition and Judging-perceiving, 2nd factor: Thinking-feeling, and 3rd factor: Extraversion-introversion). The present research did not yield four factors as that of the findings reported by Myers and McCalley (1985) and Osterlind et al. (2004). One possible explanation may have to do with the somewhat heterogeneous sample (17% of the sample comprised head teachers and principals) in this research. Head teachers and principals might perceive and respond differently toward items of the Sensing-Intuition and Judging-Perceiving dimensions.

Personality types	Factor		
	1	2	3
Extraversion			.959
Introversion			-.951
Sensing	-.808		
Intuition	.803		
Thinking		-.885	
Feeling		.935	
Judging	-.773		
Perceiving	.737		
Variance explained (%)	33.4	24.6	20.0
Cumulative (%)	33.4	58.0	78.0
Eigenvalues	2.67	1.97	1.60

Table 1: Factor analysis of the Myers-Briggs Type Indicator

Frequency Distribution of Teachers’ Personality Types

The frequency distribution of teachers’ personality types (including the single type, mental function type, and whole type) are summarized in Table 2. Of the 371 participants, the frequency of single personality type was: 224 (60%) for Extraversion, 147 (40%) for Introversion, 338 (91%) for Sensing, 33 (9%) for Intuition, 130 (35%) for Thinking, 141 (65%) for Feeling, 293 (79%) for Judging, and 78 (21%) for Perceiving. The sensing and judging types were the two highest frequent personality types, whereas the intuitive and perceiving types were the lowest ones

Single type (one-letter)	N (%)	Whole type (four-letter)	N (%)
<i>Extraversion (E)</i>	223(60%)	<i>ESFJ</i>	91(24.5%)
Introversion (I)	148 (40%)	<i>ISFJ</i>	82(22.1%)
<i>Sensing (S)</i>	338(91%)	<i>ESTJ</i>	69(18.6%)
Intuition (N)	33(9%)	<i>ISTJ</i>	35(9.4%)
Thinking (T)	130(35%)	ESFP	36(9.7%)
<i>Feeling (F)</i>	241(65%)	ISFP	14(3.8%)
<i>Judging (J)</i>	293(79%)	ESTP	5(1.3%)
Perceiving (P)	78(21%)	ISTP	4(1.1%)
Function type (two-letter)		ENFJ	7(1.9%)
EN	19(5%)	ENTJ	5(1.3%)
<i>ES</i>	200(54%)	INTJ	4(1.1%)
IN	11(3%)	ENFP	6(1.6%)
<i>IS</i>	141(38%)	INFP	5(1.3%)
<i>EF</i>	137(37%)	INFJ	2(0.6%)
ET	82(22%)	INTP	2(0.6%)
<i>IF</i>	108(29%)	ENTP	2(0.6%)
IT	44(12%)		

Note: Personality types in italics are predominant.

Table 2: Distribution of personality types (N = 371)

Of the mental function types, the extraversion-sensing (n=200, 54%) and introversion-sensing (n=141, 38%), extraversion-feeling (n=137, 37%), and

introversion-feeling (n=108, 29%) were more predominant. Of the whole types, the ESFJ (24.5%), ISFJ (22.1%), ESTJ (18.6%), and ISTJ (9.4%) types comprised 74.6% of the total sample, whereas the rest (25.4%) of the sample were of the ESNP (9.7%), ISFP (4.1%), ENFJ (1.9%), ENFP (1.6%), ESTP (1.3%), ENTJ (1.3%), INFP (1.3%), ISTP (1.1%), INTJ (1.1%), ENTP (0.6%), INFJ (0.6%), and INTP types (0.6%). These results indicated that the SFJ type (46.6%) and the STJ type (28%) were the two most frequent types among kindergarten teachers, whereas the NTP type (1.2%) was the least frequent [readers who are interested in knowing other distributions of types from different cultures may wish to further read the findings shown by Myers et al. (1998, p. 379)].

In Table 3, the findings showed that the extraversion, sensing, feeling, and judging types were consistently more predominant across all work positions (including teaching assistants, class teachers, deputy head teachers, head teacher/deputy principals, and principals) than their counter-types of the same personality type dimension. In particular, head teachers and principals tended to be extraverted.

