Comparison of Practicum Types in Changing Preservice Teachers’ Attitudes and Perceived Competence

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The purpose was to compare the effects of two practicum types (off campus and on campus) on physical education teacher education (PETE) students’ attitudes and perceived competence toward teaching school-aged students with physical disabilities or moderate-severe mental retardation. PETE students, enrolled in a 15-week introductory adapted physical education (APE) course and involved in eight sessions of either off-campus (n = 22) or on-campus (n = 15) practicum experiences, completed Rizzo’s (1993a) Physical Educators’ Attitudes Toward Teaching Individuals with Disabilities-III (PEATID-III) two times. Analysis of pretest data revealed that groups were equated on gender, experience, attitude, and perceived competence. Kruskal-Wallis ANOVA revealed no significant difference between practicum types on posttest attitude and perceived competence measures. Attitude scores did not differ significantly from pretest to posttest. Perceived competence improved significantly from pretest to posttest under both practicum types. Implications for professional preparation are discussed.

Favorable attitudes and perceived competence in teaching students with varied abilities and disabilities are key factors necessary for successful inclusion (DePauw & Doll-Tepper, 2000; Duchane & French, 1998; Heikinaho-Johansson & Sherrill, 1994; Heikinaho-Johansson & Vogler, 1996). In past years, inclusion was thought of as placing students in age-appropriate general education classes in
their residential school districts with only one or two students with disabilities per class and the use of supplementary aids as needed (Block, 1994; Block & Vogler, 1994). Today, inclusion is espoused as a philosophical approach to implementing social justice by way of opportunities for meaningful interactions between and among students with and without disabilities so that equal status relationships are developed and nurtured within an educationally beneficial environment (DePauw & Doll-Tepper, 2000; Place & Hodge, 2001; Sherrill, 1998). Ideally, inclusion practice in physical education means educating students with disabilities (mild to severe) using special resources as needed in safe, successful, and satisfying learning experiences with classmates without disabilities (Block & Vogler, 1994; Vogler, Koranda, & Romance, 2000).

Considerable research has been conducted on attitudes, the first dependent variable in our study. Course work preparation and practicum training are tremendously important in facilitating favorable attitudes toward including students with disabilities in general physical education settings (Folsom-Meek, Nearing, Groteluschen, & Krampf, 1999; Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995). Studies indicate that instruction in introductory adapted physical education (APE) courses supplemented with practicum training, which emphasizes interactions between physical education teacher education (PETE) students and individuals with disabilities, can enhance attitudes (Folsom-Meek, Nearing, & Kalakian, 2000; Hodge, 1998; Hodge & Jansma, 1998, 1999; Patrick, 1987; Rizzo & Vispoel, 1992; Rowe & Stutts, 1987; Stewart, 1990).

Of particular relevance to the current study, Hodge and Jansma (1998) used PEATID-III to examine the effects of two teacher education approaches (i.e., APE course plus practicum versus APE course with no practicum) on the attitudes of PETE students toward teaching school-aged students with emotional/behavioral disabilities (EBD), learning disabilities (LD), mild-moderate mental impairments (MMMI), and moderate-severe mental impairments (MSMI). Using pretest-posttest data mailed by university instructors of 594 PETE students at 40 colleges and universities nationwide, Hodge and Jansma affirmed the effectiveness of both approaches in positively influencing PETE students’ attitudes following 10 and 15 weeks of instruction. Hodge and Jansma reported that PETE students’ attitudes toward teaching students with LD improved most and that positive changes in attitude toward students with EBD and MSMI took longer. They also found that APE courses with semester-long practicum experiences had the greatest impact on attitudes toward teaching students with MMMI and MSMI.

Using a similar research design, Hodge and Jansma (1999), in a study of 292 male and 182 female PETE students enrolled in introductory APE courses at 22 universities across 17 states, reported that off- and on-campus practicum types fostered positive attitude change between Weeks 1 and 10 and Weeks 1 and 15. Further, they reported that on-campus practicum experiences improved PETE students’ attitudes significantly more than off-campus experiences.

