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Perceived Attributes of Music Teaching Effectiveness among Kindergarten Teachers: Role of Personality

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Abstract: Musical activity has been found to be beneficial to young children's all-round development in kindergartens. The purpose of this study was to investigate the relationship between kindergarten teachers' perceived attributes of music teaching effectiveness and personality. Eighty-eight in-service kindergarten teachers rated themselves using a set of Attributes of Music Teaching Effectiveness (AMTE) and the sensing-intuitive dimension of the Myers Briggs Type Indicator. Results showed that 75% (66 of 88) and 25% (22 of 88) of the teachers were sensing types and intuitive types, respectively. The former prefers a directive approach in music teaching to children, whereas the latter prefers a non-directive approach. While teachers' personalities and work experience significantly predicted music teaching effectiveness, intuitive teachers rated themselves higher than did sensing teachers on the AMTE. Furthermore, the teachers of both personality types varied in their ratings of the importance of most effective attributes. Implications of these findings in relation to job allocation and professional development in effective music teaching for kindergarten teachers are discussed.

Keywords: Effective music teaching attributes, personality types, kindergarten teachers

Introduction

Because young children are characterized as being playful, imaginative, curious, thoughtful and inquiring (Isenberg & Jalongo, 2006, p. 20), music activities are commonly adopted in schools and have been found to be effective in enhancing children's physical, cognitive, and social development (Connors, 2014). In kindergartens, musical activities that provide substantial opportunities for the all-round development of young children include singing, which facilitates oral language development (Salmon, 2010) and early arithmetic concepts of sequencing (McDonel, 2015); playing simple rhythm instruments and making bodily movement to music, which promotes social bonding (Gillespie & Glider, 2010). Apart from schools, music has also been applied in hospitals to reduce children's anxiety (Longhi, Pickett, & Hargreaves, 2015). The fact that music activities facilitate children's holistic development may lend support to the recent findings that preschool children tend to display better psychological adjustment and well-being longitudinally (Gong, Xu, & Han, 2016; Campbell, Conti, Heckman, Moon, Pinto, Pungello, & Pan, 2014) through musical exposure.

Literature Review

Major Obstacle to Effective Music Teaching

Although music can “cultivate children’s sensitivity, imagination and creativity” (Curriculum Development Council, 2006, p. 35), a lack of teacher readiness has been reported as a major obstacle to effective music teaching in kindergartens cross-culturally (Ehrlin & Gustavsson, 2015; Liao & Campbell, 2015; Lau & Grieshaber, 2010). This lack of readiness is believed to contribute by two factors, 1) insufficient music training in teacher education settings and 2) school support in kindergarten settings. In Sweden, Ehrlin and Gustavsson (2015) report that pre-service kindergarten teachers during their course of training continued to express a lack of confidence in teaching music. In general, teachers find it highly challenging to design and implement an integrated music curriculum that addresses different subject domains such as language and arithmetic despite the fact that an interdisciplinary curriculum design is being accepted as an effective and appropriate tool for promoting young children’s learning (Heimer & Winokur, 2015). School support for teachers implementing music teaching in kindergartens has been found varied across cultures (Liao & Campbell, 2015). In reality, kindergarten principals are constrained, due to the small-scale operations and financial constraints of kindergartens, to employ qualified teachers with a music background to teach or support music teaching. With these obstacles, kindergarten teachers continue to implement musical activities, in spite of their limitations in musical training (Liao & Campbell, 2015). In this connection, the authors believe that the effectiveness of music teaching in kindergartens is affected.

Critical Period of Early Childhood

Early childhood is a critical period of learning and development for young children. Findings from neurological studies have indicated that a young child’s brain has a large capacity to develop specific neural circuits given favourable environmental stimulation at sensitive periods (e.g., Knudsen, 2004; Bornstein, 1989). In addition, music comprises a rich and direct source of physical stimulation because human fetuses and infants have been found to be physically responsive to musical tunes and rhythms (Parncutt, 2016). In this sense, music stimulation is able to facilitate young children’s development. The research question is: How do kindergarten teachers ascertain effective music teaching for young children during this critical period of early childhood?

