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LOWER PRIMARY TEACHER TRAINEE’S ATTITUDES TOWARDS PHYSICAL EDUCATION AND THE CHARACTERISTICS OF INTERACTION IN CLASS

Theses of doctoral (PhD) dissertation

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INTRODUCTION

Lower primary school teacher trainees obtain the necessary qualification to teach all the subjects in the first four years of primary school, with the exception of foreign languages. During their training period they spend an increased amount of time studying a specific field of education, which entitles them to teach subjects in that chosen field also in years 5 and 6. This means that in years 1-4 Physical Education (PE) can be taught by all the lower primary teachers and in years 5-6 by those who have a specific qualification in the field of Physical Education.

The introduction of every day PE classes has resulted in an increase in teaching hours, which requires adequately qualified teachers. Since it is teachers who are the key to the successful implementation of such measures, their pre-service training ought to be given priority. However, it is often made difficult due to students’ insufficient motility and negative attitude towards the subject. If we want teachers to meet all expectations, we are to change their attitude towards Physical Education by conveying practical, theoretical and methodological knowledge, since a positive change in their feelings about Physical Education may influence their attitude to the subject in the future. Lower primary teacher training institutions are facing a complex duty, which involves the transmission of values related to Physical Education. Given the fact that teachers-to-be will play an important role in teaching PE in primary schools, our research focuses around teacher trainees’ attitudes and knowledge of the subject as well as interactions between trainees and pupils as observed during teaching practice.

As regards the topic of my research, the above mentioned aspects are highly relevant moreover, the different approaches may provide an insight into the connection between teacher trainees and the subject. Being a teacher of PE-related subjects to lower primary teacher trainees, I was also inspired by the wish to uncover patterns in that interaction that may enhance the effectiveness of teacher training.
THE AIMS OF THE STUDY

The study aimed to reveal lower primary teacher trainees’ attitudes towards Physical Education as a subject and to highlight the attitudinal differences according to gender, year group and field of special study. Another goal was to explore the characteristic feature of the interaction on PE lessons during the practice period and to examine the most typical activities carried out by teacher trainees and pupils, together with their frequencies. I also aimed at establishing a connection between attitudes and interactions. Following this train of thoughts, a question surfaced: Is there a relationship between views on PE as a subject and the interactions observed during classes?

Data analysis and comparisons yield information which helps to identify areas impairing the effectiveness of the training programme and thus provides teacher trainees with a more profound theoretical and practical knowledge.

HYPOTHESES

1. We assume that there is no difference between attitudes towards PE according to gender, however, there are considerable differences according to students’ specialisation (PE vs other fields of study).

2. We assume that attitudes towards the subject have an impact on teaching practice. We assume that a more positive attitude manifests itself in a larger number of positive pedagogical activities during teaching practice (e.g. encouragement, praise, educational comments), and that it has a beneficial impact on the occurrence of sport specific activities (e.g. explanation, error correction, organisation, presentation, feedback).

2a. We assume that a gender-based comparison of class activities shows no considerable differences.
2b. We assume that there are considerable differences between the class activities of students who specialise in PE and students who specialise in other fields of education.

**RESEARCH METHOD**

The methods chosen for this research are widely accepted and often used in pedagogical science. The research instruments include a survey questionnaire and direct category observation.

**Attitude questionnaire**

In order to examine trainees’ attitudes towards PE as a subject, certain parts of Vass’s (1979) questionnaire were used. Students’ attitudes were measured by a 5-point Likert scale, which included 21 negatively or positively worded statements. A background questionnaire surveyed trainees’ gender, training institution, year of study and chosen special field of study.

**Direct category observation**

The method of direct category observation was used for the analysis of trainee – pupil interaction and the characteristic features of trainees’ and pupils’ activities on PE classes during the two-week teaching practice. The examination was based on the observation techniques described by Vass (1987), who defines 13 teacher categories (see Table 1) and seven pupil categories (see Table 2) following Svoboda’s (1977) interaction analysis. The observations were carried out either by a mentor teacher, who was also the PE teacher of the observed class, or by another PE teacher from the school. A total of 93 classes were observed, during which the most typical activities described in the categorisation were recorded in 30-second intervals both for teacher trainees’ and for pupils.
Table 1: Teacher categories and their notation (Vass, 1987)

