ISSN: 2710-0723

Investigation and Analysis of the Current Situation of Wind Band Teaching in Tianjin Primary and Secondary Schools

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Abstract

Wind band teaching is an important vehicle for aesthetic education in primary and secondary schools, and accurately grasping the current situation of teaching is a prerequisite for improving teaching quality. Based on a sample of 506 wind band students from five primary and secondary schools in Tianjin, this study employed questionnaire surveys and chi-square tests to examine the current situation of wind band teaching from four dimensions: instrument selection, practice engagement, practice difficulties and participation needs. The results show that: First, instrument selection varied significantly across grades and schools; woodwind instruments dominated in primary schools (66.67%), while the proportion of brass instruments rose to 67.68% in senior high school (χ^2=144.359, P<0.001). Second, practice engagement was characterized by "sufficient time but insufficient regularity"; 38.74% of students practiced 3-4 hours per week, only 19.17% practiced every day, and the utilization rate of music classrooms was merely 2.37%. Third, pitch control (69.57%) and rhythm mastery (65.02%) were the most prominent practice difficulties, with no significant differences across grades (P>0.05), indicating their universality. Fourth, students showed positive participation willingness but were constrained by time (41.50% were willing but time-limited), with strong demands for individual guidance and ensemble interaction. Accordingly, this study proposes strengthening basic training, optimizing instrument selection guidance, improving practice regularity and enhancing teaching support, providing empirical evidence for the systematic improvement of wind band teaching in Tianjin primary and secondary schools.

Keywords

Wind Band; Current Situation of Teaching; Instrument Selection; Practice Engagement; Pitch and Rhythm; Empirical Study.

1. Introduction

Wind bands, with ensemble performance as their main teaching form, play a unique role in cultivating students' musical literacy, cooperative awareness and discipline (Qu Xin, 2019; Hu et al., 2019). In ensemble playing, accurate pitch and unified rhythm are prerequisites for the integration of sections and basic indicators of the quality of band teaching. In recent years, school wind bands have developed rapidly across China; however, the actual state of their teaching and the structural problems it faces remain insufficiently examined through systematic empirical research.

Existing studies on school wind bands in China have largely focused on macroscopic issues such as band formation, teacher allocation and curriculum provision (Zhang Cheng, 2020; Cui Hua, 2019), while empirical evidence on students' real difficulties and participation needs during practice remains scarce (Chen Luhui, 2022). As the subjects of teaching, students' instrument selection, practice engagement and difficulty distribution constitute the most direct basis for instructional improvement. Against this background, this study surveyed wind band students

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from five primary and secondary schools in Tianjin and addressed four research questions: (1) What grade- and school-related differences exist in students' instrument selection? (2) What characteristics do students' practice engagement (time, frequency and environment) present? (3) What is the overall distribution of practice difficulties, and where do pitch and rhythm stand? (4) What are students' participation willingness and needs for teaching support (National Coalition for Core Arts Standards, 2014)?

2. Methods

2.1. Sample and Procedure

Using stratified sampling, five representative primary and secondary schools in Tianjin were selected, namely Experimental Primary School of District A, Central Primary School of District A, Minzu Middle School of District B, Experimental Middle School of District C and X Road Primary School of District D, covering three grade bands: grades 3-6 (primary), grades 7-9 (junior secondary) and grades 10-12 (senior secondary), with 506 enrolled wind band students in total. The questionnaire was distributed online via the WJX platform; 506 valid questionnaires were returned, representing a 100% valid response rate.

2.2. Instrument

Based on the research purposes, a self-designed student questionnaire was developed, covering students' basic information, instrument type, weekly practice time, practice frequency, practice environment, willingness to participate in extracurricular music activities, practice difficulties (multiple choice), needs for ability improvement and needs for rehearsal support. The practice difficulty items included pitch control, rhythm mastery, performance technique, musicality, ensemble coordination, and instrument care and repair.

