

Towards Improving Physical Education Teaching Skills at the Teacher Training Stage

Koichi Inoue¹, Karin Takeshita²

¹Division of Art, Music and Physical Education, Osaka Kyoiku University, Osaka, Japan

²Toyonaka City Dai-San Junior High School, Osaka, Japan

Email: kinoue@cc.osaka-kyoiku.ac.jp

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Abstract

This study examined the teacher behavior of trainee teachers in physical education classes to investigate the development of practical instruction skills at the teacher training stage. The results showed that trainee teachers largely provided corrective feedback, about 70% of which was specific. However, about 90% of their positive feedback was general. Furthermore, a comparison of the teacher behavior of junior high school and high school trainees revealed significant differences regarding monitoring, questioning, accepting, and the provision of corrective and specific feedback. Moreover, a comparison of trainees and teachers highlighted significant differences in direct instruction and interaction. Future tasks for physical education teacher training include deepening presentation and conveying an understanding as well as the informational content of teaching materials.

Keywords

Physical Education Class, Teacher Behavior, Teaching Practice, Undergraduate Education, Feedback

1. Research Background

1.1. Problems at the Teacher Training Stage

A report of the Central Council for Education indicated that with the advent of the knowledge-based society and against the backdrop of an unprecedented rate of change in the social structure due to factors such as globalization, a low birth rate combined with an aging population, and computerization, children need to have a “zest for life” to identify, study, think, judge, and act on issues independently in an unpredictable society (Central Council for Education, 2006). Sup-

porting balanced intellectual, moral, and physical child development in schools requires teachers with excellent instructional skills and qualities.

Many companies provide new employees with on-the-job training, which entails real work at the job site to improve employees' skills during a fixed training period. Similarly, this study attempted to improve schoolteachers' teaching abilities by enriching in-school training through the implementation of off-campus and in-school training tailored to different levels of experience, job functions, and specialized subjects.

Since schoolteachers start teaching in their first year of appointment, they must teach "good" classes from the outset. Even those who have only recently completed a university teacher training course are expected to teach well and produce learning outcomes comparable to those of in-service teachers. In other words, being newly appointed does not excuse poor practical instructional skills; teachers at all stages must behave as professional educators. This necessitates training teachers at the university level to ensure that they begin to develop their teaching skills while they are still students and thus possess the minimum competencies necessary to assume a teaching role.

The Central Council for Education's "Improvement of Teacher Competencies for Future School Education" identifies the training stage as the forum for "the minimum basic and fundamental learning to become a teacher" (Central Council for Education, 2015). This is not limited to teaching children knowledge and skills but also includes developing the instructional skills necessary to impart the "ability to think, judge, and express, and the attitude to engage in independent learning", which are requirements for problem-solving. Trainees must also acquire the instructional skills necessary to facilitate various types of learning; for example, they must apply independent and collaborative (active) learning perspectives to the design of teaching and learning environments to ensure that students learn to identify and solve problems and must also incorporate information and communication technology (ICT) into their teaching.

However, even when trainees familiarize themselves with a class structure that stimulates active learning, they see their target students only during teaching practice (Ministry of Education, Culture, Sports, Science and Technology of Japan, 2015). Furthermore, depending on the specifics of the school offering the training, in-class practice may be insufficient, and trainees may be limited to following an instruction plan. Few aspiring teachers get sufficient practical experience during their training. Consequently, trainees urgently need to develop practical instructional skills at the teacher training stage.

1.2. Problems in Physical Education

Developing practical instructional skills in each subject is important. Although most mock classes for university students teach lesson design and provide opportunities to practice using classroom techniques, many such techniques related to physical and health education (hereafter "physical education" refers to classes in-

volving practical skills) must be learned in real classes. Examples include movement, responding to individual needs, and striving to ensure safety. Physical education teachers do these things with active students, so their behavior as teachers becomes very important.