Folsom-Meek et al. (1999), in a study of PETE students \( n = 2,943 \) at 192 colleges and universities across the United States, affirmed main effects for (a) gender (favoring females), (b) academic major (favoring non-PETE students), and (c) hands-on experience (favoring experience teaching individuals with disabilities) in positively influencing PEATID-III attitudes toward teaching students with disabilities. Folsom-Meek et al. argued that their findings support the importance of a practicum or service-learning experience as a component of the introductory APE course.
Folsom-Meek et al. (2000) reported that PETE students enrolled in an APE course plus service-learning practicum experiences held significantly more favorable PEATID-III attitudes toward teaching students with disabilities than PETE students enrolled in the general physical education (GPE) course after a 10-week quarter. These findings were used to justify the need to require an APE course and practicum rather than assume that GPE courses were sufficient to prepare future teachers to work with all children.

Perceived competence, the second dependent variable of our study, affects attitude toward teaching children with disabilities (Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995; Rizzo & Vispoel, 1991; Rizzo & Wright, 1988). Kowalski and Rizzo (1996) reported a multiple regression showed that PETE students’ attitudes were influenced by their level of perceived competence, number of infusion-based courses (i.e., a curricular model where information is integrated about individuals with disabilities throughout the curriculum), coursework in APE, and academic major (teaching versus nonteaching PETE students). Perceived competence toward teaching/working with individuals with disabilities was the most significant predictor of attitudes. The number of infusion-based courses was the next most significant attribute, followed by coursework in APE, and academic major. The research of Kowalski and Rizzo, based on 133 PETE students enrolled in an infusion-based curriculum, supported previous research indicating that perceived competence in teaching students with disabilities is a strong predictive variable related to attitudes (Rizzo & Kirkendall, 1995; Rizzo & Vispoel, 1991).

In the present study, we sought to build on previous work by the lead author, specifically Hodge and Jansma (1998, 1999, 2000), and to continue examination of the effects of a course with on-campus practicum versus a course with off-campus practicum. We chose to study two dependent variables (attitude and perceived competence) rather than attitude alone. Whereas Hodge and Jansma’s previous research relied on PEATID-III data mailed to them by many instructors who taught in many different ways, we based the present study on in-depth examination of APE instruction at one selected university.

Theoretical Framework and Purpose of the Study

The current study, like others we have reviewed, was guided by the theory of reasoned action (Ajzen & Fishbein, 1980, 2000) as operationalized by Rizzo (1993a). The theory of reasoned action is used as a framework in which to understand and predict intentions and behaviors from attitudes (Ajzen & Fishbein, 1980, 2000). Attitude, in reasoned action theory, is defined as “general evaluation or overall feeling of favorableness or unfavorableness toward the behavior in question” (Ajzen & Fishbein, 1980, p. 55). Rizzo (1984, 1993a) operationalized the theory of reasoned action for physical educators by creating an instrument that measured one aspect of the theory, beliefs about teaching children with disabilities in integrated physical education settings. These beliefs are used to infer attitudes toward teaching individuals with disabilities in integrated or inclusive settings.

According to Ajzen and Fishbein (1980, p. 62), “attitudes toward any object are determined by beliefs about that object.” By measuring accessible beliefs and inferring attitude toward teaching from the beliefs, teacher educators can gain insight into the probable teaching behaviors of PETE students (Sherrill, 1998). Such insight, in turn, can enable teacher educators to design curricular experiences that
will facilitate reasoning by PETE students about the probable outcomes/consequences of specific teaching behaviors. Fundamental to the process of reasoning, as required by reasoned action theory, is direct experience that will afford a concrete basis for building and changing beliefs and hence attitude. Much of our rationale for the present study was fueled by the obvious need to add to the beginning knowledge base concerning what specific practicum types, when combined with introductory APE content, best change attitudes and perceived competence.

The purpose of this study was to compare the effects of two practicum types (off campus and on campus) on PETE students’ attitudes and perceived competence toward teaching students with disabilities. Specifically, we tested the following hypotheses:

1. There is no significant difference between practicum types on posttest attitude scores toward teaching students with physical disabilities.
2. There is no significant difference between practicum types on posttest attitude scores toward teaching students with moderate-severe mental impairments.
3. There is no significant difference between practicum types on posttest perceived competence ratings toward teaching students with disabilities.
4. There is no significant difference between pretest and posttest trials on attitude scores toward teaching students with physical disabilities.
5. There is no significant difference between pretest and posttest trials on attitude scores toward teaching students with moderate-severe mental impairment.
6. There is no significant difference between pretest and posttest trials on perceived competence ratings.