2.3. Data Analysis

Frequency statistics and percentages were used to describe the distribution of each dimension. Chi-square tests were employed to examine the associations between instrument type and grade or school, grade differences in pitch and rhythm difficulties, and the relationship between practice environment and instrument type, with a significance level of $\alpha=0.05$.

3. Results and Analysis

3.1. Instrument Selection and Section Configuration

The results showed that woodwind instruments were the most common (44.47%), followed by brass (37.94%) and percussion instruments (17.59%). Figure 1 presents the instrument selection structure across grades. The chi-square test revealed a highly significant association between instrument type and grade ($\chi^2=144.359$, $P<0.001$): the proportion of woodwind instruments reached 66.67% in primary school and declined markedly with grade, dropping to 14.14% in senior secondary school, whereas the proportion of brass instruments rose to 67.68% at the senior secondary level. A significant association was also found between instrument type and school ($\chi^2=54.467$, $P<0.001$): primary schools mainly taught woodwind instruments, while the proportions of brass and percussion instruments increased notably in secondary schools. These findings indicate that instrument selection is strongly influenced by grade and school resources, and that section configuration is directly linked to the structure of the band (Zhang Cheng, 2020; Abril & Gault, 2006).

ISSN: 2710-0723

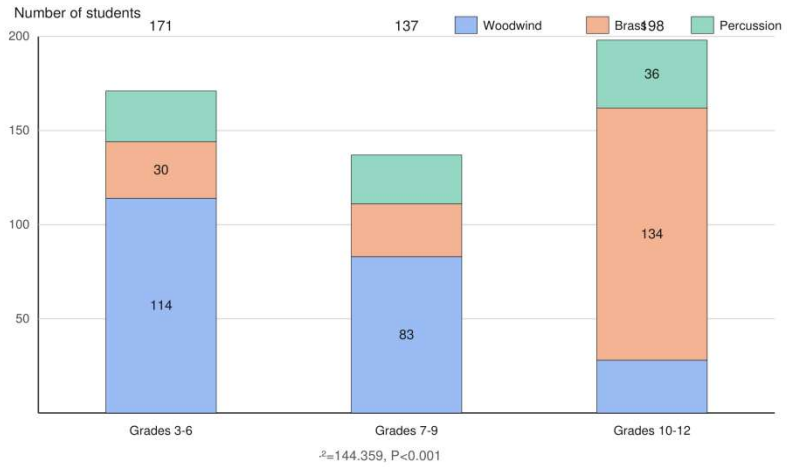


Figure 1. Instrument type selection across grades (n=506)

3.2. Practice Engagement

In terms of practice time, 38.74% of students practiced 3-4 hours per week, 29.25% practiced 1-2 hours, 24.31% practiced more than 5 hours, and only 7.71% practiced less than 1 hour (Figure 2). In terms of practice frequency, "several times a week" was the most common pattern (36.56%), while only 19.17% of students practiced every day and 24.70% practiced irregularly (Figure 3). Regarding the practice environment, home (51.78%) and school (45.85%) were the main venues, with the utilization rate of music classrooms being only 2.37%. The chi-square test showed a significant association between practice environment and instrument type (χ^2=20.816, P<0.001), indicating that brass and percussion instruments demand more professional practice venues (Fang Xiaolin, 2019; Abril & Gault, 2006). Overall, students' weekly practice time was adequate, but practice regularity was insufficient: fewer than one in five students practiced daily, and nearly one quarter practiced irregularly, lacking sustained practice support for consolidating basic skills (Austin, 1990).

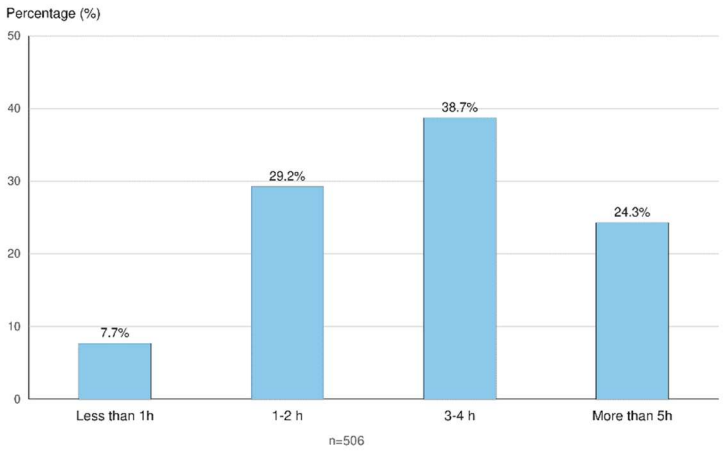


Figure 2. Weekly practice time distribution (n=506)