1.3. Teacher Behavior in Physical Education

Physical education classes entail a series of processes: class design, practice, and assessment. Teacher behavior during class practice plays a significant role in achieving “good” physical education classes that improve learning outcomes. According to Iwata, “Classes with sufficiently improved outcomes do not develop naturally by setting attractive and challenging content for children and ensuring sufficient time for exercise learning. The teacher’s “teaching conduct (the work that a teacher does during class)” is important for children to clearly recognize and rationally understand the learning content” (Iwata, 1994). Furthermore, Kobayashi referenced Takada and established a formative classroom evaluation method based on children’s attitude structure towards physical education classes (Kobayashi, 1978). Subsequent classroom analyses revealed that factors such as the organization of teaching material, learning groups, years of teaching experience, facilities, and tools affect student attitudes and scores. However, Umeno et al. noted that teaching behavior also significantly impacted students (Umeno, Fujita, & Tsujino, 1986). As previously mentioned, when aiming for “good” physical education classes, effective teacher behavior is necessary to ensure that children take an intrinsic interest in the materials.

1.4. Research Objective

From the perspective of teaching skills at the teacher training stage, this study used the teacher behavior observation method to classify and record the behavior of trainee teachers in physical education classes for comparison with those of in-service teachers to identify measures to improve teaching skills at the teacher training stage, particularly the abilities and competencies central to teachers’ work.

1.5. Previous Research on Teacher Behavior

In the 1970s, classroom analysis based on the process-product research model was commonly conducted, mainly in the United States, to analyze the relationship between the behavioral facts of the classroom process and learning outcomes and explore the conditions for effective teaching. In Japan, Takahashi et al. developed the teacher behavior observation method to analyze teacher behavior in several categories (Takahashi, 1992; Takahashi, Okabe, Tomozoe, & Yoshimoto, 2010). Based on the ALT-PE-TB and ORRPETB methods, this approach objectively clarified the structure of teacher behavior during physical education classes.

The extant research divides teacher behavior during physical education classes into four categories, namely management, instruction, monitoring, and interaction. Collectively, these are the four major teacher behaviors, each of which plays

a critical role. According to Siedentop, teacher interaction especially determines the atmosphere of a physical education class and significantly affects class outcomes (Siedentop, 1975). Furthermore, Takahashi perused previous research findings on physical education classes and extracted the following characteristics of effective classroom teacher behavior: Teachers show few management behaviors; allocate less time to direct instruction in the form of explanations, demonstrations, and the provision of instructions; engage in active observational behavior that leads to interaction; encourage more interactions through questions and answers, feedback, encouragement, and assistance; and provide more feedback to support individual students' motor learning (Takahashi, 2000). However, Takashi et al.'s analysis of teacher and learner behavior during trainee classes revealed that considerable time was dedicated to general content, such as waiting, movement, management, and other instruction unrelated to learning tasks, whereas insufficient time was allotted to physical engagement (Takahashi, Okazawa, & Otomo, 1986). Moreover, Ito et al. analyzed trainee teachers' verbal behavior and found that their statements were mostly instructional, with corrective feedback accounting for the majority (Ito & Tomozoe, 1991). Additionally, Hino found low interaction frequency among trainee teachers regarding questioning, feedback, and encouragement and observed that trainees most provided corrective and specific feedback, whereas negative feedback was less common (Hino, 2000).

These studies clarified the reality of trainee teacher behavior 20 - 30 years ago. However, the contemporary circumstances differ markedly given the implementation of active learning and the mandate on ICT use. Therefore, this study observed and analyzed the behavior of trainee teachers to identify the problems modern prospective teachers encounter and provide specific guidance.

2. Research Methods

2.1. Research Subjects

This study analyzed 13 50-minute physical education classes (one physical fitness, four gymnastics, and eight ball games) given by seven of the 64 fourth-year trainees from one university conducted at middle and high schools as part of their educational training between from October 18 to November 17, 2022.

