

## Measuring concerns of inclusive music teaching in Hong Kong

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Title: Measuring Concerns of Inclusive Music Teaching in Hong Kong: Scale development

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## Measuring Concerns of Inclusive Music Teaching in Hong Kong: Scale development

### Abstract

Seeking to address a gap in the literature, this article reports the development of an instrument to measure Hong Kong primary school music teachers' concerns about inclusive music education. To do so, a 25-item music teachers' Concern of Inclusive Music Teaching [CIMT] scale was constructed and administered to 317 primary schools music teachers in Hong Kong, data from whom indicate that the CIMT scale comprises six concern factors - "learning support", "learning difficulties", "learning needs", "resource", "training" and "curriculum design and assessment". Although these data results do not support either Parsons and Fuller's (1974) three-factor model or hierarchical three-factor related model, they do support a discrepancy noted elsewhere (Boz 2008; Borich 2013; Schipull, Reeves and Kazelskis 1995; Kazelskis and Reeves 1987) that may reflect the impact of teaching context.

**Key words:** Scale development; teaching context; inclusive music education; music teachers concerns.

## Measuring Concerns of Inclusive Music Teaching in Hong Kong

### Background

Inclusive education was implemented in Hong Kong in 2001. Since then, all mainstream schools accept students with special educational needs [SEN] (EOC 2001). These special educational needs are defined as comprising eight areas: hearing impairment, visual impairment, physical disability, intellectual disability, speech and language impairment, specific learning difficulties, attention deficit / hyperactivity disorder and autistic spectrum disorders (EDB 2008a). Unique to Hong Kong is the Education Bureau's definition of inclusive education, "inclusion is concerned with the learning and participation of all students, not only those with impairments or those who are categorized as having special educational needs" (EDB 2008b, 1). By defining that "inclusion is concerned with the learning and participation of all students", the Education Bureau is also defining its budget and resource priorities as primarily serving the needs of "all students". Accordingly, although resources are available to support SEN in mainstream schools, such as additional funding for hiring teaching assistants and in-service development courses for mainstream school teachers, accessing and benefiting from these SEN resources remains problematic. Crawford (2002) reported that even though some primary school teachers had received training in adapting teaching methodology to cater for students with SEN, they seldom apply the methodology and regarded such method as not feasible for use in classrooms. Forlin, Au and Chong (2008) found that the behavior of the child and teacher's perceived professional competency were the two major areas of teachers' concerns about inclusion. More recently, inclusion reportedly remains a major challenge for teachers in mainstream schools (Forlin 2010). This situation has found echoes. In western countries with Hammond and Ingalls (2003), reporting that teachers held negative attitudes toward inclusion and felt ill-prepared to teach students with SEN. Fuchs (2009) similarly reported that regular teachers had insufficient training to implement inclusion.

To address such issues in the field of music education, some music educators have advocated that music teachers should work together with both music therapists and special educators to support students with SEN (Montgomery and Martinson 2006; Darrow 2010). Seeking to build bridges between mainstream and SEN teacher knowledge, Hourigan (2009) advocated the benefits derived from field work experience by mainstream teachers teaching SEN students. However, there is little research found that informs this area of inclusive music education. Whereas some music teachers have been found to hold negative attitudes toward teaching students with SEN (Gfeller, Darrow, and Hedden 1990), elsewhere, others hold positive attitudes but with low expectations of students' achievement in music (Scott, Jellison, Chappell and Stonebridge 2007). Clearly, were teachers to hold a negative attitude toward inclusion, this may negatively impact both on their implementation of inclusion and their SEN students. Therefore, addressing teachers' concerns about inclusive education is essential when

implementing inclusive education.