ISSN: 2710-0723

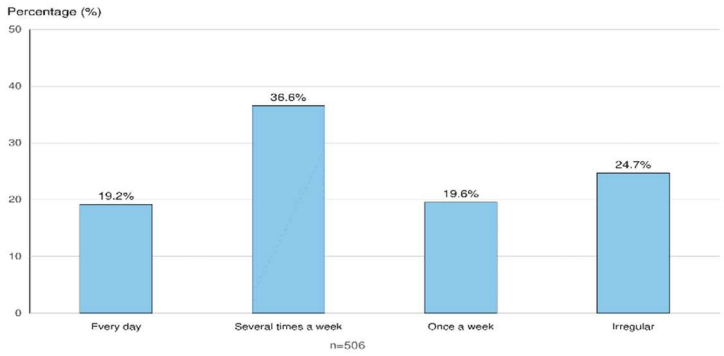


Figure 3. Practice frequency distribution (n=506)

3.3. Overall Distribution of Practice Difficulties

Figure 4 presents the main difficulties students encountered in instrument practice. Pitch control (69.57%) and rhythm mastery (65.02%) ranked first and second, both exceeding 60%, followed by performance technique (60.08%), ensemble coordination (45.26%), musicality (43.08%) and instrument care and repair (35.77%). As two basic skills of wind performance, pitch and rhythm showed notably higher difficulty rates than other dimensions, indicating that basic training is the most prominent weakness in current school wind band teaching (Qu Xin, 2019; Hu et al., 2019).

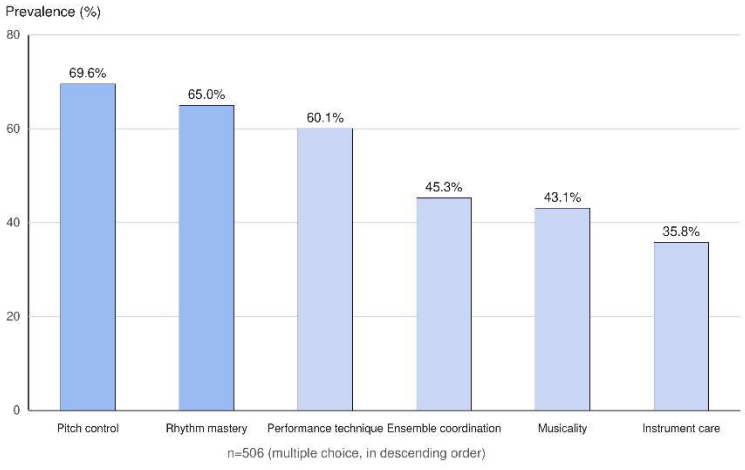


Figure 4. Prevalence of practice difficulties (n=506)

3.4. Grade Differences in Pitch and Rhythm Difficulties

The grade distribution of pitch and rhythm difficulties is shown in Figure 5 and Table 1. The prevalence of rhythm mastery difficulties in primary, junior secondary and senior secondary schools was 67.84%, 60.58% and 65.66%, respectively, and that of pitch control difficulties was 66.67%, 71.53% and 70.71%, respectively; the differences across grade bands did not reach significance (rhythm: χ^2=1.817, P=0.403; pitch: χ^2=1.051, P=0.591). This indicates that pitch and rhythm difficulties are not temporary problems unique to the initial learning stage, but persistent phenomena throughout all grade bands that require continuous attention across the entire cultivation process (Zhang Cheng, 2020).