Work position	Frequency distribution	E	I	S	N	F	T	J	P
TA	25 (7%)	4%	2%	5%	0%	3%	2%	6%	3%
CT	252 (67%)	39%	27%	66%	6%	47%	20%	56%	14%
DHT	33 (9%)	6%	4%	8%	1%	6%	4%	6%	2%
HT/DP	44 (12%)	7%	5%	6%	1%	5%	4%	7%	1%
PR	17 (5%)	4%	2%	6%	1%	4%	5%	4%	1%
	371 (100%)	60%	40%	91%	9%	65%	35%	79%	21%

Note: E: Extraversion; I: Introversion; S: Sensing; I: Intuition; F: Feeling; T: Thinking; J: Judging; P: Perceiving; TA: Teaching assistant; CT: Class teacher; DHT: Deputy head teacher; HT/DP: Head teacher/deputy principal; PR: Principal

Table 3: Work position and personality types (N=371)

Discussion

The purpose of this research was to examine the personality types of Hong Kong kindergarten teachers. The present findings showed that teachers' personality types were predominantly sensing-feeling-judging (SFJ, 46.6%). This result aligns with the most frequent personality types found among U.S kindergarten teachers as reported by Macdaid, McCaulley, and Kainz (1995) and among elementary school teachers shown by Sears, Kennedy, and Kaye (2001). Thus, the first prediction that Hong Kong kindergarten teachers would be of predominantly sensing, feeling, and judging types was supported. Based on the personality characteristics of the sensing-feeling-judging (SFJ) types as being "friendly, conscientious, and responsible" (Myers et al., 1998, p.64), kindergarten teachers of the SFJ types are committed to work, concerned about others, and comfortable with meeting deadlines.

In addition, after aggregating the percentages of sensing-thinking-judging types (28%) with sensing-feeling-judging types (46.6%), the total percentages of overlapping personality types (i.e. sensing-judging) cover nearly three quarters of the sample (74.6%). Based on this finding, the present researchers would argue that the majority of Hong Kong kindergarten teachers tend to be conventional by inclining to follow top-down instructions and work in structured work environments. This finding is consistent with the results obtained in Cheng's (2006) study that showed that Hong Kong kindergarten teachers tended to be less innovative

and prefer to execute instructions laid down by their superiors.

Furthermore, it should be noticed that the present findings indicated a very low percentage (9%) of intuitive teachers when compared with that of the data (47% intuitive teachers) as reported by Macdaid, McCaulley, and Kainz (1995). According to the theory of person-environment fit (Pervin, 1989), kindergarten principals (employers) may prone to select teachers (employees) of similar personality types and values (Stewart & Barrick, 2004). Supporting this theory, the present findings showed that the personality types of principals and head teachers tended to be identical with that of the teachers, suggesting that the reason why less intuitive teachers worked in kindergartens may be due to the fact that only a small portion of principals and head teachers are of the intuitive types.

The present findings that principals and head teachers were predominantly extraverted supported the second prediction of this research. This finding aligns with previous findings (e.g., Ng, Ang, & Chan, 2008) that extraverted teachers tended to hold higher work positions than did introverted teachers. The current findings also showed that 60% and 40% of the sample were extraverted and introverted types respectively. This somewhat aligns with the results (extraversion: 52% and introversion: 48%) as reported by Macdaid et al. (1995). While introversion tends to link with negative emotionality and poor adaptation to the environment, a significant portion of introverted kindergarten teachers as found in the current research may indicate a low level of teachers' well-being that principals and policy makers in early childhood settings need to address, such as by offering corresponding support to those teachers in need.

Implications for Teacher Education and Limitations

Two practical implications are recommended with respect to the present findings about the personality characteristics (e.g., 91% and 9% of the sample are of the sensing and intuitive personality types respectively) of kindergarten teachers. First, principals and policy makers may consider using personality assessment, such as the MBTI, in identifying prospective teachers of the intuitive personality types from an array of potential candidates in teacher recruitment and promotion. For instance, teachers of the intuitive types may suit and be more effective in creative tasks, whereas teachers of the sensing types may suit and work better in conventional work. Second, principals and policy makers may also consider using the MBTI in teacher education programs to increase teachers' personal awareness of their own personality characteristics. While teachers' perceived stress can be subjective and personality related (e.g., Diener & Lucas, 1999), teachers who know about their own personality types may be more able to identify their own strengths and potential areas for professional growth. For instance, sensing teachers may modify their work practices through appropriate training to use creative thinking to create a stimulating learning environment for children, whereas introverted teachers may learn new ways to replace their ineffective interpersonal strategies to enhance collegial relationships.

The present research pioneers the examination of kindergarten teachers' personality types. The findings can enrich the data bank of personality research for kindergarten teachers. Nevertheless, it should be noticed that a one-shot data collection method was used in this research. As such, causal relationship between the two research variables should not be assumed. Future research may need to use a longitudinal design to test the stability of teachers' personality profiles, both in Hong Kong and other Asian countries such as mainland China and Japan.