International reporting on teachers' concerns about integrated / inclusive education is limited. In India, Sharma and Desai (2002) developed their Concerns about Integration Education (CIE) reporting that resources, acceptance, academic standards and workloads were the four major concerns of teachers about inclusion. In Australia, Loreman, Earle, Sharma and Forlin (2007) developed their Sentiments, Attitudes and Concerns about Inclusive Education Scale (SACIE) which measures teachers' concerns but without reference to any one specific subject area. In the USA, Darrow (1999) identified 13 critical issues related to the inclusion of students in music classrooms from which she derived 7 categories of teaching adaptations. However her 7 categories represent non subject-specific concerns of teachers and therefore do not specifically relate to teachers of music. Subsequently, Darrow (2009) does observe that, in the USA, the major barriers to effective inclusion in music instruction include teachers' beliefs, attitudes and their knowledge about teaching students with SEN. Notably, this literature is based on teachers' experiences in the Indian sub-continent and Western countries – a global coverage that marks the absence of research into ethnic Chinese primary teachers' concerns about inclusive music education in Hong Kong.

To address this research gap, the purpose of this study is to develop an instrument - the music teachers' Concern of Inclusive Music Teaching [CIMT] scale - to measure Hong Kong primary schools music teachers' concerns about teaching in inclusive primary music classrooms.

### **Procedures and Results**

Sequential mixed method was employed (Creswell 2009). The procedures began with qualitative data collection followed by quantitative data collection.

#### ***Phase 1: Qualitative data collection and analysis***

Qualitative data was collected through face-to-face interviews with 10 primary school music teachers in Hong Kong. Criterion sampling was employed. The participants of the qualitative study were primary schools music teachers who (1) had teaching experience in primary schools inclusive music classrooms; (2) were working in either government or aided primary schools, (3) were willing to provide information for this study. All interviews were semi-structured, following an interview protocol derived from the inclusive music teaching literature (Moustakas 1994; Foddy 1993). Participants were asked to express their understanding of Hong Kong's inclusive education policy, their experiences of and concerns about inclusive music teaching, as well as their views on the 13 concerns and the 7 teaching adaptations identified by Darrow (1999). Each interviewee verified the transcription accuracy of their interview. Phenomenological data analysis of these transcriptions followed Colaizzi's (1978) method was used for scale-item generation.

## ***Phase 2: Scale Development***

### *Step 1: Identifying concerns and developing the scale (draft form)*

Following Agar's (1996) method, each transcript was examined for significant concern statements - a review process that produced a total of 265 non-repetitive concern statements. These statements were classified into 4 categories, comprising first, "Attitudes toward inclusive education" with the remaining 3 categories mirroring those in the Teacher Concern Checklist (Parsons and Fuller 1974), i.e. "Self-concern", "Situational concern" and "Students need concern".

### *Step 2: Format for measurement*

To reveal music teachers' level of concern, a 5-point Likert Scale response format was selected due to its robustness when measuring opinions, beliefs and attitudes (Croasmum and Ostrom 2011). This Scale comprised: 5 = Extremely concerned, 4 = Very concerned, 3 = Neutral, 2 = Seldom concern, 1 = Never concerned. To maximize data collection, the CIMT was designed to be a self-administered survey. The instrument's language was Chinese, one of the official languages in Hong Kong and the most common language of the target population, namely Hong Kong primary music classroom teachers.

### *Step 3 Review of the scale by an expert panel*

Construct validity of the CIMT was achieved by inviting 12 judges to perform 4 rounds of expert-reviews (Lynn 1986). This panel of experts comprised of 4 primary school music teachers, 2 university faculty members specializing in quantitative psychology, 1 university faculty member specializing in music teacher education, and 1 university faculty member specializing in quantitative psychology and music education.

Each judge was asked to rate if an item was "appropriate", "appropriate after revision" or "inappropriate" and ample space was provided for their written suggestions for item rewording. Each item was retained only if at least 3 out of 4 judges indicated it as "appropriate" or "appropriate after revision". Following the feedback from these judges, a section of 10 demographic questions was added and one category – the 4<sup>th</sup> category under step 1 of phase 2: "Attitude toward inclusive education in Hong Kong", was removed as too few of its items met with the judges' approval.