2.2. Methods of Observing and Recording Teacher Behavior

We recorded the trainees' classroom behavior using a single video camera. and categorized the amount of time they allocated to management, interaction, direct instruction, monitoring, and other behaviors, with reference to Yajima et al. We included the subitems of questioning, accepting, and providing positive, corrective, and negative feedback as well as encouragement in the "interaction" category. We further categorized positive, corrective, and negative feedback as "general" or "specific" according to whether the feedback showed or lacked specificity, respectively. We set 5 seconds as one unit of time and described the trainees' verbal and nonverbal behaviors within each unit according to the category definitions and

specific examples. When two or more events occurred in one unit, we prioritized recording the event that the two skilled teachers expected to be an effective action for the classroom outcome.

3. Results

3.1. Trainee Teacher Behavior in Physical Education Classes

Table 1 shows percentages representing the proportional occurrence of each of the four major teacher behaviors among the trainees during 13 physical education classes. They divided 92.07% of their class time among management, direct instruction, monitoring and interaction in proportions of 26.70%, 21.78%, 29.33%, and 14.26%, respectively. Siedentop reported ranges of 17% - 35%, 14% - 37%, 20% - 45%, and 3% - 16% for the same four behaviors, respectively, and the behavior of the trainees who participated in this study was within those ranges (Siedentop, 1975).

The percentages for the subitems of interaction behavior are shown in **Table 2**. Furthermore, regarding the categorization of the positive and corrective feedback the trainees gave their students as either general or specific, the results showed that 90.8% of the positive feedback was general, whereas only 9.2% was specific; conversely, 72.6% of the corrective feedback was specific, and only 27.8% was general.

Table 1. Trainee teachers' percentage demonstration of the four major teaching behaviors.

	Management	Interaction	Direct Instruction	Monitoring	Other
%	26.7	14.3	21.8	29.3	8.1
(S.D.)	(5.9)	(4.2)	(5.5)	(6.7)	(4.0)

n = 13 (Number of Classes), T = 7 (Number of Teachers).

Table 2. Trainee teachers' percentage demonstration of interaction behavior subitems.

	Questioning	Accepting	Positive FB	Corrective FB	Negative FB	Encouragement
%	10.2	6.6	26.0	47.5	0	9.7
(S.D.)	(8.1)	(5.3)	(12.2)	(22.4)	(0)	(8.5)

3.2. Comparison of Trainees Teaching Junior High and High School Classes

A comparison of the percentage of time the trainees allotted to the four major teacher behaviors during physical education classes taught at junior high versus high schools (9 vs. 4 classes) showed 28.2% and 23.3% for management, 14.7% and 13.3% for interaction, 22.3% and 20.5% for direct instruction, and 25.7% and 37.5% for monitoring, respectively (**Table 3**). A comparison of the subitems of interaction revealed larger time allotments to asking and accepting during junior high than high school classes, whereas the provision of generalized corrective feedback predominated during the high school classes (**Table 4**).

Table 3. Comparison of trainee teacher behavior during junior high versus high school classes.

	Management	Interaction	Direct Instruction	Monitoring
Junior High School	28.2	14.7	22.3	25.7
% (S.D.)	(6.1)	(4.9)	(6.0)	(4.6)
High School	23.3	13.3	20.5	37.5
% (S.D.)	(3.9)	(1.6)	(3.7)	(1.1)

Table 4. Comparison percentage of interaction sub-items for junior high school trainees and high school trainees.

	Questioning	Accepting	Positive General	Positive Specific	Corrective general	Corrective Specific	Encouragement
Junior High School	14.2*	9.3*	27.1	2.9	12.7	23.5	10.2
% (S.D.)	(7.4)	(4.5)	(14.5)	(2.5)	(8.7)	(13.3)	(9.4)
High School	1.3	0.3(0.5)	17.0	0	14.6	58.2*	8.5
% (S.D.)	(0.17)		(4.9)	(0)	(5.6)	(7.9)	(5.9)

* $p < 0.05$.