<table>
<thead>
<tr>
<th>Number</th>
<th>Teacher categories</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Explanation</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Presentation</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Organisation I</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Organisation II</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Error correction</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>Encouragement I</td>
<td>6</td>
</tr>
<tr>
<td>7.</td>
<td>Encouragement II</td>
<td>7</td>
</tr>
<tr>
<td>8.</td>
<td>Educational comment</td>
<td>8</td>
</tr>
<tr>
<td>9.</td>
<td>Disciplining</td>
<td>9</td>
</tr>
<tr>
<td>10.</td>
<td>Praise</td>
<td>10</td>
</tr>
<tr>
<td>11.</td>
<td>Questions (feedback)</td>
<td>11</td>
</tr>
<tr>
<td>12.</td>
<td>Observation</td>
<td>12</td>
</tr>
<tr>
<td>13.</td>
<td>Other behaviour</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 2: Pupil categories and their notation (Vass, 1987)

<table>
<thead>
<tr>
<th>Number</th>
<th>Pupil categories</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>One pupil moves, the others rest</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Two-three pupils move, the others rest</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>A larger group moves, the others rest</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Everyone moves at the same time</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Pupils listen, there is no movement</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>A pupil interrupts the exercise verbally or otherwise</td>
<td>6</td>
</tr>
</tbody>
</table>

In accordance with recommendations in the literature, research reliability was given high priority. The technique of direct observation was used, which required no technical devices and, besides, the observers were fellow professionals who had been given suitable training and used a proven method. Furthermore, the agreement between the two observers was examined, and inter-rater reliability was measured by Scott’s $\pi$ as used by Flanders and followers and suggested by Falus (2004). When data registered by two observers are the same, $\pi = 1$. The larger the difference, the
smaller the value but a value of above 0.85 is considered sufficient by the literature. In our case the value of \( \pi \) is between 0.88 and 0.93, which makes it acceptable.

**Data collection and analysis**

Data collection began in the 2009/2010 academic year and finished in 2013. The questionnaires were filled in by 676 teacher trainees from six teacher training institutions (EJF, ELTE-TÓK, KE-PK, NYME-MNSK, SZIE-ABK, SZTE-JGYPK). 84.9% of the participants (574 trainees) were female and 15.1% (102 trainees) were male students. We consider the size of the sample adequate for drawing conclusions and for investigating our hypotheses with regard to the given sample population.

Participants of the category observation were those teacher trainees at Kaposvár University who did their two-week practice teaching at the University Demonstration Primary and Secondary School between February 13, 2009 and May 7, 2010. The observation period lasted three terms, during which 62 trainees (47 females (76%) and 15 males (24%)) were observed on 93 PE classes.

Data analysis was made with the help of descriptive statistics (mean, standard deviation, frequency distribution, relative frequency) and mathematical statistics (variance, t-test, homogeneity). Microsoft spreadsheets and *SPSS for Windows* (Statistical Package for Social Science) were used for the analyses and significance value was set at \( p = 0.05 \).

**RESULTS**

**Comparison of attitudes according to gender**

Only three out of the 21 questionnaire items showed considerable gender-based differences in opinion. We found a significant difference (\( t = -2.749; p = 0.007 \)) between the mean of the male respondents (1.44) and that of the female respondents (1.68) answering the question about the importance and equal rank of the subject. Men’s attitudes seem to be more positive, apparently they stand up for physical education. A possible explanation of this finding is that the subject is more popular...
among boys both in primary and secondary school. Another reason might be that more male students opt for special courses in physical education at college.

Another item that showed considerable difference was the one looking into the extent to which lack of equipment influences the establishment of principles and goals set in physical education. The results are rather diverse as opinions cover all five options. A gender-based comparison shows that male trainees tend to believe that lack of equipment cannot hinder task completion or the learning process (M=2.44 for males, M=2.70 for females; t=-2.06; p=0.041).

As regards the future role of PE as a minor subject, the whole sample yielded a result above average (M=2.55), again only gender-based comparisons showed differences. Data analysis shows a significant difference suggesting that female trainees judge the future of the subject in a more positive way (t=-2.14; p=0.034). Apparently, male trainees see the present conditions of the subject in a more positive light, whereas female trainees are more optimistic about the future. 18 questionnaire items showed no significant gender-based differences and this similarity of opinions confirms the first half of the hypothesis.