Method

A nonequivalent comparison, pretest-posttest group design (Ary, Jacobs, & Razavieh, 1990; Campbell & Stanley, 1963) was used in this study. Quasi-experimental designs are characterized by two or more existing groups not formed randomly (i.e., experimental and comparison), which are pretested, administered a treatment (e.g., APE course plus off-campus versus on-campus practicum), and posttested (Gay, 1996). The experimental group receives a treatment (e.g., instruction in an APE course plus off-campus practicum), while the comparison group receives an alternative intervention (e.g., instruction in an APE course plus on-campus practicum). It should be noted that pure scientific randomization is not feasible when studying the effects of instructional variables with predetermined classes (Stewart, 1990). In fact, Ary et al. (1990) argued that “in a typical school situation, schedules cannot be disrupted nor classes reorganized in order to accommodate the experimenter’s study. In such a case it is necessary to use groups as they are already organized into classes or other intact groups” (pp. 336-337).

Research Site/Participants

This research was conducted at a university located in the Midwest region of the United States that met the following criteria: (a) offered a physical education teaching major, (b) offered an introductory APE course with a practicum component,
(c) offered two separate sections (i.e., off- and on-campus practicum experiences) of the course taught by the same APE instructor, and (d) had an instructor willing to collect data.

The sampling design was intact groups, sometimes called convenience sampling (Gay, 1996). Participants were PETE students who agreed to participate in the study and were enrolled in one of two sections of an introductory APE course. These students were allowed to choose their practicum type (off- or on-campus) to complete the experience part of the course requirements. Of the 37 students, 22 selected the off-campus practicum and 15 selected the on-campus practicum.

Instrument

The Physical Educators’ Attitude Toward Teaching Individuals with Disabilities-III (PEATID-III; Rizzo, 1993a) was selected as the instrument for measuring two dependent variables, attitude and perceived competence. The instrument is derived from the theory of reasoned action (Ajzen & Fishbein, 1980) and is based on the assumption that beliefs can be used to infer attitudes (Rizzo, 1984, 1988). The data generated by this instrument are believed to be valid and reliable (Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995).

The PEATID-III consists of 12 beliefs statements (Rizzo, 1993a). Under each statement, one or more disabilities are listed along with a 5-point Likert scale (i.e., 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). We asked PETE students to respond to two disability types. Following are the definitions provided for each disability from Rizzo’s (1993a) PEATID-III Descriptions of Disabilities sheet.

Physical Disability. A child/youth with a physical disability has spinal paralysis (spinal condition resulting in paralysis) that involves both the central and autonomic nervous systems; this may adversely affect body movements, sensations (e.g., feel, touch), and/or vital bodily function (e.g., bladder and bowel control). The child/youth with a physical disability may have paraplegic (paralysis of both legs and often involves trunk balance), or quadriplegic (paralysis of both arms and legs, and trunk) conditions caused by severe cerebral palsy, spinal cord injuries, spina bifida, or other orthopedic defects. In physical education, this child/youth uses a manual or electric wheelchair for mobility.

Moderate-Severely Mentally Impaired. This child/youth would be significantly subaverage in intellectual functioning. They would have an IQ score below 50 on standardized tests. They may or may not be able to verbally communicate. There is little socialization or interaction. They are totally dependent on others for self-care.

Instructions required mental insertion of the appropriate label into the blank when answering a given item. Adding the items for each condition and then calculating the average for each disability type generated subscale scores.

PEATID-III also includes items related to demographics, previous experience, and perceived competence. Perceived competence in teaching students with disabilities was rated using the following scale: 1 = not at all, 2 = somewhat, and 3 = very competent.
Procedure

At Week 1 and Week 15, the course instructor administered the PEATID-III in class to PETE students, who were informed that confidentiality would be maintained and that all data would be coded and reported in aggregate form. The independent variable (treatment) was instruction in a 15-week introductory APE course that included eight sessions of practicum experiences. The variable levels were practicum type (off- and on-campus). The dependent variables were PEATID-III attitude scores and perceived competence ratings.