### *Step 4 Pilot Study I*

A convenience sampling with informed consent was obtained from 5 primary schools and numbered 16 Hong Kong primary school music teachers (1 male and 15 female teachers). The mean year of their teaching experience was 10.75, ranging from 1 to 28 years. A follow-up interview with an aim to improve the design of the CIMT questionnaire was held in each school

following data collection. The level of reliability of Pilot Study I was unsatisfactory with an alpha coefficient estimated to be 0.49, which may result from the small sample size (N=16) (Lance, Butts and Michels 2006) and/or uncertainty caused by unclear questions (Hambleton 2005). It was however possible to improve the CIMT scale and the reliability of the questionnaire items after an analysis of the interview data which pointed to three types of revision: (1) the design of layout, (2) rewording and deleting unclear statements and (3) addition of demographic questions about teachers' workload. The revised CIMT questionnaire consisted of 131 items, including 1 screening question, 118 teacher concern questions and 12 demographic questions. This increase of demographic questions from 10 to 12 reflected a need to capture the Hong Kong demographic that many primary music teachers additionally teach other core subjects, such as English Language, Chinese Language and Mathematics, creating a variable music teaching workload - for some music teachers their major workload is in music while for others, it is in other subjects.

#### *Step 5 Pilot Study II*

A second Pilot Study using the same procedures and sample group of subjects was carried out one month after the Pilot Study I. The overall Cronbach's alpha for the CIMT questionnaire in Pilot Study 2 was 0.99. The internal consistency coefficients of the three categories, i.e. "Self-concern", "Situational concern" and "Student-needs concern" were 0.97, 0.98 and 0.98 respectively. The reliability coefficients reached a satisfactory level. An analysis of the second pilot study's interview data identified two questionnaire improvements: 1) rewording and 2) removing inappropriate items. With these improvements in place, the questionnaire now comprised a total of 127 items of which 114 were concern statements.

A final review by the expert panel of experts of these 114 concern statements determined that, with further rewording and combining items with similar meanings, to delete a further 11 concern statements.

#### *Summary of final CIMT questionnaire*

On completion of the review process, the final CIMT questionnaire now comprised a total of 116 items of which 103 were concern statements, 12 demographic questions and 1 screening question.

The purpose of the screening question was to exclude respondents who had no experience of teaching SEN students. The 12 demographic questions requested age range, years of teaching, teacher qualifications, training of special education, workload including teaching and administrative duties in schools, class size and number of SEN students in their music class.

#### *Step 6 Main Study*

There were 455 government and aided primary schools in Hong Kong in 2013-2014, of this number, the principals and music teachers of 200 (43.4%) schools across every school district

were contacted by phone calls and email messages on a random selection basis. Of these initial 200 contacts, a total of 94 (47%) of those contacted schools responded positively. Within these 94 schools the number of music teachers varied, ranging from 1 to 12, making the number of questionnaires issued total 453. Of the 317 questionnaires returned, 8 questionnaires were excluded because the respondents indicated that they had no experience in teaching SEN students in their music classes. Accordingly, of the total 453 issued questionnaires there were returned 309 valid questionnaires making a response rate of 0.68.

The data set was screened for errors and missing data before analysis. There were 190 missing figures found in 104 questionnaires, and all the missing data were followed up and clarified by fax and Whatsapp messages.

### ***Phase 3: Quantitative Analysis***

#### *Step 1 Item Analysis*

Item analysis was performed before factor analysis. Of the 103 concern statements, 9 items were deleted as they displayed Skewness/Kurtosis values greater than 2.0 (Bandalos and Finney 2010). The overall internal consistency for the remaining 94 items was satisfactory ( $\alpha = 0.96$ ). Among these 94 statements, 30 were retained because their item-scale correlations were higher than 0.3 (Barry, Chaney, Stellefson, and Chaney 2011) and had satisfactory inter-item correlation (i.e. ranging from 0.3 to 0.7; Ferketich 1991). Following expert-review, another 14 items (e.g. disciplinary problems, parental involvement, time constraint, students' performance) were retained as they displayed theoretical interest (Parsons and Fuller 1974). Thus, a total of 44 items were considered for factor analysis.