ISSN: 2710-0723

Table 1. Grade distribution of pitch and rhythm difficulties

Grade (n)	Rhythm mastery n (%)	Pitch control n (%)
Grades 3-6 (171)	116 (67.84)	114 (66.67)
Grades 7-9 (137)	83 (60.58)	98 (71.53)
Grades 10-12 (198)	130 (65.66)	140 (70.71)

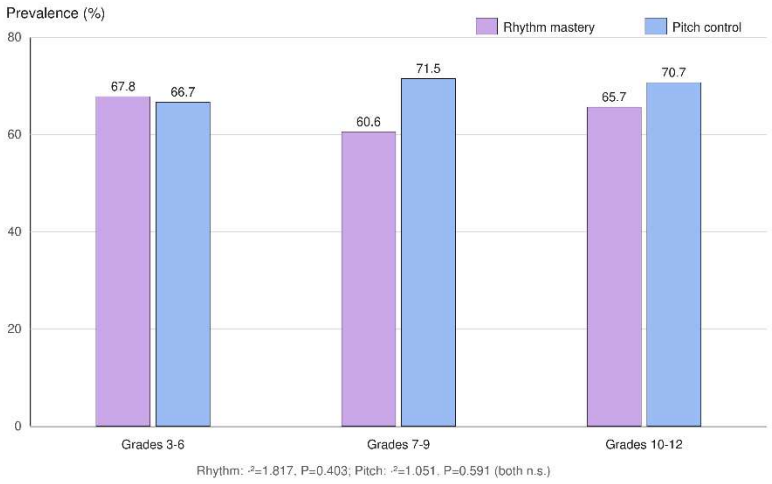


Figure 5. Grade differences in pitch and rhythm difficulties

Note: Rhythm mastery χ^2=1.817, P=0.403; pitch control χ^2=1.051, P=0.591; neither reached significance.

3.5. Participation Willingness and Support Needs

Regarding willingness to participate in extracurricular music activities, 27.47% of students were “very willing”, 41.50% were “willing but time-limited”, 16.40% were not interested, and 14.62% were not allowed by time; the differences in participation willingness across grades and instrument types were not significant (P>0.05), indicating that time constraints are the main factor limiting participation (Austin, 1990). Regarding needs for ability improvement, students most wanted to improve performance technique (76.09%), ensemble ability (64.63%) and rhythmic sense (61.46%), followed by music theory knowledge (53.36%) and musical expressiveness (38.14%). Regarding needs for rehearsal support, individual technique guidance (59.49%), ensemble technique training (56.32%), music theory basics (55.93%), scores and playing materials (54.35%) and instrument care and repair (46.84%) all approached or exceeded half. Students both desired refinement of individual playing technique and expected more ensemble collaboration opportunities, suggesting room for improvement in both basic training and ensemble guidance in current teaching (Cui Hua, 2019; Cui Rongrong, 2012).

4. Discussion

This survey outlines the current situation of wind band teaching in Tianjin primary and secondary schools from four aspects: instrument selection, practice engagement, practice difficulties and participation needs. Overall, band teaching has achieved a certain student scale and grade coverage, yet presents a transitional feature of “organized but not yet systematic”: imbalanced instrument configuration, insufficient practice regularity and prominent basic-skill

ISSN: 2710-0723

difficulties reflect the systemic problems in the transition from "forming a band" to "improving quality".

The findings on instrument selection reveal a structural contradiction in the articulation between grade bands. The dominance of woodwind instruments in primary school is consistent with their moderate range and ease of entry; the sharp increase in brass instruments in senior secondary school reflects students' growing pursuit of tonal expressiveness with age, and is also influenced by practical factors such as section supplementation and repertoire requirements. Such a structure makes section configuration difficult to balance, impairs the articulation of the band between grade bands, and affects the overall ensemble effect (Zhang Cheng, 2020). Meanwhile, the significant differences between schools indicate that instrument configuration is directly related to school resources, and the imbalance in resource allocation requires coordinated attention.