The same instructor taught both sections. This strategy (i.e., use of same course instructor) ensured consistency across sections of the course in terms of selection of content, delivery of instruction, teaching methodology, and teaching style. The instructor was a male with a doctoral degree in APE, who had taught APE in higher education for more than 20 years. On average, he had taught this course twice each academic year. The introductory APE course was a required course within the PETE program curriculum. The course required practicum experiences to augment course content.

Both sections of the course met for two 1-hr lecture sessions each week for a period of 16 weeks (i.e., Monday and Wednesday at 11:00 a.m. and 1:00 p.m., respectively). The textbook readings and lecture material came primarily from the text of Dunn (1997). Course content covered material pertinent to and consistent with federal mandates for students with disabilities in physical education; an overview of cognitive, orthopedic, and sensory disabilities (including severe conditions); activity modifications; assessments; and program development.

Practicum Types

The lecture portion of the APE course was augmented with either off- or on-campus practicum experiences. Generally speaking, the practicum models were consistent in terms of (a) total number of hours that participants served at the respective sites and (b) types of disabilities encountered. The practicum hours were considered part of the course instructor’s teaching load; therefore, the instructor was regularly present at each practicum site. The course instructor coordinated and supervised the four on-campus sites (with assistance from an APE faculty colleague at one site). However, for off-campus practicum activities, the course instructor served as assistant to the APE state certified elementary physical education teacher employed by the school.

Practicum responsibilities followed the same time period. Those who had self-selected Section 1 of the course engaged in off-campus practicum training at a local elementary school for a total of eight sessions on Fridays at 1:00 p.m. Those who had self-selected Section 2 rotated among four different on-campus sites for a total of eight sessions typically on Fridays at 11:00 a.m. The course instructor monitored attendance and tardiness for each lecture and practicum session. PETE students in the two approaches logged in an equal number of hours of lecture attendance and practicum involvement.

Off-Campus Practicum. Twenty-two PETE students (17 males, 5 females) participated in the off-campus practicum experiences (Section 1). Most (64%) of them (n = 14, 10 males, 4 females) had no experiences teaching individuals with disabilities. These participants traveled to a local elementary school approximately 10-min from campus to participate in a self-contained physical education program,
where they encountered 15 children with disabilities (ages 11-13 years). The PETE student to child with disability ratio averaged 2 to 1; however, some children required one-on-one instruction. The disability types represented were cerebral palsy, moderate-severe mental impairments, autism, and visual impairments.

The off-campus practicum involved eight 1-hour visits (2 observations, 6 interactions) within a 6-week time period. The first and second observations were conducted during the same week. This week featured an orientation to the school and observations of the children within the class. Participants completed six additional visits during which they were responsible for planning and implementing movement and fitness activities. A typical class lasted 40 min and involved a warm-up, skill introduction, practice, and a concluding group activity to support the skill work.

**On-Campus Practicum.** Fifteen PETE students (9 males, 6 females) participated in on-campus practicum experiences that exposed them to four different types of activity programs (Section 2). Most (80%) of them \((n = 12, 7 \text{ males}, 5 \text{ females})\) had no experiences teaching individuals with disabilities. During their initial orientation visit to each on-campus site, PETE students were instructed to observe program attendees and to participate in activities if they chose to do so; however, in all subsequent visits, full participation was expected. That is, PETE students visited each setting twice (total of eight sessions) during a 6-week period of time. Types of disabilities represented were cognitive delays, orthopedic impairments, and sensory limitations. Age range was upper elementary school to middle aged adults. On average, 15-20 individuals with disabilities attended each session. These four on-campus sites afforded large group activity for more than 60-min each session. The PETE student to attendee ratio averaged 2 to 3; however, there was occasional one-on-one instruction.

In summary PETE students who self-selected the on-campus practicum, rotated across four different sites: (a) Adapted Water Activity Venues for Everyone (AWAVE), (b) Thursday night recreation, (c) Hillcroft walking, and (d) individualized exercise programs. These programs are discussed in the following sections.

AWAVE was a water exercise program designed to promote range of motion, balance, and coordination for individuals with disabilities, high school-aged to adults. Attendees, who wore a heart monitor while engaging in activity, had a variety of disabilities, including cerebral palsy, closed head injuries, brittle bone disease, stroke, muscular dystrophy, and multiple sclerosis. University staff was responsible for planning and implementing the exercise programs, but the course instructor was present to supervise PETE students. Sessions of 60-min duration were held biweekly. A typical session included (a) staff personnel measuring and recording attendees’ vital signs (i.e., blood pressure and preexercise heart rate), (b) PETE students entering the water and exercising along with the program attendees, (c) staff taking a second heart rate reading, and (d) PETE students and program attendees exiting the water and resting on the pool deck while postexercise vital signs were recorded.