3.3. Comparison of Trainees and Teachers

Okazawa et al. reported the following percentages corresponding to the average amount of time teachers spent on management, interaction, direct instruction, and interaction, respectively: 29.67%, 21.62%, 15.42%, and 28.61% (Okazawa, Kitani, & Nakai, 1995). Table 5 compares those scholars' results with the results of the present study.

No significant between-study differences were observed regarding management as evidenced by the proximity of the two sets of results, that is, 26.7% in this study and 29.1% in Okazawa et al. (Okazawa, Kitani, & Nakai, 1995). However, these results differ from Takahashi et al., who reported that trainees allotted more class time to general content (management situations) (Takahashi, Okazawa, & Nakai, 1989). Furthermore, the trainee teachers in the present study spent 14.3% of class time on interaction, which differed significantly from the 21.6% Okazawa et al. reported (Okazawa, Kitani, & Nakai, 1995). The average time the trainees in this study spent on direct instruction (21.8%) also differed significantly from their counterparts in Okazawa et al. (15.4%) (Okazawa, Kitani, & Nakai, 1995), revealing that the trainee teachers who participated in the present study spent an excessive amount of time explaining and demonstrating. Lastly, no significant difference between this study and Okazawa et al. was observed regarding monitoring since the respective figures were close at 29.3% and 28.6% (Okazawa, Kitani, & Nakai, 1995).

Table 5. Comparison of four major teacher behaviors for trainees and teachers.

	Management	Interaction	Direct Instruction	Monitoring
Trainees	26.7	14.3	21.8*	29.3
% (S.D.)	(5.9)	(4.2)	(5.5)	(6.7)
Current Teachers	29.1	21.6*	15.4	28.6
% (S.D.)	(10.5)	(9.5)	(8.2)	(11.5)

* $p < 0.05$.

4. Discussion

4.1. Management of Trainee Teachers' Teacher Behavior

No significant differences were observed in the management behavior of trainee versus in-service teachers. This finding contradicts Okazawa et al.'s observation that trainees allotted considerable time to management activities, prompting those scholars to recommend reducing management behavior to increase students' learning time, especially for engagement in physical activity (Okazawa, Kitani, & Nakai, 1995). However, the present study identified no need to reduce the time spent on management behaviors to secure time for physical activity; instead, trainees undertook these actions to ensure student learning outcomes. This finding suggests that the trainee teachers adequately conceptualized and executed equipment preparation and set up for classes in advance.

4.2. Interaction of Trainee Teachers' Teacher Behavior

Regarding the trainees' engagement in classroom interactions, their provision of corrective feedback accounted for about half the time allotted to interaction, and 70% of the feedback contained specific information. These findings suggest that trainees' interactions primarily comprise providing students with advice towards the improvement of their motor skills and techniques, which indicates that a considerable proportion of the interactions are aimed at achieving student learning outcomes.

In contrast to previous findings indicating that teachers' positive and negative interactions tend to respectively increase and decrease students' class evaluations (Takahashi, Okazawa, & Nakai, 1989), this study found that trainee teachers provided less positive than corrective feedback and that approximately 90% of the positive feedback was general, that is, lacking specificity. Furthermore, the trainees' interaction frequency was significantly lower than that of in-service teachers. These findings indicate that trainee teachers should increase the frequency and specificity of positive feedback such as praise.

This study recorded no negative interactions (involving negative feedback), which tend to lower students' class evaluations. This could be interpreted as the teachers' positive view of student behavior, but it may indicate that they did not pay attention to off-task behaviors during class. Teachers must be alert to dangerous behavior that breaks learning commitments and threatens student safety during motor learning. Although there were no incidents involving very dangerous off-task behaviors during the classes observed in this study, only the supervising teachers, not the trainee teachers, quickly noticed the few off-task behaviors that did occur and provided remedial instructions. Hence, the absence of negative feedback is not necessarily a positive outcome; in fact, this study identified problems that need to be addressed to ensure that learning commitments are maintained throughout class and teachers can identify cases of deviations and instruct accordingly.

