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Analysis of Instructional Impact on the Running Performance of University Students

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Abstract

Most universities provide a plethora of physical activity courses in which students may choose to participate. Little research exists on the instructional impact of university students' participation in physical activity courses. Although some papers have produced positive findings regarding the Sport Education model in the university setting, none have analyzed the impact of instructional approaches on the performance and enjoyment of students. The purpose of this paper was to examine the instructional impact on the performance and enjoyment of students participating in a jogging activity course. The participants in this study were 26 students (15 males, 11 females; 15 SE, 11 Direct Instruction). The study incorporated a mixed methods research design using both quantitative and qualitative data. Quantitative data consisted of the one mile pre-and post-test and a pre-and post-8-item motivational analysis using the PAES. Qualitative data was collected through the completion of critical incident reports on thoughts regarding the class. Descriptive statistics and t-tests were used to analyze data to determine areas of significance related to the outcomes of the one mile run and scores from the PAES. Qualitative data were analyzed using a constant comparison method. Results indicated similarities between the two groups with regards to performance and enjoyment. Student feedback did provide favorable remarks regarding the features of the SEM. It was concluded that both instructional approaches produced favorable results regarding university students' performance and enjoyment of jogging.

Keywords: *sport education, direct instruction, jogging, university, physical activity*

Introduction

Many universities provide a variety of physical activity courses for students. These courses can provide students with the knowledge and opportunity to improve their skills and potentially be more active in the future. Some students choose an activity course primarily for the opportunity to learn a new sport or activity or for the purpose of having fun (Leenders, Sherman, & Ward, 2003). Regardless, activity courses can help maximize the overall benefits for those that are involved. The benefits received may also be dependent upon the format of the class. Activity courses provide

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instructors with the opportunity to determine instructional format based upon their goals for the class and their overall comfort levels with the approach. Considering the instructional approaches available for implementation with university aged students, the intent of this study was to analyze the impact of two instructional approaches used to teach a jogging activity course on performance and enjoyment. A goal of the study was to obtain better understanding of how instruction can positively impact outcomes of university activity courses.

Through the efforts of planning, instructors can offer quality courses which can potentially improve performance and increase the likelihood of lifetime activity (NASPE, 2007). One crucial decision to be made during the planning phase is the type of instructional approach to be implemented. A common choice among teachers is direct instruction; where the instructor is in control. Many instructors choose this approach to teaching due to their familiarity with the model or because it was how they were instructed (Gurvitch, Lund, & Metzler, 2008). Graham and Heimerer (1981) believed that direct instruction was an optimal choice for teachers to maintain student engagement and the amount of time on-task.

With direct instruction, a task is introduced with appropriate demands given to the students. Students then are expected to fulfil the request of the instructor. The tasks presented may be similar to those outlined by Rink (2013). The informing task is the initial task in the learning of a skill. An extension is provided which continues the progression of learning the skill. A teacher may provide refinement which can help improve the performance of the student. Finally, the skill is applied to help students incorporate the use of the skill. With direct instruction, this sequence is commonly used to teach students a skill. Teachers must also select appropriate cues for teaching the skill as well as providing students with a full demonstration (Rink, 1994). Ultimately, the goal is for learners to reach a mature form of the skill (Sweeting & Rink, 1999). Rikard and Boswell (1993) discovered that fifth grade students improved in striking skills after participating in a unit for striking with paddles. Students received many opportunities for practice which ultimately led to greater success. An adequate amount of research has shown that there have been direct benefits with improving motor skills associated with direct instruction (French et al. 1991; Gusthart & Sprigings, 1989; Rink et al, 1992; Werner & Rink, 1989). Even with the positive results, research on direct instruction in a university setting is limited. In addition, other instructional models are available today which also have the potential to be beneficial in a university setting.

One model of instruction that has grown in popularity among physical education and physical activity teachers is known as Sport Education. Daryl Siedentop (1998) created Sport Education with the intent of creating an authentic sport experience which would help students develop as competent, literate and enthusiastic sportspersons. With direct instruction, students typically learn how to perform a skill or learn skills appropriate for a specific game or activity. However, in Sport Education, students participate as players and are provided with knowledge that encompasses everything about the game. In a typical Sport Education format students participate in a season of learning. Students are assigned to a team and are instructed on learning a specific sport or activity. Teams work together to improve skills, participate in a season of competition, and conclude with a culminating event. As a member of a team, students are expected to accept different roles which have a determined list of responsibilities. Some of these roles include participating as a coach, manager, statistician, designer, and awards director. During days of competition, students are expected to fulfill non-playing roles such as official, scorekeeper, judge, etc. These roles provide students with the opportunity to broaden their understanding of a specific sport. The intent of Sport Education is to provide students with an experience that prepares them for understanding the many different aspects of a given sport. Additionally, it may potentially provide them with a greater appreciation for sport.