Comparison of attitudes between PE-specialised and not PE-specialised trainees
Several items show significant differences in the attitudes of PE-specialised trainees, as shown below:

- Regarding the importance of PE and its equal rank with other subjects, PE-specialised trainees expressed a more marked, more positive opinion (t=-6.43; p<0.001).
- PE-specialised trainees consider incorporating fitness into lifestyle as a task to be grounded in PE classes more often than other trainees. The mean of answers given to this negatively worded statement is 3.94 in the case of PE-specialised trainees, while M=3.61 in the case of trainees specialised in other fields (t=3.81; p=0.00).
- A considerable difference was found in teachers’ positive judgement with regard to novel teaching methods providing enjoyment on the one hand,
- and regarding the opinion that every child can gain a sense of achievement in the PE class on the other hand.
- PE-specialised trainees strongly agree that personality development is the duty of the subject.

- PE-specialised trainees are more of the opinion that even a lesson is worth interrupting for educational purposes if it is reasonable.

- 70% of all respondents are of the opinion that strictness is an essential part of a teacher's disposition and we found no significant difference according to specialisation (M=2.15 for PE and M=2.37 for non PE trainees). (We believe that such discipline is excessive in lower primary school, therefore we consider non PE-specialised trainees’ answers acceptable.)

- Presentation plays a crucial role when teaching and learning movements. PE-specialised trainees agree more strongly (M=1.33) with presentation methods than trainees of other fields of education (M=1.53).

To sum up the differences between PE and non PE-specialised trainees’ opinions, it can be concluded that in the case of 15 out of 21 questionnaire items PE-specialised trainees have a more positive attitude (seven of which are significant). We consider such results sufficient to confirm the second part of the hypothesis, and thus we accept the first hypothesis.

The second hypothesis had to be divided into sub-hypotheses so that the second hypothesis could be accepted or rejected. A gender-based comparison was made with the observations, which was necessary for answering hypothesis H2a.

With regard to the activities in the teacher trainee category the only difference was found considering Encouragement I (directed to individual learners). However, when it was examined together with Encouragement II (directed to a group or the whole class), the genders showed no significant difference. These findings suggest that there are no considerable gender-based differences between the frequencies of activities in the observed classes, which lends proof to hypothesis H2a.

Hypothesis H2b was examined the same way but in this case considerable differences were found between PE and non PE specialisations (see Table 3), therefore we accept this hypothesis.
Table 3: Teacher trainees’ activities and their duration in class (minutes)
A comparison of PE and non PE specialisations

<table>
<thead>
<tr>
<th>Activity types</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lessons by non PE-specialised trainees (N=58)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>5.10</td>
<td>3.77</td>
<td>10.27</td>
<td>3.45</td>
</tr>
<tr>
<td>Presentation</td>
<td>1.05</td>
<td>1.03</td>
<td>1.23</td>
<td>1.39</td>
</tr>
<tr>
<td>organisation I</td>
<td>16.95</td>
<td>7.83</td>
<td>12.93</td>
<td>4.43</td>
</tr>
<tr>
<td>Organisation II</td>
<td>0.86</td>
<td>1.38</td>
<td>0.89</td>
<td>1.64</td>
</tr>
<tr>
<td>Error correction</td>
<td>2.78</td>
<td>2.32</td>
<td>2.16</td>
<td>2.17</td>
</tr>
<tr>
<td>Encouragement I</td>
<td>0.82</td>
<td>1.07</td>
<td>0.76</td>
<td>1.14</td>
</tr>
<tr>
<td>Encouragement II</td>
<td>0.05</td>
<td>0.28</td>
<td>0.13</td>
<td>0.31</td>
</tr>
<tr>
<td>Educational comment</td>
<td>0.79</td>
<td>0.93</td>
<td>1.69</td>
<td>1.57</td>
</tr>
<tr>
<td>Disciplining</td>
<td>2.92</td>
<td>1.80</td>
<td>1.60</td>
<td>1.31</td>
</tr>
<tr>
<td>Praising</td>
<td>0.66</td>
<td>0.79</td>
<td>0.86</td>
<td>0.91</td>
</tr>
<tr>
<td>Questions (feedback)</td>
<td>0.46</td>
<td>0.80</td>
<td>0.99</td>
<td>0.91</td>
</tr>
<tr>
<td>Observation</td>
<td>9.45</td>
<td>5.54</td>
<td>8.31</td>
<td>4.23</td>
</tr>
<tr>
<td>Other</td>
<td>0.11</td>
<td>0.30</td>
<td>0.06</td>
<td>0.16</td>
</tr>
<tr>
<td><strong>Lessons by PE-specialised trainees (N=35)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The most important differences are listed below:

- PE-specialised trainees spent twice as much time giving information about (explaining) the lesson, the teaching material and the activities.
- PE-specialised trainees spent significantly less time on organisational tasks (starting and stopping activities during class; ensuring transition between activities; ensuring the formation of figures; allocation and installation of equipment), which gave them more time completing other tasks.
- Non PE-specialised trainees spent almost double the time disciplining.
- Both groups were found to make a small amount of educational comments, although a comparison of the two populations showed that PE-specialised trainees spent more than twice as much time performing a specific educational task.
- Questions and feedback play an important role in the teaching-learning process and they take up twice as much time in PE classes.
• PE-specialised trainees also spent more time on presentation and student praise, while they spent less time on observation. These differences were, however, not significant.

• Non PE-specialised trainees focused more closely on error correction during the teaching process. This difference was not significant either.

• Neither group applied individual or group encouragement to a considerable degree or with a considerable difference.

With regard to hypothesis 2 it can be claimed that there is no gender-based difference between attitudes and the same findings surfaced during lesson observations. On the other hand, PE-specialised trainees who have a more positive attitude produced more favourable results during observation.

A thorough analysis of the frequency of activities listed in the categorisation and the difference in their occurrence reveals significant differences regarding educational comments and not significant differences regarding praise and encouragement. In both cases PE-specialised trainees produced better results. With regard to sports specific activities, PE-specialised trainees showed significant differences in explanation, organisation and feedback, and less considerable differences in presentation. Non PE-specialised trainees yielded a more favourable, although not significant result in error correction. All in all, not every observed activity yielded significant differences in their occurrence in the case of PE-specialised trainees, however, there clearly is a marked and positive tendency, which allows us to consider H2 hypothesis confirmed.

CONCLUSIONS

The attitude research looked into views concerning the subject from different angles and identified rather feeble areas such as the role of physical education in personality development and its impact on education. Such views and knowledge about physical education need to be enhanced in the future since they may determine the success of the teaching-educating process. This means that the positive role of the subject in personality development needs to be highlighted in the pre-service training
of primary school teachers. The knowledge they obtain through their theoretical and practical training should be coordinated with the experience they gain during teaching practice. Such opportunities arise from lesson observations and a focussed monitoring of the relationship between the subject and its educational value, followed by a collective analysis of the experiences.

Gender-based analyses surfaced an agreement of opinions, while attitudes depending on special fields of study showed considerable differences. PE-specialised trainees study a larger number of sports related subjects, therefore their favourable results can be considered as positive feedback to their training programme. Trainees’ attitudes showed positive changes when different years were compared, which suggests an improvement of trainees’ views about PE. Although the present study was not meant to be longitudinal research and it has its limitations, we believe it right to claim that pre-service training might bring about appropriate changes.

A summary of the results obtained from lesson observations pinpoint important areas that need to be highlighted during the teacher training period. Both the theoretical and practical training programmes should emphasise activities which enhance the fluency of the lesson. Such content might include methods for formation of figures and teams, allocation, installation and then clearing of equipment. Furthermore, the role of such vital pedagogical tools as education, praise and encouragement should be underlined.

No gender-based differences were found between trainees’ interaction in class, however, PE-specialised trainees produced considerably more educational activities than their non PE-specialised peers, which might be attributed to their views about the subject and to their personal interest and training.

A comparison of the different stages of the lesson pointed out that the closing phase is too short, even non-existent in some cases, despite the fact that it has a critical function in winding down activity level and evaluation.

As regards pupil behaviour in the lesson, the amount of physical activity falls behind the results of previous research, but not to a great extent. Teacher trainees could increase the amount of pupil activity simply by reducing the time spent on the above mentioned organisational tasks, and thus enhancing motorist activity as well.
The results of the two investigations revealed a connection between a more positive attitude towards PE and trainees’ observable behaviour in class. PE-specialised trainees with a more positive attitude produced better results during teaching practice, whereas no significant gender-based differences were found between attitudes or behaviour. All this might lead to the conclusion that a positive attitude is conducive to the success of the teaching process.
Publications relevant to the topic of the dissertation