The recreational sport program emphasized movement games and sports for individuals with various disabilities (e.g., spinal cord injuries, spina bifida, muscular dystrophy, and visual impairments). Age ranged from high school-aged youth to adults. In a typical session, attendees learned the rules of a new game or activity and then played the game (e.g., wheelchair basketball and soccer, goal ball, beep baseball, frisbee golf, track and field events, and scavenger hunts). PETE students actively engaged in all activities as team members.
The Hillcroft walking program emphasized activities for adults with severe-profound mental impairment who worked at a community-based sheltered workshop. A typical session involved warm-up stretching activity, followed by walking for 30 min, for a total of 40 min. The activity leader to attendee ratio was on average 1:2; yet the presence of participants in this study created a 1:1 ratio.

The individualized weight-training program provided exercise for middle-aged men in outpatient therapy programs. PETE students were responsible for learning proper lifting techniques and assisting attendees with activities. The 50-min sessions were held 2 days each week. By rotating among all attendees, PETE students received hands-on experience in moving, supporting, positioning, and lifting persons with disabilities.

Data Analyses

Because several research design limitations existed (i.e., use of intact nonrandomized groups, small sample size, and unequal sample sizes), all assumptions underlying parametric tests could not be satisfied. Therefore, we used a non-parametric alternative, Kruskal-Wallis analysis of variance (ANOVA; Shavelson, 1988; Thomas & Nelson, 2001). The Kruskal-Wallis test is used for analyzing data from two or more independent samples, each consisting of at least six cases, where sample data are obtained from true or quasi-experimental designs (Shavelson, 1988). The Kruskal-Wallis test requires only ordinal level data, assumes an underlying continuous distribution, and is computed with an $H$ statistic (Levin, 1983; Thomas & Nelson, 2001).

Kruskal-Wallis tests were used to determine if the two groups were equated on selected variables at the beginning of the study. Three separate Kruskal-Wallis tests were used on pretest PEATID-III data and perceived competence ratings to check for initial group differences on (a) practicum type, (b) participants’ gender, and (c) previous experience teaching individuals with disabilities. Because conducting multiple Kruskal-Wallis tests raises the probability of a Type I error, Bonferroni adjustment was used (Vincent, 1995). The Bonferroni adjustment is achieved by dividing the single test alpha by the number of tests to be performed (Vincent, 1995). In this study, the adjusted alpha level was set at .005 (alpha = .05 divided by number of comparisons = 9) for determining group differences on pretest scores.

In addition, six separate Kruskal-Wallis tests were used to examine the six hypotheses (Levin, 1983); therefore, the adjusted alpha level to reject $H_0$ was set at .008 (i.e., alpha = .05 divided by number of comparisons = 6). Where statistical significance was revealed, practical significance was also estimated using the correlation $r^2$ statistic, which is an estimate of true variance that the ranked independent variable(s) (i.e., groups) accounts for in the ranked dependent variable(s) (Rosenthal, 1994; Thomas, Nelson, & Thomas, 1999). Typically, effect size values of > .10 are required to be considered substantial (Tolson, 1980; Vincent, 1995). MINITAB statistical software (1996) was used for data analyses.

Results

Tables 1 and 2 provide descriptive statistics for attitude scores and competence ratings for pretest and posttest periods. Data for males and females were presented
Table 1  PEATID-III Subscale Scores for Trial, Gender, and Practicum Type