4.3. Direct Instruction of Trainee Teachers' Teacher Behavior

The trainee teachers allotted more time to direct instruction than the in-service teachers, indicating that the former spent more class time explaining and performing similar tasks. Direct instruction is indispensable in physical education classes because it is necessary to orient and motivate learning and ensure learning outcomes. However, guaranteeing adequate time for physical activity is crucial, and this must be balanced with efficiently and appropriately conveying necessary information to learners.

The trainee teachers were sometimes observed taking longer than necessary to explain carefully prepared information, especially when presenting tasks. Some trainees also spent too much time explaining complex content tasks to ensure that students understood. This was identified as a reason for the excessive time allotted to direct instruction.

4.4. Monitoring of Trainee Teachers' Teacher Behavior

This study identified differences in the monitoring behavior of the trainees who taught at junior high versus high schools, but no significant differences in monitoring were observed between the trainees and the in-service teachers, indicating that the trainees showed relatively active monitoring behavior.

On the other hand, as previously mentioned, the trainees spent a low proportion of time on interaction, which suggests that although they actively monitored the classes, they were unable to stimulate interaction. To ensure that monitoring leads to interaction, teachers must understand the issues related to classes and student learning. The trainees appear to have lacked such an understanding, and their unclarity in this regard almost rendered them bystanders despite their active monitoring.

4.5. Towards Problem-Solving

The trainees' teacher behavior indicated that they faced issues regarding direct instruction and interaction. However, their behavior did not differ significantly from that of the in-service teachers in terms of management and monitoring, which can be attributed to the quality of university-level teacher training. The trainee teachers likely applied what they learned in their university lectures on class planning and creating space during their teaching practice.

On the other hand, the trainees struggled regarding direct instruction; they spent considerable time providing students with what should have been succinct explanations and failed to teach according to the plans developed at the teaching preparation stage. Consequently, content that should have been conveyed was not necessitating additional time for direct instruction. This suggests that trainee teachers should learn more about how to explain clearly and concisely. They should also focus on learning how to present visual information, especially using ICT, during the time allotted to direct instruction, such as when introducing tasks. After internalizing university lecture content, aspiring teachers must develop the

externalization capacity to communicate what they have learned to others, with an emphasis on gaze, voice, rhythm, tempo, and gestures. Future teachers must also master ICT to create classes that effectively visualize information.

Physical education teacher trainees should also deepen their understanding of exercise and sports, which comprise the teaching materials. Doing so is necessary because student comprehension must be deepened to facilitate effective interactions. Teachers can increase effective interaction behavior by accurately determining the kind of language to use depending on students' real-time situations. This skill entails understanding the essence of teaching and being attuned to students' needs as well as to what is expected from students.

5. Conclusion

This study aimed to clarify the status of teacher behavior to ascertain trainee teachers' ability to conduct "good" physical education classes and derive measures to improve teaching skills acquisition in undergraduate teacher education.

The results revealed that although the trainees' four major teacher behaviors were within the ranges represented in previous research, most of the feedback the trainees provided was corrective, about 90% of the positive feedback they gave students was nonspecific, and about 70% of the corrective feedback they provided was specific. Furthermore, a comparison of trainee teacher behavior during junior high and high school classes showed significant differences in monitoring, questioning, accepting, and providing corrective and specific feedback, whereas a comparison of trainee and in-service teacher behavior revealed significant differences in direct instruction and interaction.