Research findings have produced support for the use of Sport Education to improve performance among students. In his evaluation of sixth grade student's participation in an Ultimate Frisbee season, Hastie (1998) found that they made gains in terms of competence. Students improved in skill experiencing success in receiving and improvement on their percentage of completed passes.

Tactical decision making improved in students deciding that more passes could be completed if shorter passes were made. In a similar study, eighth grade students, participating in a season of badminton, showed an increase in skills, competence in game play, and students' tactical knowledge (Hastie, Sinelnikov, & Guarino, 2009). Another study examined the effectiveness of in-service teachers teaching using Sport Education for the first time (Richards et al., 2012). After participating in a two day Sport Education workshop, in-service teachers taught a volleyball unit to sixth and seventh grades students. A sample of 130 students exhibited motor skill improvement even though the Sport Education unit was taught by teachers who learned the model in a two day time period.

Previous studies also present an argument for the Sport Education model (SEM) when compared to the use of direct instruction. Browne, Carlson, and Hastie (2004) examined the effect of instruction on 53 eighth grade boys participating in a Rugby unit. Through the use of a pre-and-post assessment of skills, students' self-evaluation and interviews, students in the Sport Education group showed improvement in perceived learning and exhibited a better understanding of the game. Another study by Pritchard et al. (2008) examined the instructional impact on skill development, knowledge, and game performance of 47 ninth grade students participating in a volleyball unit. Results revealed improvement in skill execution, tactical knowledge, and game performance in all students. However, Sport Education students showed a significant increase in game performance primarily from the game opportunities presented in the format of a Sport Education season. More recently, Pereira et al. (2015) evaluated 47 sixth grade students track and field performance following either a Sport Education season or receiving direct instruction. While both approaches led to improvement in performance, all students participating in the Sport Education group saw significant improvement while only the higher skilled boys improved in the direct instruction group. The Sport Education group also displayed greater retention of skills when tested following the study.

Even with the positive findings related to motor skill development, as well as the comparison of instructional approach, limited research exists on the impact of instruction on the performance of university students. Bennett and Hastie (1997) examined the impact of Sport Education on university students participating in a softball class. Through the use of student logs, questionnaires, and a reflective log from the researcher, data revealed that students enjoyed many key features of the SEM. Students suggested that learning increased compared to previously taken activity courses and they expressed an interest in taking more courses using the Sport Education approach. Even with the favorable results, research on the impact of Sport Education in higher education has been almost non-existent. Recently, Layne and Yli-Piipari (2015) discovered that students participating in a Sport Education season improved in their basketball game performance and cognitive knowledge when compared to students taught using direct instruction. In addition, students in the Sport Education group also improved in their overall game efficiency. It was hypothesized that students from this study in the Sport Education group would improve in their overall performance.

With the number of activity courses that are offered, and the high volume of students who participate in these classes, a plethora of opportunities to examine instructional approaches exist in university activity programs. Based on the number of classes offered on aerobic fitness (i.e. walking, cycling, etc.), it was the purpose of this study to examine the impact of instruction on the performance of students participating in a jogging activity course.

Even though support for Sport Education producing enjoyment in students is strong (Hastie et al., 2011), little research exists which examines the impact of instructional approach on the enjoyment of university students. Moreover, Pereira et al. (2015) suggested that more research was warranted for the learning environment within each instructional approach with regard to producing enjoyment. Mohr, Sibley, and Townsend (2012) found that student perceptions of Sport Education were overwhelmingly positive. Based on the results of their study, they believe that Sport Education is an acceptable framework for teaching university activity classes. It was hypothesized that student enjoyment from Sport Education would continue in this study. Nevertheless, more research is needed to determine the overall effectiveness of instructional approaches in the higher education setting.

Therefore, a second purpose of this study was to determine the impact of instructional approach on the enjoyment of university students.