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Data</th>
<th>Posttest Data</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td><strong>Toward Teaching Students with Physical Disabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Off-campus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>17</td>
<td>3.34</td>
</tr>
<tr>
<td>Females</td>
<td>5</td>
<td>3.53</td>
</tr>
<tr>
<td>Combined</td>
<td>22</td>
<td>3.38</td>
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<tr>
<td><strong>On-campus</strong></td>
<td></td>
<td></td>
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<tr>
<td>Males</td>
<td>9</td>
<td>3.50</td>
</tr>
<tr>
<td>Females</td>
<td>6</td>
<td>3.46</td>
</tr>
<tr>
<td>Combined</td>
<td>15</td>
<td>3.48</td>
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<tr>
<td><strong>Toward Teaching Students with Moderate-Severe Mental Impairments</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Off-campus</strong></td>
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<td></td>
</tr>
<tr>
<td>Males</td>
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<tr>
<td>Females</td>
<td>5</td>
<td>3.10</td>
</tr>
<tr>
<td>Combined</td>
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<td>2.92</td>
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<tr>
<td><strong>On-campus</strong></td>
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<td></td>
</tr>
<tr>
<td>Males</td>
<td>9</td>
<td>2.88</td>
</tr>
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<td>Females</td>
<td>6</td>
<td>2.99</td>
</tr>
<tr>
<td>Combined</td>
<td>15</td>
<td>2.92</td>
</tr>
</tbody>
</table>
Table 2  Perceived Competence Ratings for Trial, Gender, and Practicum Type

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Data</th>
<th>Posttest Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td>Off-campus</td>
<td></td>
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<td>Males</td>
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</tr>
<tr>
<td>Combined</td>
<td>22</td>
<td>1.68</td>
</tr>
<tr>
<td>On-campus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>9</td>
<td>1.56</td>
</tr>
<tr>
<td>Females</td>
<td>6</td>
<td>1.83</td>
</tr>
<tr>
<td>Combined</td>
<td>15</td>
<td>1.67</td>
</tr>
</tbody>
</table>

Note. Ratings ranged from 1 (not at all) to 3 (very competent).
separately because it was necessary to check whether groups were equated on gender at the beginning of the study.

**Equation of Groups**

Kruskal-Wallis tests were used to determine if groups were equated at the onset of the study. These tests revealed no significant difference between groups on pretest attitude toward teaching students with physical disabilities, $H(1, 37) = .06, p = .80$; gender, $H(1, 37) = 0.81, p = .37$; or experience level, $H(1, 37) = 0.06, p = .80$. Similarly, Kruskal-Wallis tests indicated no significant difference between groups on pretest attitude toward teaching students with moderate-severe mental impairment, $H(1, 37) = 0.11, p = .74$; gender, $H(1, 37) = 0.77, p = .38$; or experience level, $H(1, 37) = 4.80, p = .03$. Kruskal-Wallis tests also revealed no significant difference between groups on perceived competence, $H(1, 37) = 0.07, p = .80$; gender, $H(1, 37) = 0.05, p = .83$; or experience level, $H(1, 37) = 3.05, p = .08$.

**Hypotheses Tested**

Table 3 presents the results for hypothesis testing using Kruskal-Wallis tests. For Hypothesis 1, no significant differences were revealed between the two practicum types on the posttest attitude scores toward teaching students with PD, $H(1, 36) = 0.28, p = .60$. For Hypothesis 2, there were no significant differences between the two practicum types on the posttest attitude scores toward teaching students with MSMI, $H(1, 36) = 0.02, p = .89$. For Hypothesis 3, there were no significant differences between the two practicum types on posttest perceived competence ratings toward teaching students with disabilities, $H(1, 36) = 0.33, p = .57$. For Hypothesis 4, PETE students' attitude scores toward teaching students with PD did not differ from pretest to posttest, $H(1, 73) = 0.37, p = .54$. For Hypothesis 5, PETE students' attitude scores toward teaching students with MSMI did not differ from pretest to posttest, $H(1, 73) = 1.51, p = .22$. In contrast (for Hypothesis 6), PETE students’ perceived competence ratings improved significantly from pretest to posttest, $H(1, 73) = 9.25, p = .002$. Calculation of effect size for perceived competence ratings relative to testing yielded a moderate association ($r^2 = .12$).

**Discussion**

The purpose was to compare the effects of two practicum types (off campus and on campus) on PETE students’ attitudes and perceived competence toward teaching students with physical disabilities and moderate-severe mental impairments. Based on findings, we accepted Hypotheses 1, 2, and 3. There was no significant difference between two practicum types on (a) attitude scores toward teaching students with physical disabilities, (b) attitude scores toward teaching students with moderate-severe mental impairment, and (c) perceived competence ratings toward students with disabilities.