Attributes of Music Teaching Effectiveness in Kindergartens

While factors affecting teaching effectiveness are plentiful, this study aims to focus on examining the relationship between personality and attributes of effective music teaching among kindergarten teachers. To the best of the authors’ knowledge, there is no research presenting criteria of music teaching effectiveness for kindergartens. Thus, this study intends to develop a set of criteria that determines effectiveness (defined as learning outcome, Noesgaard, & Ørngreen, 2015) based on existing literature. Hallam (2010) investigated these attributes by surveying more than 600 musicians and non-musicians and found that musical skills such as playing an instrument and singing, creativity, expressiveness and motivation are all attributes of effective music teachers. Wright (2003, p. 187) argued that music teachers should plan and conduct music teaching by emulating children, i.e., being “open-minded, flexible, spontaneous, curious, playful, trusting, inquisitive, and willing to learn by trial and error”. Button (2010) adapted from the study of Kyriakides, Campbell, & Christofidou (2002)

a list of 48 items of effective music teacher characteristics and divided them into the domains of class management, pedagogy, pupil engagement in learning, and the learning environment. Similarly, Kvet and Watkins (1993) identified four attributes (accounting for 53.1% of variance) that contributed to effective music teaching: “understanding and organizing for individual difference in children”, “proactive personality characteristics”, “musical ability and positive feelings for music”, and “external factors affecting music teaching” such as school administrative support of music and adequate equipment for teaching music. From these studies, the authors identified six common personality traits for describing effective kindergarten music teachers: being flexible, playful, open-minded, expressive and motivated and having musical skills. To adapt these attributes to a kindergarten context in which “education and care” of young children is emphasized, these characteristics were modified, and three additional characteristics—being caring, open-minded, and observant—were added. Based on the above studies, the authors proposed nine Attributes of Music Teaching Effectiveness (AMTE) that characterized effective kindergarten music teachers: (1) a sense of humor, (2) artistic abilities, (3) asking of open-ended questions, (4) use of problem-based learning, (5) innovativeness, (6) teaching of musical skills, (7) high degree of caring, (8) liberal mindset, and (9) being observant. To assure content validity, all nine attributes were matched with the top scoring items in Button’s list (Button, 2010, p. 28) as shown in Table 1.

Attributes of AMTE	Button’s list of teaching characteristics
1. Sense of humor	1. Makes music lesson lessons enjoyable and interesting whenever possible
2. Artistic abilities	2. Displays a genuine passion for teaching music
3. Asking open-ended questions	3. Uses questioning and probing techniques to stimulate thinking and aid understanding in music
4. Problem-based learning	4. Helps pupils to link theory and practice in music
5. Innovativeness	5. Uses teaching methods that increase student understanding
6. Teaching of musical skills	6. Explains musical concepts clearly in a way that pupils understand
7. High degree of caring	7. Is enthusiastic and energetic when teaching music to pupils
8. Liberal mindset	8. Encourages pupils’ ideas in composition
9. Being observant	9. Communicates respect and sensitivity towards pupils

Table 1. Comparison between AMTE and Button’s list of effective music teaching characteristics

Personalities of Kindergarten Teachers Involved in Music Teaching

One possible way to maintain the music teaching effectiveness in kindergarten is to select and assign teachers with certain personalities to support the musical development of young children (McDonel, 2015). Research has shown that pre-service music teachers tend to be artistic and social (Teachout, 2001). MacLellan (2011) reported that high school band, orchestra, and choir members tend to show intuitive thinking characteristics. Abramo and Reynolds (2014) asserted that music teachers are flexible, comfortable with ambiguity, and think metaphorically to plan and implement pedagogical activity. In addition to being flexible and social, the personality traits of extraversion and openness were also found to be common among prospective music teachers (Cevik, 2011). However, all the above findings were based on samples of student teachers (Perkmen et al., 2012) and music performers (Wubbenhorst, 1994), and little research has investigated the personality of in-service kindergarten teachers that were involved in music teaching.

For this study, the Myers Briggs Type Indicator (MBTI) was used to assess kindergarten teachers’ personality types. The MBTI, based on Jung’s psychological type theory (Jung, 1971), assesses personalities along four dimensions: extraversion-introversion

(E-I), sensing-intuition (S-N), feeling-thinking (F-T), and judging-perceiving (J-P). Among these personality dimensions of the MBTI, the sensing-intuition dimension was selected to address the aim of this study by capturing the characteristics of creativity and flexibility among kindergarten teachers. Sensing people prefer to focus on concrete reality using collected facts and details, whereas intuitive people tend to look at concepts and ideas associated with “tacit knowledge and expertise” and accurate decision making (Pretz & Totz, 2007, p. 1255). Steele and Young (2008) reported that the majority (73.3%) of students of music education and music therapy tend to be intuitive types, and a similar proportion (73.1%) of intuitive types among music educators and music therapists was reported (Steele & Young, 2011). Cevik et al. (2013) reported that pre-service music teachers tended to be artistic.