Methods

Participants and Setting

The participants in the study were 36 (21 males, 15 females) students from a university in the southeastern part of the United States. During the 2014-2015 academic school year (Fall and Spring semesters), a total of 150 activity course sections were taught to 2,295 students. This represented approximately 10.89% of the university enrollment for that specific school year. These classes were taught by a variety of instructors who were either certified or had experience with teaching the content of their course. Participants from this study were enrolled in a physical activity course designed to help improve cardiovascular endurance through jogging. Each class had a different instructor; one was taught using direct instruction, while the other class was taught using the SEM. The instructor using direct instruction was a 38 year old Caucasian female, while the SEM instructor was a 38 year old Caucasian male. The class was scheduled to meet three times a week for 50 minutes for a total of 150 minutes each week. The class met 14 weeks for a total class time of 2100 minutes. To help maintain experimental control, participants were removed from the final analysis if three criteria were not met. These included: (1) had to attend 90% of classes; (2) completed both running tests, and (3) completed both the pre-and-post-8-item Physical Activity Enjoyment Scale (PAES) (See Table 1). In the end, 26 students (15 males, 11 females; 15 SE, 11 Direct Instruction) participated in the study.

Table 1. Physical activity enjoyment scale

| Name _____ | | | | | | | |
|--|---|---|---|---|---|------------------------------|--|
| Please rate how you feel <i>at the moment</i> about the physical activity you have been doing. | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| I find it pleasurable | | | | | | I find it unpleasurable | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's no fun at all | | | | | | It's a lot of fun | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's very pleasant | | | | | | It's very unpleasant | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's very invigorating | | | | | | It's not at all invigorating | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's very gratifying | | | | | | It's not at all gratifying | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's very exhilarating | | | | | | It's not at all exhilarating | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's not at all stimulating | | | | | | It's very stimulating | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| It's very refreshing | | | | | | It's not at all refreshing | |

The instructor for the Sport Education class had significant experience with Sport Education as a participant, teacher, and researcher. Overall, the instructor had 8 years of experience with Sport Education. At the university level, the instructor had experience creating seasons for team (i.e. flag football, basketball, volleyball, and handball) and individual (bowling and swimming for fitness)

sports. In addition, a variety of competition formats and scoring procedures were implemented. The instructor for the direct instruction class had extensive experience teaching activity courses to university students (aerobics, jogging, swimming, and walking). Overall, the instructor had 5 years of experience with teaching university activity courses.

Informed consent was obtained from all participants prior to the beginning of data collection, and the research protocol was approved by the university's Institutional Review Board for Human Subjects Research.

Intervention

Sport Education Unit

15 students (9 Male, 6 Female) participated in a season following Sport Education protocol. On the first day of class students were introduced to Sport Education and invited to participate in the study. A one mile running test was completed and the results of the run were used to help determine balanced teams. Players for each team decided on a team role of coach, manager, statistician, designer or awards director. Each team consisted of 6-7 students with 5 students from each team participating in the study. To help maintain accountability of completing team roles, students earned daily points for the successful completion of all duties.

In phase one of the season (Weeks 1-2) students were assigned to a team, introduced to team and duty roles, training logs and instructed on how to maintain logs through the semester. During phase two (Weeks 3-12) students would complete daily activity with a goal of high activity time. In addition, students were introduced to a two week format that would be implemented for the entire phase. For every two weeks, a team (or teacher) would introduce the class to a competition that would occur on the last day of the cycle. The beginning days of the cycle would be used to prepare for the team competition. The competition consisted of the designing team fulfilling duty roles pertaining to the actual event. Roles consisted of director, judge, scorekeeper and timer. Phase three (Weeks 13-14) consisted of a culminating event as well as an awards ceremony.

Direct Instruction Unit

Eleven students (6 male, 5 female) participated in a season using direct instruction for teaching a jogging physical activity course. On the first day of class students were introduced and invited to participate in the study. A one mile running test was completed and the results were recorded. Each week students were asked to run a specific amount of laps around the track (Lap=.25 mile). During the first week of class, students were required to run 2-4 laps. By the final week of class, students were required to run 10-13 laps. In addition to running, students were introduced to proper warm up, stretching, and cool down techniques during the first three weeks of class. Students also competed in a variety of activities (i.e. Ultimate Frisbee, Soccer) as part of game day Friday. This occurred during weeks 5, 8, 11, and 14.