The data on practice engagement reveal the cause of basic-skill difficulties. Although most students practiced 3-4 hours per week, fewer than one in five practiced daily, and nearly one quarter practiced irregularly, indicating markedly insufficient continuity. The formation of basic skills depends on practice frequency rather than the length of a single session; interruptions in practice directly lead to the decline of auditory sensitivity and muscle memory. The cross-grade universality of pitch and rhythm difficulties ($P>0.05$) further suggests that these are not stage-specific problems that can be solved in a short period in any single grade, but basic abilities that need to be established through long-cycle, high-frequency practice (Qu Xin, 2019; Hu et al., 2019). In addition, the utilization rate of music classrooms was only 2.37%, and brass and percussion instruments demanded more professional venues ($\chi^2=20.816$, $P<0.001$); the mismatch between venue supply and use also constrained the quality of students' in-school practice to some extent (Fang Xiaolin, 2019; Abril & Gault, 2006).

Accordingly, school wind band teaching should be improved in the following aspects. First, strengthen basic training: incorporate ear training (listen-sing-play) and rhythm training (metronome-assisted practice and decomposition of complex rhythms) into daily training to directly target pitch and rhythm weaknesses (Qu Xin, 2019; Hu et al., 2019). Second, optimize instrument selection guidance: emphasize the basic popularization of woodwind instruments in lower grades, and gradually guide senior students to choose instruments according to section needs, coordinating instrument resources across schools and maintaining a relative balance in the size of each section (Zhang Cheng, 2020). Third, improve practice regularity: guide students to formulate practice plans and encourage daily practice to reduce the proportion of irregular practice (Austin, 1990). Fourth, increase individual guidance and sectional training to correct individual pitch deviations promptly and prevent problems from being masked in ensemble (Cui Rongrong, 2012). Fifth, improve teaching support: integrate music theory instruction, provide graded repertoire materials, increase the opening hours of music classrooms, and incorporate basic skills into the periodic evaluation of band teaching with reference to the national arts curriculum standards (National Coalition for Core Arts Standards, 2014).

5. Conclusion and Outlook

Based on a survey of 506 wind band students from five primary and secondary schools in Tianjin, this study draws the following conclusions. First, regarding instrument selection, woodwind instruments dominated (44.47%), but instrument type was highly significantly associated with both grade and school: woodwind instruments dominated in lower grades while brass instruments surged in higher grades, and configuration differences across schools were evident, with the imbalance of section configuration constraining the balanced development of the band. Second, regarding practice engagement, students' weekly practice time was dominated by 3-4 hours with generally adequate input, but fewer than one in five

ISSN: 2710-0723

practiced daily and nearly one quarter practiced irregularly; practice regularity was insufficient, and the utilization rate of music classrooms was low (2.37%), indicating a mismatch between venue supply and use. Third, regarding practice difficulties, pitch control (69.57%) and rhythm mastery (65.02%) were the most prominent difficulties with no significant grade differences, indicating their universality; students' needs for ability improvement centered on performance technique, ensemble ability and rhythmic sense, with strong expectations for individual guidance and ensemble interaction. These findings indicate that wind band teaching in Tianjin primary and secondary schools is at a critical stage of transition from scale construction to quality improvement, with basic training, practice management and teaching support being the most urgent weaknesses to be addressed.

In response to the above problems, this study recommends: strengthen basic training with pitch and rhythm as the core, and establish a specialized training mechanism for ear training, rhythm and fundamental skills; optimize instrument selection guidance and articulation between grade bands to maintain balanced section configuration; improve practice regularity through practice plan management and flexible time arrangements; and strengthen individual guidance and ensemble interaction while improving teaching support in music theory, repertoire and venues. The implementation of these measures requires the coordinated efforts of schools, teachers and parents, and also expects resource coordination and standard guidance at the policy level.

This study adopted a cross-sectional design, with data from students' self-reports and a sample limited to five schools in Tianjin; the generalization of the conclusions requires caution. Future research may adopt longitudinal tracking to examine the relationship between practice engagement and basic skills, test the effects of specialized training through intervention experiments, and incorporate teacher and parent perspectives to form a more complete evidence chain.

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