In kindergartens, Wong and Zhang (2013) found that the majority of Chinese kindergarten teachers were of the sensing types (91%) rather than intuitive types (9%), suggesting that only a minority of teachers prefer creativity and openness. In this context, the research question is “How do kindergarten teachers of the sensing types and intuitive types differ in their perceptions of music teaching effectiveness?” Applying the psychological type theory in MBTI, the authors anticipate that intuitive teachers would differ from sensing teachers in their perceived attributes of music teaching effectiveness and perceived music teaching performance.

Hypotheses

Two hypotheses were tested:

- (1) Considering that intuitive teachers tend to be more flexible and imaginative than sensing teachers, it was hypothesized that (i) the former would rate the importance of attributes of effective music teaching differently from the latter and (ii) the former would rate themselves higher than the latter in perceived music teaching performance.
- (2) Teachers’ personalities and demographic characteristics would be predictors of their music teaching effectiveness.

Methodology

Sampling

A convenience sample of 88 (out of 99, response rate of 88%) kindergarten teachers was invited to participate. They were attendees of two consecutive music teaching workshops that were organized by a non-profit making early childhood education service provider in Hong Kong. These two workshops were held at the hall of a primary school. Of the sample, 98.9% (86 out of 88) were female, 55.8% (48) and 42.7% (40) were aged 20 to 35 and aged 36 or above respectively, and 78.7% (70) and 12.1% (11) were classroom teachers and head teachers correspondingly. They were all involved in teaching music and designing music curriculum in kindergartens. Regarding their educational levels, 31% and 68% of the participants held an early childhood education degree and diploma, respectively. 61% (55) of the participants had more than 10 years of teaching experiences. In Hong Kong, because its population is characterized by a high majority of Chinese ethnic origin, kindergartens admit mainly Chinese young children from aged 3 to 6 (Education Bureau, 2015).

Measures

The sensing-intuitive dimension of the Myers Briggs Type Indicator Form G (Myers & McCaulley, 1985) is a 26-item, self-report, forced-choice inventory. The MBTI Form G has demonstrated satisfactory construct and concurrent validity (Wong, 2012; Carlson, 1985). To complete the inventory, the participants were asked to respond to each item by selecting either one of two options that best reflected their feelings and attitudes in daily life. An example of an S-N item is “In doing something that many other people do, does it appeal to you more to (A) do it in the accepted way or (B) invent a way of your own?” The reliability of the sensing-intuitive dimension of the MBTI was 0.60.

The Attributes of Music Teaching Effectiveness (AMTE) consists of nine attributes (i.e. nine items) of an effective music teacher: (1) a sense of humor, (2) artistic abilities, (3) asking of open-ended questions, (4) use of problem-based learning, (5) innovativeness, (6) teaching of musical skills, (7) a high degree of caring, (8) a liberal mindset, and (9) being observant. Each participant was asked to rate the importance of each attribute using a 1-9 Likert scale (“1”, least important; “9”, most important) and their perceived teaching performance with regard to each attribute using a 1-7 Likert scale (“1”, the attribute is never displayed; “7”, the attribute is always displayed). The reliability of the AMTE was 0.92.

Procedures

Kindergarten music teachers were attendees at two consecutive music teaching workshops presented by the second author. At the end of the second workshop, participants were explained the purpose of study and then invited to rate themselves on the items of the MBTI and AMTE on a voluntary basis. All the questionnaires were completed anonymously. All the participants completed the questionnaires in 20 minutes and returned the questionnaires on site.

Data Analyses

The Statistical Package for Social Sciences, version 18 (SPSS, 2009), was used to analyze the data. Principal component analysis with varimax rotation was performed to explore the factor structure of the AMTE. A frequency count was performed to illustrate the distribution of types among teachers. Independent t-tests were used to compare the mean scores of perceived importance and the teaching performance regarding the attributes of music teaching effectiveness among sensing teachers with those of intuitive teachers. To examine the differential predicting effects of the personality and demographic variables, a two-step (step 1, personality; step 2, education and teaching experience) linear regression analysis was conducted with the total scores of perceived level of importance and teaching performance as the dependent variables.