Findings specific to Hypotheses 1, 2, and 3 were inconsistent with previous research. For example, Hodge and Jansma (1999) found that on-campus practicum experiences had a significantly greater impact on attitude change of PETE students than off-campus practicum experiences. They suggested that this finding might have occurred because on-campus practicum sites (a) occasioned more direct
supervision by the APE course instructor; (b) were characterized by smaller ratios of PETE students to children/youth with disabilities; and (c) gave the course instructor more control over selection of children/youth with disabilities, activities taught, types of interaction, and selection and use of equipment and facilities. In the current study, no significant differences may have occurred because the APE course instructor had much less control over these programmatic variables at both off- and on-campus sites, as these sites were primarily under the control of university personnel not directly involved in the study. In other words, although located on campus, the APE course instructor in this study did not have complete autonomy in making programmatic decisions regarding the on-campus practica.

We also accepted Hypotheses 4 and 5. PETE students’ attitudes toward teaching students with disabilities did not differ from pretest to posttest after instruction in an APE course using two different practicum models. This finding was inconsistent with that of Hodge and Jansma (1998, 1999), who reported that completion of APE courses using two different practicum types (off- and on-campus practicum) resulted in PETE students expressing more favorable attitudes toward teaching students with disabilities. It is probable that the course instructors in the universities that contributed data to the Hodge and Jansma studies had diverse teaching philosophies, used a variety of APE textbooks, and emphasized different goals and

<table>
<thead>
<tr>
<th>PEATID-III Measures</th>
<th>Section 1</th>
<th>Section 2</th>
<th>(Practicum Types)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude scores on PD¹</td>
<td>21 4.0</td>
<td>15 4.0</td>
<td>1 0.28 .59</td>
</tr>
<tr>
<td>Attitude scores on MSMI²</td>
<td>21 3.0</td>
<td>15 3.0</td>
<td>1 0.02 .89</td>
</tr>
<tr>
<td>Perceived competence ratings³</td>
<td>21 2.0</td>
<td>15 2.0</td>
<td>1 0.33 .57</td>
</tr>
<tr>
<td>Attitude scores on PD⁴</td>
<td>37 4.0</td>
<td>36 4.0</td>
<td>1 0.37 .54</td>
</tr>
<tr>
<td>Attitude scores on MSMI⁵</td>
<td>37 3.0</td>
<td>36 3.0</td>
<td>1 1.51 .22</td>
</tr>
<tr>
<td>Perceived competence ratings⁶</td>
<td>37 2.0</td>
<td>36 2.0</td>
<td>1 9.25 .002*</td>
</tr>
</tbody>
</table>

Note. Superscripts represent data analyses for Hypotheses 1, 2, 3 (Section 1, course plus off-campus versus Section 2, course plus on-campus) and 4, 5, and 6 (pretest versus posttest data comparisons), respectively.

Note. PD = Physical disabilities; MSMI = Moderate-severe mental impairments.
content both in classroom and practicum settings. In contrast, in this in-depth study of one instructor’s approach, it appears that knowledge of law, disability, activity modifications, assessment, and program development took precedence over attitude change. The textbook (Dunn, 1997) used gives little direct coverage to attitudes.

According to Antonak and Livneh (1988), attitudes are resistant to change and thus are likely to change only if experiences are carefully structured specifically to cause attitude change. Sherrill and Buswell (1998) emphasize, in this regard, that the main goal of introductory APE courses should be to facilitate the development of positive, accepting, inclusive beliefs and attitudes. Instructional strategies for changing attitudes are different from those used for changing knowledge and perceived competence. In particular, guidance in critical thinking about attitude issues is important (Hodge, Murata, Block, & Lieberman, in press).

Another reason for the finding of no significant difference between pretest and posttest attitudes might be that the PEATID-III was not a good measure of the type of attitude change that may have occurred through direct contact with individuals with disabilities in the practica. PEATID-III measures attitudes toward teaching in inclusive settings. The practica in our study were conducted in self-contained or disability-specific settings.

We rejected Hypothesis 6 because PETE students’ perceived competence toward teaching students with disabilities improved significantly from pretest to posttest. This finding lends support to previous research (Kowalski & Rizzo, 1996; Rizzo & Vispoel, 1992) that indicates there is an association between exposure to (i.e., knowledge about teaching individuals with disabilities) and PETE students’ perceived competence in teaching such individuals. Furthermore, this finding lends support to the theory of reasoned action (Ajzen & Fishbein, 1980) with regard to enhanced self-efficacy, suggesting that behavior is strongly influenced by confidence in the skills possessed (Ajzen & Madden, 1986; Kimiecik, 1992).