These 44 items were then subject to a classification-review by the expert-review panel. This review process classified 14 items as Self-concern, 13 items as Situational Concern, and 17 items as Student-needs (impact) concern. The overall internal consistency ( $\alpha=0.94$ ) was satisfactory. The Cronbach alpha coefficients of the three subscales were above 0.80: Self Concern ( $\alpha=0.87$ ), Situational Concern ( $\alpha=0.85$ ) and Student-needs (Impact) Concern ( $\alpha=0.89$ ).

#### *Step 2 Factor analysis*

Confirmatory factor analysis (CFA) (IBM SPSS AMOS 22) was conducted to determine if the current data fitted the three-factor model of teacher concerns proposed by Francis Fuller (1969 1970). Maximum likelihood method was employed for model estimation. Following the pragmatic suggestions of various scholars (Schreiber, Nora, Stage, Barow, and King 2006; Hair, Black, Babin, and Anderson 2010; Kline 2011; Byrne 2010; Schumacker and Lomax 2010; Meyers, Gamst, and Gurarino 2013; Tabanick and Fidell 2014), five indices were selected to evaluate the fitness of the model, including: (a)  $\chi^2$  divided by degree of freedom (CMIN/DF) where values below 2 are considered good and from 2 to 5 are acceptable; (b) comparative fit



index (CFI) where values above 0.9 or close to 0.95 are considered good and from 0.8 to 0.89 are adequate; (c) goodness-of-fit index (GFI) where values above 0.90 are considered good; (d) Tucker-Lewis Index (TLI) where values close to 0.95 are considered good; (e) root mean square error of approximation (RMSEA) where values from 0.05 to 0.08 are acceptable.

An overall CFA was performed with three subscales (i.e. Self-Concern, Situational Concern, and Student-Needs (Impact)) treated as independent factors in the measurement model. A poor fit of Parsons and Fuller's (1974) three-factor model was resulted, with CMIN/DF= 4.11, CFI= .61, GFI= .58, TLI= .59, and RMSEA= .1 (90% CI of RMSEA= .09-0.10).

In order to explore the latent structure of this set of items, a series of exploratory factor analyses (EFA) were conducted. Factorability of these 44 items was supported both by their Kaiser-Meyer-Olkin values exceeding 0.6 (Kaiser 1970 1974) and the Bartlett's Test for Sphericity (Bartlett 1954) showing statistical significant levels. Maximum Likelihood and Oblimin were selected respectively as extraction and rotation methods (Fabrigar, Wegener, MacCallum, and Strahan 1999). One item was deleted due to its low MSA value (.573) (Pett, Lackey, and Sullivan 2003).

Eight factors were disclosed having eigenvalues larger than 1, which accounted for 54.42% of variance. However, this was an unreliable criterion for deciding the number of factors to be retained, as it might be affected by sample size (Tabachnick and Fidell 2014) and tended to indicate a larger number of components (Zwick and Velicer 1986). Therefore, the number of factors reported here is based on an inspection of both the Scree plot and results obtained from a Parallel Study.

INSERT FIGURE 1 HERE

According to the Scree plot as illustrated in Figure 1, a six-factor solution is more appropriate. There is a clear break between the sixth and seventh factors, and the shape of the plot changes from the point on the fifth factor onwards. Therefore, six factors can explain most of the variances of the current data (Pallent 2007). This six-factor solution is further supported by the results from the Parallel Study as shown below in Table 1.