Results

Findings from the factor analyses showed that two factors (30.8% variance explained) and one unique factor (60.4% of variances explained) were sufficient to represent the sensing-intuitive dimension of the MBTI and AMTE respectively.

Differences between Sensing Teachers and Intuitive Teachers in Perceived Attributes of Music Teaching Effectiveness and Perceived Teaching Performance

In Table 2, the findings showed that 75% (66 of 89) of the sample were sensing types and 25% (22 out of 89) were intuitive types. The intuitive teachers rated the importance of six of the nine attributes of music teaching higher than did the sensing teachers (the mean scores ranged from 5.23 to 7.82). Specifically, among the nine

	Level of importance			Teaching performance		
	S	N	t-value	S	N	t-value
AMTE						
Sense of humor	7.00	7.82 [#]	1.68	4.46	4.82	1.12
Artistic abilities	6.71	7.73 ⁺	1.97*	4.16	4.55	1.30
Asking open-ended questions	6.32	6.32	0.00	4.56	4.95	1.40
Problem-based learning	5.42	5.23	-0.28	4.46	4.73	0.99
Innovativeness	6.83	7.57	1.44	4.46	4.67	0.86
Teaching of musical skills	6.76	6.36	-0.65	5.25	5.27	0.06
High degree of caring	7.61 [#]	7.71	0.20	6.00	6.43	1.96*
Liberal mindset	7.12 ⁺	7.35	0.40	5.58	6.05	2.13*
Being observant	6.61	7.18	0.98	5.12	5.59	1.78
Total scores	60.52	63.79		43.92	47.89	

Note: S: sensing types (n=66, 75%) ; N: intuitive types (n=22, 25%) ; [#] 1st rank; ⁺ 2nd rank;

AMTE: Attributes of Music Teaching Effectiveness; *p< 0.05 (equal variances assumed)

Table 2. Perceived attributes of music teaching effectiveness and perceived teaching performance between sensing (S) and intuitive (N) teachers

attributes (based on mean scores), the intuitive teachers rated a sense of humor and artistic abilities first and second in importance, respectively, while a high degree of caring and a liberal mindset were rated first and second in importance by the sensing teachers. In addition, the intuitive teachers rated artistic abilities (t=1.97, p=0.04) significantly higher than did the sensing teachers. Again, the intuitive teachers generally rated their teaching performance higher than did the sensing teachers with regard to all nine attributes (with mean scores ranging from 4.55 to 6.43). In particular, significant differences were found in the ratings of a high degree of caring (t=1.96, p=0.04) and a liberal mindset (t=2.13, p=0.03).

Predictors of Perceived Music Teaching Effectiveness

In Table 3, the findings indicated that personality (step 1: $\beta=0.18$, t=1.68, p=0.09) only marginally predicted perceived teaching performance on the attributes of music teaching

effectiveness as a single predictor, whereas both personality ($\beta=0.20$, $t=1.94$, $p=0.05$) and teaching experience ($\beta=0.40$, $t=3.53$, $p=0.001$) were significant predictors in step 2.

Table 3. Linear regression of predictors of perceived music teaching effectiveness		
	Level of importance	Teaching performance
$R^2_{\text{Total}}(\text{step 1 to 2})$	0.04	0.17
$R^2_{\text{personality}}(\text{Step 1})$	0.00	0.03 ($F=2.85$)
$\beta_{\text{personality}}$	-0.02	0.18
$R^2_{\text{demographic}}(\text{Step 2})$	0.04	<i>0.14 ($F=5.47^*$)</i>
$\beta_{\text{personality}}$	-0.01	<i>0.20^*</i>
$\beta_{\text{education}}$	-0.21	0.08
$\beta_{\text{total teaching experience}}$	-0.10	<i>0.40^{***}</i>

Note: Significant values are in italics. $^{**}p < 0.01$ $^*p < 0.05$

Table 3. Linear regression of predictors of perceived music teaching effectiveness

Discussion

The current study was the first to examine the relationship between personality types and music teaching effectiveness among in-service kindergarten teachers. While the findings might be marginal, it indicated that the intuitive teachers tended to score higher than the sensing teachers on attributes of music teaching effectiveness, in terms of their perceived importance and perceived teaching performance.