Findings in our study draw attention to concerns regarding traditional PETE professional preparation. That is, PETE students are typically exposed to only one introductory-level APE course (Hodge & Jansma, 1999; Jansma, 1988; Rizzo & Kirkendall, 1995), with some programs not offering any type of practicum training (Hodge & Jansma, 1998, 1999). Such limited professional preparation has been questioned and judged inadequate in terms of preparing PETE students to teach or work effectively in inclusive physical activity settings (DePauw & Goc Karp, 1994; Kowalski & Rizzo, 1996).

We know that the quality of practicum experience is an influential variable with respect to PETE students’ attitudes and perceived competence in teaching students with disabilities (Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995; Schmidt-Gotz, Doll-Tepper, & Lienert, 1994). In fact, research indicates that PETE students who have had satisfying practicum experiences with persons with disabilities are likely to exhibit favorable attitude shifts associated with enhanced perceived competence (Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995). In contrast, if the quality of practicum experiences is not satisfying, PETE students’ attitudes and perceived competence in teaching students with disabilities may be adversely impacted (Downs & Williams, 1994; Lavay & DePaepe, 1987).

It is reasonable to suggest that if the quality or quantity of professional preparation (i.e., only one APE course) is limited and does not provide for adequate attitude-change strategies, PETE students’ attitudes and perceived competence in teaching students with disabilities will not change favorably or may be adversely impacted. Increasingly, therefore, educators have called for restructuring of PETE
programs toward an infusion curricular approach that provides information and experiences for PETE students to practice effective pedagogy with students with disabilities throughout their professional preparation (DePauw & Goc Karp, 1994; Kowalski, 1995; Kowalski & Rizzo, 1996; Sherrill & Buswell, 1998).

**Limitations of the Study**

The overall findings of this study are vulnerable because groups were not randomly assigned to treatments, and all variables that might affect outcomes could not be controlled. However, Kruskal-Wallis tests showed groups to be equated on key variables: gender, experience level, and section of course enrolled in (i.e., practicum type).

Confounding testing effects may have resulted if the PETE students offered what they perceived as socially acceptable responses to PEATID-III (Thomas & Nelson, 2001). This is a problem inherent in self-report instruments. Researchers rely on the truthfulness of the participants’ responses. In this study, although PETE students were told that their responses would be kept anonymous, they were aware that the course instructor who administered the instrument would also assign course grades; this might have influenced their responses.

Limitations were countered through such strategies as use of the same experienced APE instructor using the same didactic approaches across both sections of the APE course. This experimental strategy enhanced the researchers’ ability to control the consistency of course content and in-class environments, with the intentional exception of the practicum types. Moreover, all participants were PETE students (i.e., teaching majors) who were matriculating at the same university and were enrolled during the same time frame in an APE course with practicum experiences in a semester-only context.

The use of a relatively small sample does limit this study in terms of generalizability of results. Additionally, findings cannot be generalized unless a PETE program uses the same course outline, textbook, and practica types as in the present study. We believe our findings offer considerable insight into the challenges inherent in studying APE teacher education pedagogy.

**Future Research**

The stability of attitude is seldom examined within attitudinal research (Hodge & Jansma, 1999). Hodge and Jansma pointed out that the theory of reasoned action (Ajzen & Fishbein, 1980, 2000) posits that direct contact with an attitude object (e.g., student with a disability) creates an immediate interaction of personal beliefs about probable behavior consequences within that particular setting and normative perceptions about what significant others think you should do and the motivation to comply with these beliefs. Further, they stated that “such contacts . . . may last only momentarily or over prolonged time periods . . . [therefore], attitude change is likely to occur due to the immediate interaction of these two belief systems (Ajzen & Fishbein, 1980). However, such attitudes probably are in a ‘transitory attitudinal state’” (p. 60). It is reasonable to suggest that more permanent attitudes may develop given longer time periods toward contact with a particular attitude object (Ajzen & Fishbein, 1980). Future research ought to be conducted to address the permanency variable (Hodge & Jansma, 1999).
References