INSERT TABLE 1 HERE

As illustrated in Table 1, only six factors with eigenvalues exceed the corresponding criterion values for a randomly generated data matrix of the same size (43 variables  $\times$  309 participants).

The six-factor solution derived from Maximum Likelihood extraction explains a total of 50.05% of variance, with Factor 1 contributing 28.04%, Factor 2 contributing 6.49%, Factor 3 contributing 4.92%, Factor 4 contributing 3.63%, Factor 5 contributing 4.19%, and Factor 6 contributing 2.76%. After Oblimin rotation, a simple structure was obtained (Thurstone 1947). There were 11 items removed as their factor loadings fell below 0.40. Among the 32 retained items, 5 items with communality below 0.4 were also removed (Worthington and Whittaker 2006; Henson, Capraro and Capraro 2004). After these two rounds of item deletion, this set of items was reduced from 43 to 27 items. One item was retained despite its low communality ( $r = .299$ ) after discussion of the panel of experts because its factor loading ( $r = .468$ ) was above the minimal criteria (Hair et al. 2010). Consequently, a total of 28 items were retained for further analyses.

Repeating the same analysis on the remaining 28 items led to two further items being removed. One item had communality (0.384) lower than 0.4. The second item was deleted to avoid emergence of Heywood cases because its communality (0.938) was close to 1.0 (Thompson 2004). The EFA with same extraction and rotation methods was performed again on the remaining 26 items. One more item with factor loading lower than 0.4 was removed.

INSERT TABLE 2 HERE

A third round of EFA was performed with the same extraction and rotation methods to obtain a revised factor structure for these remaining 25 items. The revised six factors accounted for 53.19% of variance in total, explaining 31.53%, 9.54%, 5.71%, 5.54%, 4.41 and 4.78% respectively. As illustrated in Table 2, the results of a repeated Parallel Study supported this factor structure, here displaying only six factors with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (25 variables  $\times$  309 participants).

INSERT TABLE 3 HERE

As illustrated in Table 3, Factor 1 is defined by 6 items pertaining to learning support. Factor 2 consists of 4 items describing learning difficulties. Factor 3 consists of 4 items concerning with learning needs. Factor 4 consists of 3 items relating to resource of inclusive music teaching. Factor 5 consists of 4 items addressing training or professional development of music teachers. Factor 6 consists of 4 items relating to curricular design and assessment.

To display the path coefficients generated in the analysis, an overall CFA of the 6-factor model was assessed with the use of IBM SPSS AMOS 22 (see: Figure 3).

INSERT FIGURE 2 HERE

As displayed Figure 2, results from the overall CFA reveal adequate to good fit of the current 6-factor model: CMIN/DF= 1.78 , CFI= .85 , GFI= .89, TLI= .94, and RMSEA= .05 (90% CI of RMSEA= .04, .06). The overall reliability was satisfactory ( $\alpha = .92$ ). The Cronbach's alpha for the six subscales were good: Learning Support ( $\alpha = .85$ ), Learning Difficulties ( $\alpha = .83$ ), Learning Needs ( $\alpha = .91$ ), Resource ( $\alpha = .77$ ), Training ( $\alpha = .86$ ), and Curricular Design and Assessment ( $\alpha = .87$ ).

### **Discussion**

Confirmatory factor analysis of the 25-item CIMT do not support Parsons and Fuller's (1974) three dimensions of teacher concern – see Parsons and Fuller (1974) 56-item Teacher Concerns Checklist, Form B (TCCL-B): Self-Concern, Situational Concern and Student-Needs (Impact) Concern. Instead, the analysis of the CIMT presented here supports a six-factor solution. These six factors comprise learning support, learning difficulties, learning needs, resource, training, and curricular design and assessment. As these six factors do not fit either Parsons and Fuller's three-factor model or their hierarchical three-factor related model the suggestion here is that these models, though theoretically reasonable, fail to obtain statistical support from the data of this study.