Role of Intuitive Personality of Teachers in Achieving Music Teaching Effectiveness

The current findings indicated that 75% and 25% of the sample were sensing types and intuitive types, respectively. While the type distribution matches previous findings reported by Wong and Zhang (2013), the ratios of kindergarten teachers of the sensing types to that of the intuitive types differ: this ratio was 3:1 in the current study and 9:1 in the study by Wong and Zhang (2013). It is worthy to note that the study by Wong and Zhang (2013) examined all kindergarten teachers, whereas the current study included only kindergarten music teachers. It is speculated that the greater number of intuitive teachers in music teaching in the current study is likely because intuitive teachers tend to possess more of the creativity, openness and liberal-mindedness needed for effective music teaching. Thus, intuitive teachers are more likely to be allocated or volunteered to teach music in kindergartens.

Additionally, the current findings indicated that intuitive teachers and sensing teachers differed (though marginally) in their perceived importance of these attributes and in perceived music teaching performance. The intuitive teachers rated a sense of humor and artistic abilities as the first and second in importance, respectively, whereas the sensing teachers rated a high degree of caring and a liberal mindset as first and second. Regarding teaching performance, again the intuitive teachers consistently rated themselves marginally higher than the sensing teachers. Therefore, hypothesis (1) was partially supported. These findings echoed previous research by showing that kindergarten teachers involved in music teaching are inclined to be artistic and liberal (Button, 2010; Kvet & Watkins, 1993). According to Jung's theory of psychological types (Jung, 1971), an intuitive person tends to be more creative and flexible. Thus, intuitive teachers' styles and preferences in teaching are more likely to match the attributes needed for music teaching effectiveness and their

personality characteristics are reflected in their ratings of the levels of importance. Taken together, these differences suggest that a teacher's intuitive personality influences music teaching effectiveness by way of their attitude toward music and perceived teaching performance.

For kindergarten principals to promote effective music teaching, they may consider recruiting teachers who show attributes needed for music teaching effectiveness for the job of teaching music to young children. While the current findings suggest that intuitive teachers, who tend to be more innovative and liberal, may be better at teaching music to young children, sensing teachers make up the majority of teachers, as shown in the current study and previous studies. Moreover, sensing teachers tend to be less creative (according to Jung's theory of psychological types) and thus are less able to lead effective music teaching. To meet this challenge, kindergarten principals may use teachers' personality types as a guide in hiring and assigning teachers to music teaching.

Role of Music Teaching Experiences in Achieving Music Teaching Effectiveness

The regression findings also indicate that both personality ($\beta=0.20$) and music teaching experience ($\beta=0.40$) are predictors of effective music teaching performance. Thus, hypothesis (2) was supported. In addition, this finding suggests that while personality alone does not influence music teaching, both teaching experience and personality may supplement each other to impact on music teaching performance. As such, this finding provides an alternative explanation to previous findings that showed that personality is not a predictor of teaching effectiveness (Teachout, 2001).

From the kindergarten principals' perspective, while teacher turnover has been consistently high in early childhood education (Wells, 2015) and a stable workforce with low turnover is more likely to preserve music teaching experiences and cultivate a musical culture in kindergartens, the current findings support that teachers' work experiences predict perceived music teaching performance. In this connection, the sustainability of teaching expertise is critical to determining music teaching effectiveness. Therefore, kindergarten principals may consider setting up mentor support to promote peer learning and sharing of experience among teachers with the aim of cultivating a more open and artistic approach to music teaching in kindergartens.

Conclusion, Implication, and Limitation

Music is an essential and effective curricular element for facilitating young children's learning because it appears to be an effective catalyst of learning. This study found that teachers of the intuitive personality and teaching experience enhance effective music teaching. This finding has two implications: First, intuitive teachers may be a priority for music teaching when allocating job tasks by kindergarten principals. Second, kindergarten principals and policy makers can use this finding to inform maintenance of a stable workforce of music teaching expertise to sustain a progressive development of effective music teaching in kindergartens and as an impetus to cultivate an open and artistic approach to music teaching through professional development programmes catered for kindergarten teachers.