Data Collection

The study incorporated a mixed methods research design using both quantitative and qualitative data. Quantitative data consisted of the one mile pre-and post-test and a pre-and post-8-item motivational analysis using the PAES. Qualitative data was collected through the completion of critical incident (CI) reports on thoughts regarding the class. For the one mile run, the researcher used an appropriate measuring device to mark approximate starting and stopping locations. Students were split into two groups to ensure that maximum space was available while the student was completing the test. The PAES was completed after completing their first and final day of activity. This was done to comply with the format of the test and the nature of the questions. Finally, students completed a CI report to determine students overall thoughts regarding the class and to identify aspects of the class that had brought them enjoyment.

All data were entered and transcribed and downloaded to the investigators computer for analysis. The data were retained for one year from the date the first data were obtained. All evidence was deleted at the end of the retaining period. As part of the data collection and analysis process, the researcher collected data for the entire class. For individual data that could possibly be collected, each participant was assigned a pseudonym.

Fidelity of Implementation

Two investigators familiar with each teaching approach randomly observed four separate lessons to determine the accuracy of the instructional model being implemented by both teachers. A checklist created by Pritchard et al. (2008), which asks an observer to make a determination of whether instruction was indeed following the instructional features of Sport Education or direct instruction, was utilized by the observers (see Table 2). The observers reached a 100% agreement with regard to the instructional approach used in each lesson.

Table 2. Instructional checklist

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1. ___ Groups of students go to a designated home area and begin warming-up with that group.
 2. ___ Students warm-up as a whole class under the direction of the teacher.
 3. ___ Students practice together with their group/team under the direction of a peer leader.
 4. ___ Students practice individually or in small groups under the direction of the teacher.
 5. ___ Students remain a part of easily identifiable groups throughout the lesson and throughout different tasks.
 6. ___ Student grouping throughout the lesson is variable across tasks.
 7. ___ Performance records are kept by students.
 8. ___ Students perform specialized tasks within their group/team.
 9. ___ Student performance scores count towards a formal and public scoring system.
 10. ___ Student performance scores are not recorded or recorded in private.
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Note. Items 1, 3, 5, 7, 8, 9 indicate Sport Education while items 2, 4, 6, 10 represent a traditional lesson.

**Taken from Pritchard, T., Hawkins, A., Wiegand, R., and Metzler, J. (2008). Effects of two instructional approaches on skill development, knowledge, and game performance. Measurement in Physical Education and Exercise Science, 12(4), 219–36.*

Data Analysis

The dependent variable in the quantitative data for this study was the differences in the one mile run (performance) and scores from the PAES (enjoyment). Descriptive statistics were analyzed to determine areas of significance related to the outcomes of the one mile run and scores from the PAES. A two sample t-test was conducted between the groups during the pre-test phase. This test was conducted to compare the groups for both the one mile run and the PAES to determine if there were any differences in values. A paired sample t-test was conducted to determine a difference from the beginning to the end of the season for both the Sport Education and direct instruction groups. Qualitative data concerning the critical incidents were evaluated for differences between groups. A total of 144 critical incidents were collected for analysis. The data were analyzed using a constant comparison method (Lincoln & Guba, 1985). Responses were read and then re-read with the purpose to select key words which resulted in identifying common themes. The themes from the two groups were analyzed to determine if each group liked or disliked the teaching condition.

Results

One Mile Run/PAES

Table 3 provides a breakdown of the descriptive statistics for both the Sport Education and direct instruction groups with regards to the one mile run (performance) and the PAES (enjoyment). A two sample t-test revealed no difference between the groups for the one mile ($F=2.87$, $p=.103$) or PAES ($F=1.40$, $p=.248$) pre-test. Mean level results showed an improvement in time for both the Sport Education group (-51.80 sec/8.9% change) and the direct instruction group (-103.30 sec/14.73% change). A paired sample t-test revealed a statistical difference from the beginning to the end of the season for both the Sport Education ($p=.004$) and direct instruction ($p<.001$) groups. However, a two sample t-test revealed no difference between the groups for the one mile ($F=.769$, $p=.390$) post-test. Based on gender, statistics show that both groups displayed time improvement in the Sport Education (male-70 sec; female-23 sec) and direct instruction groups (male-110 sec; female-91 sec).