Parsons and Fuller's three-factor model displays each factor consisting of various sub-elements. For example, the Student-Needs (Impact) Concern combines “recognizing needs of individual pupils and adapting self, teaching methods, and procedures in an attempt to meet these needs” (Parsons and Fuller 1974, 9). This concern factor consists of various elements, such as student's learning needs, teaching support to the students, or teaching adaptation. When developing a scale, however, some of these elements might change as their underpinning statistical cluster may, under a different research perspective, become statistically strong enough to support another independent factor. Thus, discrepancy is observed between Parsons and Fuller's model and data from other studies that employ TCCL-B, 45-item Teacher Concern Checklist or modified version of TCCL-B (Borich 2013). For example, Kazelskis and Reeves (1987) obtained 11 interpretable factors. Schipull, Reeves and Kazelskis (1995) identified 10 factors through factor analysis of the TCCL-B. Boz (2008)'s validation study on TCC initially revealed 10 factors with eigenvalues larger than one, and finally achieved three factor-model after deleting three items.

The CIMT's six factors reflect Hong Kong music teachers' concerns about inclusive teaching in primary schools, and a specific context that may induce different concern factors when compared with other similar measurement tools. For example, Agbenyega (2007)'s 20 item-Attitudes Toward Inclusion in Africa Scale (ATIAS) comprises four factors: Behavioral issues, Student's needs, Resource issues and Professional competency. The CIMT shared similar constructs with ATIAS, except for SEN students' behaviour. Classroom practice is one of the

factors in Stoiber, Gettinger, and Goetz (1998)'s 28-item My Thinking About Inclusion (MTAI). The items under this factor focus on the following issues: Students' needs for teachers' attention, role of special education teacher and needs of SEN students' parents. Unlike the MTAI, the CIMT addressed student's need of teacher's guidance and teacher's need for training, but not the roles of parents or those of the special education teachers. Sharma and Desai (2002)'s 21-item Concerns about Integrated Education (CIE) scale originally consisted of four factors: Concern about Resources, Concern about Acceptance, Concern about Academic Standards, and Concern about Workloads. The CIMT highlights inadequate resource and learning needs of SEN students instead of measuring CIE's concerns with social acceptance and teacher stress. When Loreman et al. (2007) subsequently revised CIE they derived a 19-item Sentiments, Attitudes and Concerns about Inclusive Education (SACIE). One of the SACIE factors included items indicating inadequate resources from school, inadequate knowledge and skills for teaching, inability to equally pay attention to the whole class, absence of social acceptance of SEN students, learning outcomes of regular students being affected, and teacher stress – all factors that differentiate the context focus of SACIE from that of CIMT.

The context focus of CIMT is reflected in these Hong Kong primary school music teachers' concern with inadequate resources for teaching music, opportunities of professional development, learning of SEN students, and adaptations of curriculum and assessment. Their results further highlight their academic concerns with learning support difficulties and needs take precedence over concerns with social acceptance of SEN students and their behavioural problems.

### **Conclusion**

The purpose of this study was to develop an instrument to measure Hong Kong primary school music teachers' concerns about inclusive music education. To do so, a 25-item music teachers' Concern of Inclusive Music Teaching [CIMT] scale was constructed and then administered to 317 primary schools music teachers in Hong Kong. Factor analysis of the data indicated that the CIMT scale comprised six concern factors - "learning support", "learning difficulties", "learning needs", "resource", "training" and "curriculum design and assessment" - when implementing inclusive education in primary music classrooms. These data results do not support either Parsons and Fuller's (1974) three-factor model or hierarchical three-factor related model – a discrepancy noted by (Borich 2013; Kazelskis and Reeves 1987; Schipull, Reeves and Kazelskis 1995 and Boz 2008). This discrepancy may reflect the impact of teaching context – here of inclusive Hong Kong primary music teachers, data from whom indicates that academic concerns with learning support difficulties and needs take precedence over concerns with social acceptance of SEN students and their behavioural problems.

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