This study had several limitations. It used cross-sectional data that do not allow for interpretation of causal relationship between variables. The sample size was small and non-random. Although the ATME has shown satisfactory psychometric properties, it needs further validation. In addition, teachers' self-rated performance on attributes of music

teaching effectiveness are subjective and affected by social desirability effects. Future research may assess teachers' performance using real-time class observation in a longitudinal design. Furthermore, a random control design is recommended to compare groups of kindergarten teachers with and without music background.

References

- Abramo, J. M., & Reynolds, A. (2014). "Pedagogical Creativity" as a Framework for Music Teacher Education. *Journal of Music Teacher Education*, doi: 1057083714543744.
- Bornstein, M. H. (1989). Sensitive periods in development: structural characteristics and causal interpretations. *Psychological Bulletin*, 105(2), 179. <https://doi.org/10.1037/0033-2909.105.2.179>
- Button, S. (2010). Music teachers' perceptions of effective teaching. *Bulletin of the Council for Research in Music Education*, 25-38.
- Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014). Early childhood investments substantially boost adult health. *Science*, 343(6178), 1478-1485. <https://doi.org/10.1126/science.1248429>
- Carlson, R. (1985). Recent assessments of the Myers-Briggs Type Indicator. *Journal of Personality Assessments*, 49(4), 356-365. https://doi.org/10.1207/s15327752jpa4904_3
- Cevik, B., Perkmen, S., Alkan, M., & Shelley, M. (2013). Who should study music education? A vocational personality approach. *Music Education Research*, 15(3), 341-356. <https://doi.org/10.1080/14613808.2013.788140>
- Cevik, B. (2011). Personality self-perceptions of Turkish music pre-service teachers in relation to departmental satisfaction. *International Journal of Music Education*, 29(3), 212-228. <https://doi.org/10.1177/0255761410396282>
- Connors, A. (2014). How music sets the tone for learning. *Teaching Young Children*, 7(5), 21-23.
- Curriculum Development Council. (2006). *Guide to the pre-primary curriculum*, Hong Kong.
- Education Bureau (2015). Overview of kindergarten education in Hong Kong. Browsed at <http://www.edb.gov.hk/en/edu-system/preprimary-kindergarten/overview/>. Browsed on 20 June 2018.
- Ehrlin, A., & Gustavsson, H. O. (2015). The importance of music in preschool education. *Australian Journal of Teacher Education*, 40(7), 3. <https://doi.org/10.14221/ajte.2015v40n7.3>
- Gillespie, C. W., & Glider, K. R. (2010). Preschool teachers' use of music to scaffold children's learning and behaviour. *Early child development and care*, 180(6), 799-808. <https://doi.org/10.1080/03004430802396530>
- Gong, X., Xu, D., & Han, W. J. (2016). The effects of preschool attendance on adolescent outcomes in rural China. *Early Childhood Research Quarterly*, 37, 140-152. <https://doi.org/10.1016/j.ecresq.2016.06.003>
- Hallam, S. (2010). 21st century conceptions of musical ability. *Psychology of Music*, 38(3), 308-330. <https://doi.org/10.1177/0305735609351922>
- Heimer, L., & Winokur, J. (2015). Preparing Teachers of Young Children: How an Interdisciplinary Curriculum Approach is Understood, Supported, and Enacted Among Students and Faculty. *Journal of Early Childhood Teacher Education*, 36(4), 289-308. <https://doi.org/10.1080/10901027.2015.1100144>
- Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments*. Psychological Assessment Resources.