Table 3. Descriptive statistics for both groups

| | Pre-Mile M (SD) | Post-Mile M (SD) | Pre-PAES M (SD) | Post-PAES M (SD) |
|----------------------------|--------------------|---------------------|--------------------|---------------------|
| Sport Education N=15 | 572.40 (109.58) | 520.60 (104.27) | 4.94 (.756) | 5.47 (1.03) |
| Direct Instruction N=10 | 698.90 (199.43) | 595.60 (140.45) | 5.27 (1.00) | 5.95 (1.15) |

Figure 1 provides one mile run statistics for gender of each group.

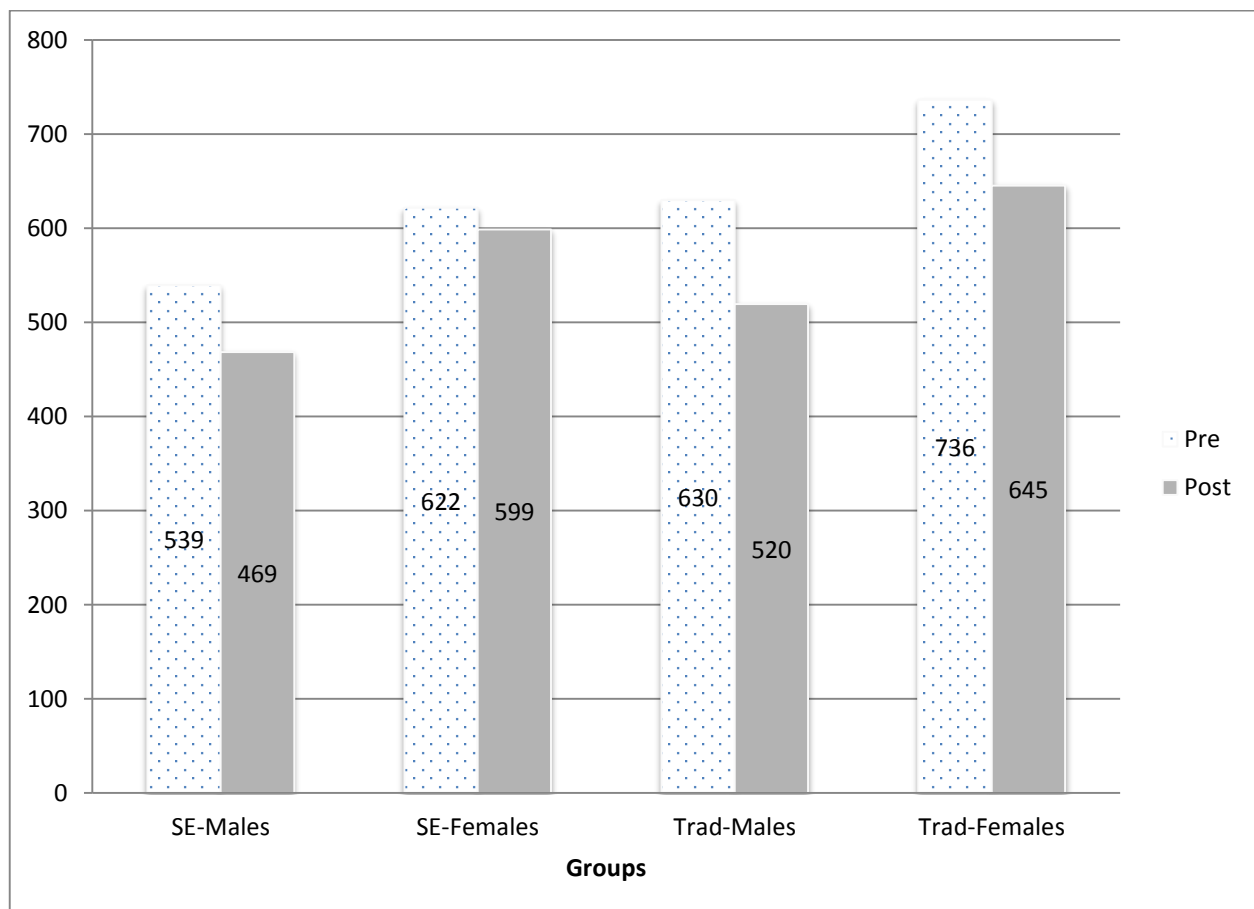


Figure 1. Times for one mile run.