Areas of focus to improve the acquisition of practical teaching skills at the teacher training stage include building learning while remaining cognizant of students' needs, developing a deep understanding of the materials and pupils, having a clear vision of learning, possessing effective communication skills, and conveying information visually. To achieve this, there needs to be more back and forth between theory and practice. It is important to give students enough time to understand students and teaching materials, and to have the opportunity to put that into practice in order to turn them into good teachers. In particular, teaching practice is currently conducted for about 15 consecutive days, but measures such as providing an institution where students can return from the teaching field to prepare at the university during that time are needed.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Central Council for Education (2006). *Improvement of Teacher Competencies for Future School Education*.
- Central Council for Education (2015). *Improvement of Teacher Competencies for Future*

School Education: Towards Building a Mutually Learning and Enhancing Teacher Training Community.

- Hino, K. (2000). A Case Study on Teaching Techniques for Trainee Teachers—Focusing Particularly on the ‘Class Setting’ and ‘Teacher Interactions’. *Bulletin of the Faculty of Education, Ehime University*, 3, 31-38.
- Ito, M., & Tomozoe, H. (1991). A Study on Teacher Trainee Behavior in Physical Education Lessons—Focusing on the Teachers’ Verbal Behavior. In T. Takahashi (Ed.), *Principal Researcher, Basic Research for Improving Physical Education Classes (1989-1990)* (pp. 144-154). Ministry of Education, Science and Culture KAKENHI Research Report.
- Iwata, Y. (1994). The Importance and Methods of Developing Teaching Materials. In T. Takahashi (Ed.), *Creating Physical Education Classes* (pp. 25-34). Taishukan Publishing.
- Kobayashi, A. (1978). *Class Research on Physical Education*. Taishukan Publishing.
- Ministry of Education, Culture, Sports, Science and Technology of Japan (2015). *Improvement of Teachers’ Qualification and Competence for Future School Education*. https://www.mext.go.jp/b_menu/shingi/chukyo/chukyo0/toushin/1365665.htm
- Okazawa, Y., Kitani, H., & Nakai, T. (1995). A Study on Teacher Behavior in Junior High School Physical Education Classes—The Relationship Between Teacher Behavior Structure and Teaching Material. *Bulletin of Nara University of Education, Humanities and Social Sciences*, 44, 57-68.
- Siedentop, D. (1975). Developing Teaching Skills in Physical Education. In T. Takahashi (Ed.), *Physical Education Teaching Techniques*. Taishukan Publishing.
- Takahashi, T. (1992). Discussing Methods of Physical Education Class Research. *Japanese Journal of Sport Education Studies*, 11, 19-31.
- Takahashi, T. (2000). Characteristics of Physical Education Classroom Process Assessed by Children—Focusing on the Relationship Between Learning and Teaching Behaviors of the Classroom Process and Children’s Classroom Assessment. *Japan Journal of Physical Education, Health and Sport Sciences*, 45, 147-162.
- Takahashi, T., Okade, Y., Tomozoe, Y., & Yoshimoto, M. (2010). *Conditions for Good Physical Education Classes: New Edition, Introduction to Physical Education Pedagogy* (pp. 48-53). Taishukan Publishing.
- Takahashi, T., Okazawa, Y., & Nakai, T. (1989). The Effect of Teachers’ “Interaction” Behaviors on Children’s Learning Behaviors and Classroom Outcomes. *Japan Journal of Physical Education, Health and Sport Sciences*, 34, 191-200. <https://doi.org/10.5432/jjpehss.KI00003391711>
- Takahashi, T., Okazawa, Y., & Otomo, S. (1986) The Effectiveness of Observation System of Academic Learning Time in Physical Education. *Japan Journal of Physical Education, Health and Sport Sciences*, 34, 31-43. <https://doi.org/10.5432/jjpehss.KI00003405592>
- Umeno, K., Fujita, S., & Tsujino, A. (1986). Physical Education Class Analysis—Effects of Differences in Instruction on Children’s Attitudes. *Japanese Journal of Sport Education Studies*, 6, 1-13.