References

- Bayne, R. (1995). *The Myers-Briggs Type Indicator. A critical review and practical guide*. Chapman & Hall.
- Brown, S. (2000). Effective behaviour managers: A study on personality types and pupil control ideology of elementary teachers. Thesis (Ed.D.)-University of La Verne. (accessed on 27 September 2005 via Digital dissertation consortium).
- Capraro, R., & Capraro, M. (2002). Myers-Briggs Type Indicator Score Reliability Across: Studies a Meta-Analytic Reliability Generalization Study. *Educational and Psychological Measurement*, 62(4), 590-602.
- Carlson, R. (1985). Recent assessments of the Myers-Briggs Type Indicator. *Journal of Personality Assessments*, 49(4), 356-365.
- Chan, D. (2002). Stress, self-efficacy, social support and psychological distress among prospective teachers in Hong Kong. *Educational Psychology*, 22(5), 557-570.
- Cheng, D. P.-W. (2006). The translation of western teaching approaches in the Hong Kong early childhood curriculum: A promise for effective teaching? *Contemporary Issues in Early Childhood*, 7(3), 228-237.
- Cheung, C. K. (1995). *Job satisfaction among moderately mentally handicapped school teachers in Hong Kong*. M.Ed. Thesis. The University of Hong Kong.
- DeVellis, R. (1991). *Scale development: Theory and applications*. Newbury Park, CA: Sage.
- Diener, Ed., & Larsen, R. (1984). Temporal stability and cross-situational consistency of affective, behavioural, and cognitive responses. *Journal of Personality and Social Psychology*, 47(4), 580-592.
- Diener, Ed., & Lucas, R. (1999). *Personality and subjective well-being*. In Chapter 11, *Well-Being: the foundations of hedonic psychology*. Russell Sage Foundation.
- Dong, Y., Miao, D., & Huangfu, E. (1997). The relationship of personality and PM leadership behavior in military officials. *Chinese Journal of Applied Psychology*, 3(1), 29-33.
- Education & Manpower Bureau (2007). Kindergarten Education. Browsed at: <http://www.edb.gov.hk/index.aspx?nodeID=231&langno=1>, on 30 January 2007.
- Furnham, A., Moutafi, J., & Crump, J. (2003). The relationship between the revised NEO-personality inventory and the Myers-Briggs Type Indicator. *Social Behavior & Personality: An International Journal*, 31(6), 577-584.
- Harrington, R. & Loffredo, D. (2001). The Relationship Between Life Satisfaction, Self-Consciousness, and the Myers-Briggs Type Inventory Dimensions. *The Journal of Psychology*, 135 (4), 439-450.
- Harris, G. (2011). Individual stress management coursework in Canadian teacher preparation programs. *Canadian Journal of Education*, 34(4), 104-117.
- Hinton, S., & Stockburger, M. (1991). *Personality trait and professional choice among pre-service teachers in Eastern Kentucky*. (ERIC Document Reproduction Service No. ED 341672).
- Holland, J. (1997). RIASEC Theory; Past and Present. In R.Reardon & J. Lenz (Eds.), *The self-directed search and related Holland career materials: A practitioner guide* (17-22). Psychological Assessment Resources, Inc.
- Hui, C., Wong, A., & Tjosvold, D. (2007). Turnover intention and performance in China: The role of positive affectivity, Chinese values, perceived organizational support and constructive controversy. *Journal of Occupational and Organizational Psychology*, 80, 735-751.
- Jorde-Bloom, P. (1986). Teacher job satisfaction: A framework for analysis. *Early childhood research quarterly*, 1(2), 167-183.