- Isenberg, J. & Jalongo, M. (2006). *Creative thinking and arts-based learning*, Pearson Merrill Prentice Hall.
- Jung, C. G. (1971). Personality types. *The portable Jung*, 178-272.
- Knudsen, E. I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of cognitive neuroscience*, 16(8), 1412-1425.
<https://doi.org/10.1162/0898929042304796>
- Kvet, E. J., & Watkins, R. C. (1993). Success attributes in teaching music as perceived by elementary education majors. *Journal of Research in Music Education*, 41(1), 70-80.
<https://doi.org/10.2307/3345481>
- Kyriakides, L., Campbell, R. J., & Christofidou, E. (2002). Generating criteria for measuring teacher effectiveness through a self-evaluation approach: A complementary way of measuring teacher effectiveness. *School effectiveness and school improvement*, 13(3), 291-325. <https://doi.org/10.1076/sesi.13.3.291.3426>
- Lau, W. C. M., & Grieshaber, S. (2010). Musical free play: A case for invented musical notation in a Hong Kong kindergarten. *British Journal of Music Education*, 27(02), 127-140. <https://doi.org/10.1017/S0265051710000045>
- Liao, M. Y., & Campbell, P. S. (2015). Teaching children's songs: a Taiwan-US comparison of approaches by kindergarten teachers. *Music Education Research*, 1-19.
- Longhi, E., Pickett, N., & Hargreaves, D. J. (2015). Wellbeing and hospitalized children: Can music help? *Psychology of Music*, 43(2), 188-196.
<https://doi.org/10.1177/0305735613499781>
- McCrae, R. R., & Costa, P. T. (1989). Reinterpreting the Myers-Briggs type indicator from the perspective of the five-factor model of personality. *Journal of personality*, 57(1), 17-40. <https://doi.org/10.1111/j.1467-6494.1989.tb00759.x>
- McDonel, J. S. (2015). Exploring Learning Connections Between Music and Mathematics in Early Childhood. *Bulletin of the Council for Research in Music Education*, (203), 45-62.
<https://doi.org/10.5406/bulcouresmusedu.203.0045>
- MacLellan, C. R. (2011). Differences in Myers-Briggs personality types among high school band, orchestra, and choir members. *Journal of research in music education*, 59(1), 85-100. <https://doi.org/10.1177/0022429410395579>
- Myers, B., & McCaulley, M. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Consulting Psychologist Press, Inc.
- Noesgaard, S. S., & Ørngreen, R. (2015). The Effectiveness of E-Learning: An Explorative and Integrative Review of the Definitions, Methodologies and Factors That Promote e-Learning Effectiveness. *Electronic Journal of e-Learning*, 13(4), 278-290.
- Parncutt, R. (2016). Prenatal Development and the Phylogeny and Ontogeny of Musical Behavior. *The Oxford Handbook of Music Psychology*, 371.
- Perkmen, S., Cevik, B., & Alkan, M. (2012). Pre-service music teachers' satisfaction: person-environment fit approach. *British Journal of Music Education*, 29(03), 371-385.
<https://doi.org/10.1017/S0265051712000241>
- Salmon, A. (2010). Using music to promote children's thinking and enhance their literacy development. *Early child development and care*, 180(7), 937-945.
<https://doi.org/10.1080/03004430802550755>
- SPSS, P. (2009). *Statistics for Windows, Version 18.0*. SPSS Inc., Chicago.
- Steele, A. L., & Young, S. (2008). A comparison of music education and music therapy majors: Personality types as described by the Myers-Briggs type indicator and demographic profiles. *Journal of music therapy*, 45(1), 2-20.
<https://doi.org/10.1093/jmt/45.1.2>

- Steele, A. L., & Young, S. (2011). A descriptive study of Myers-Briggs personality types of professional music educators and music therapists with comparisons to undergraduate majors. *Journal of music therapy*, 48(1), 55-73. <https://doi.org/10.1093/jmt/48.1.55>
- Teachout, D. J. (2001). The relationship between personality and the teaching effectiveness of music student teachers. *Psychology of Music*, 29(2), 179-192. <https://doi.org/10.1177/0305735601292007>
- Wells, M. B. (2015). Predicting preschool teacher retention and turnover in newly hired Head Start teachers across the first half of the school year. *Early Childhood Research Quarterly*, 30, 152-159. <https://doi.org/10.1016/j.ecresq.2014.10.003>
- Wong, Y. P. (2012). Subjective Well-being among Hong Kong Kindergarten Teachers: the Roles of Perceived Work Environment, Personality Types, and Resilience. Unpublished doctoral thesis. The University of Hong Kong.
- Wong, Y. P., & Zhang, L. (2013). Personality Types of Hong Kong Kindergarten Teachers: Implications for Teacher Education. *Australian Journal of Teacher Education*, 38(2), 6. <https://doi.org/10.14221/ajte.2013v38n2.8>
- Wright, S. (2003). *The arts, young children, and learning*. Pearson Education, Inc.
- Wubbenhorst, T. M. (1994). Personality characteristics of music educators and performers. *Psychology of music*, 22(1), 63-74. <https://doi.org/10.1177/0305735694221006>