- Jimmieson, N., Hannam, R., & Yeo, G. (2010). Teacher organizational citizenship behaviours and job efficacy: Implications for student quality of school life. *British Journal of Psychology*, *101*(3), 453-479.
- Jung, C. (1921/1971). *Psychological types*. (H.G. Baynes, Trans. Revised by R.F.C. Hull). Volume 6 of The collected works of C.G. Jung. Princeton, NJ: Princeton University Press.
- Lawrence, G. (1979). *People types and tiger stripes: A practical guide to learning styles*. Gainesville, FL: Centre for the applications of psychological types.
- Li, H. (2005). *Developing school –based curriculum in Hong Kong kindergartens: Insights, challenges, and solutions*. Hong Kong Institute of Education.
- Li, H., Wong, J., & Wang, C. (2010). Affordability, accessibility, and accountability: Perceived impacts of the Pre-primary Education Vouchers in Hong Kong. *Early Childhood Research Quarterly*, *25*(1), 125-138.
- Lo, K. (1994). *Job satisfaction of teacher of primary schools in Hong Kong*. Unpublished Master Thesis, The University of Hong Kong.
- Macdaid, G., McCaulley, M., & Kainz, R. (1995). *Myers-Briggs Type Indicator Atlas of Type Tables*. Gainesville, FL: Center for Applications of Psychological Type.
- Matthews, G., Emo, A., Funke, G., Zeidner, M., Roberts, R., Costa, P. & Schulze, R. (2006). Emotional intelligence, personality, and task-induced stress. *Journal of Experimental Psychology*, *12*(2), 96-107.
- McCrae, R., & Costa, P. (1989). Reinterpreting the Myers-Briggs Type Indicator From the Perspective of the Five-Factor Model of Personality. *Journal of Personality*, *57*(1), 17–40.
- Miao, D., Huangfu, E., Chia, R., Ren, J. (2000). The validity analysis of the Chinese version MBTI. *Acta Psychological Sinica*, *32*(3), 324–31.
- Myers, B., & McCaulley, M. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Consulting Psychologist Press, Inc.
- Myers, B., McCaulley, M., Quenk, N., & Hammer, A. (1998). *MBTI manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Consulting Psychologists Press, 3rd edition.
- Ng, K-Y., Ang, S., Chan, K-Y. (2008). Personality and leader effectiveness: A moderated mediation model of leadership self-efficacy, job demands, and job autonomy. *Journal of Applied Psychology*, *93*(4), 733-743.
- Osterlind, S., Miao, D., Sheng, Y., & Chia, R. (2004). Adapting Item Format for Cultural Effects in Translated Tests: Cultural Effects on Construct Validity of the Chinese Versions of the MBTI. *International Journal of Testing*, *4* (1), 61-73.
- Parker, A. (1998). Theoretical models of personality type in clinical practice: A critical examination of the Myers-Briggs Type Indicator. PhD thesis submitted to the UMI Dissertation Services (UMI Number: 9827761).
- Pervin, L. (1989). Persons, situations, interactions: The history of a controversy and a discussion of theoretical models. *Academy of Management Review*, *14* (3), 350–360.
- Pretz, J. & Totz, K. (2007). Measuring individual differences in affective, heuristic, and holistic intuition. *Personality and Individual Differences*, *43* (5), 1247-1257.
- Robinson, M. (2007). Personality, Affective Processing, and Self-Regulation: Toward Process-Based Views of Extraversion, Neuroticism, and Agreeableness. *Social and Personality Psychology Compass*, *1* (1), 223-235.
- Rushton, S., Morgan, J., & Richard, M. (2007). Teacher's Myers-Briggs personality profiles: Identifying effective teacher personality traits. *Teaching and Teacher Education*, *23* (4), 432-441.
- Saggino, A., & Kline, P. (1995). Item factor analysis of the Italian version of the

- Myers-Briggs type indicator. *Personality and Individual Differences*, 19 (2), 243-249.
- Saracho, O. (2003). Matching teachers' and students' cognitive styles. *Early Child Development and Care*, 173 (2-3), 161-173.
- Sears, S., Kennedy, J. & Kaye, G. (2001). Myers-Briggs Personality Profiles of prospective educators. *Journal of Educational Research*, 90 (4), 197-202.
- Spoto, A. (1989). Jung's Typology in Perspective. Sigo Press, Boston.
- Spoto, A. (1993). What Jung would be saying about the MBTI and does it even matter? MAPT Annual Conference, Manchester.
- Stewart, G., & Barrick, M. (2004). Four lessons learned from the person-situation debate: A review and research agenda. In *Chapter 3, Personality and Organizations* (edited by Schneider, B. & Smith, D., 2004), Lawrence Erlbaum Associates.
- Taggart, B. (2006). *Influencing policy and practice through research on early childhood education*. Keynote address presented in the 5th KSECE biennial international conference.
- Tsai, E., Fung, L., & Chow, L. (2006). Sources and manifestations of stress in female kindergarten teachers. *International Education Journal*, 7 (3), 364-370.
- U.S. Department of Education. (1997). *Job satisfaction among America's teachers: Effects of workplace conditions, background characteristics, and teacher compensation*. Office of Educational Research and Improvement.
- Whitebook, M., & Sakai, L. (2003). Turnover begets turnover: an examination of job and occupational instability among child care center staff. *Early Childhood Research Quarterly*, 18 (3), 273-293.
- Wong, K., Cheuk, W., & Rosen, S. (2001). The influences of job stress and supervisor support on negative affects and job satisfaction in kindergarten principals. *Journal of Social Behaviour and Personality*, 15 (1), 85-98.
- Wu, S., Miao, D., Zhu, X., Liang, J., Liu, X., Luo, Z., & Wang, W. (1998). The personality types of Chinese dental postgraduate students. *Social Behavior and Personality: an international journal*, 35 (8), 1077-1086.
- Vacha-Haase, T., & Thompson, B. (2002). Alternative Ways of Measuring Counselees' Jungian Psychological-Type Preferences. *Journal of Counseling & Development*, 80 (2), 173-179.
- Zhang, L. F. (in press). *The malleability of intellectual styles*. Cambridge University Press. NY: New York.
- Zhang, L. & Sternberg, R. (2005). A Threefold Model of Intellectual Styles. *Educational Psychology Review*, 17 (1), 1-53.