From the beginning to the end of the season, the Sport Education group saw an increase of .53 in their overall PAES scores. Similarly, the direct instruction group saw an increase of .78. Based on gender, statistics show that both groups displayed improvement in the Sport Education (male +.39; female +.71) and direct instruction groups (male +.54; female +.40). However, results from the paired sample t-test revealed a statistical difference only for the direct instruction group ($p = .012$). Figure 2 provides PAES statistics for gender of each group.

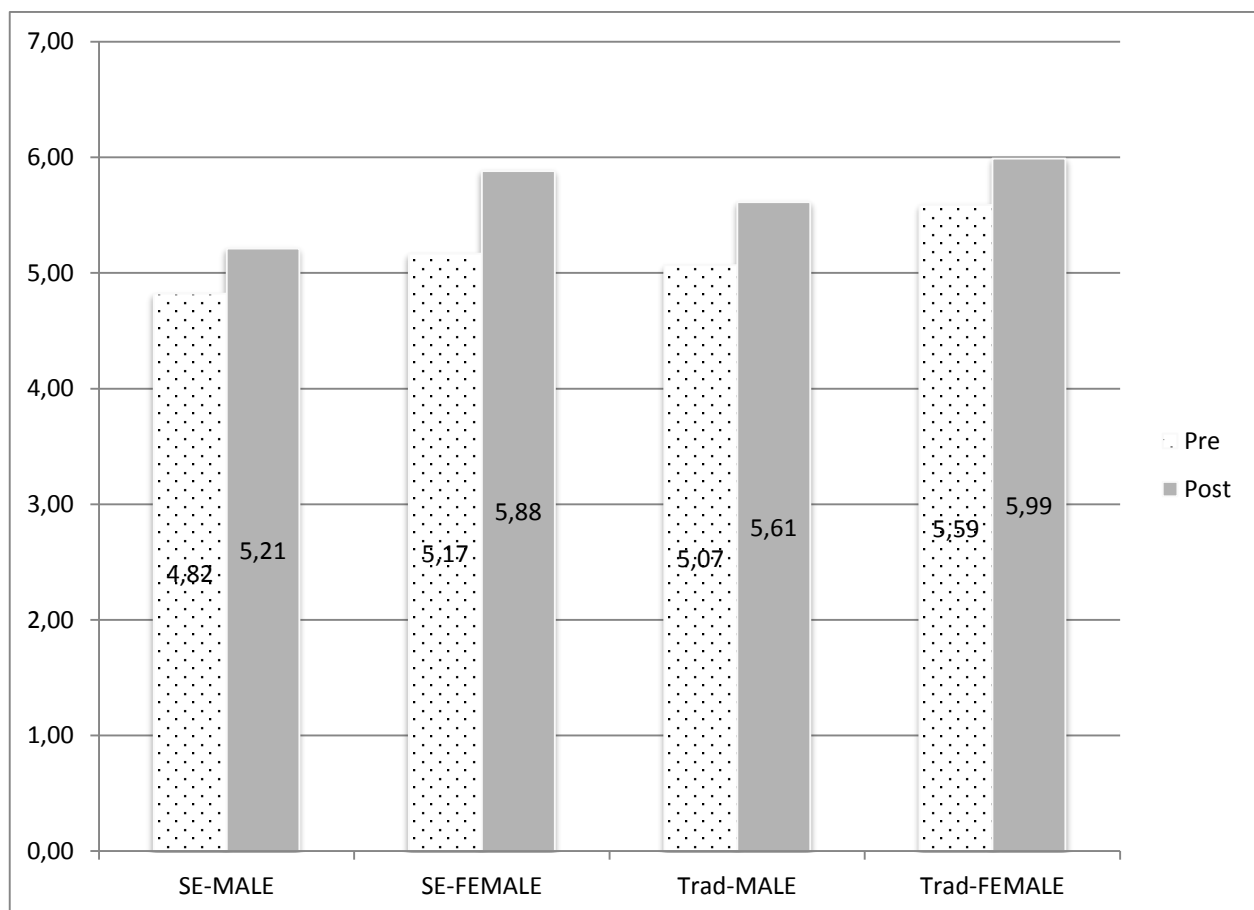


Figure 2. Physical activity enjoyment scale results.

Critical Incidents

The critical incidents revealed a number of themes for both groups. Results revealed two major themes for the direct instruction group; 1) the students found the class to be motivational and 2) beneficial in helping improve their overall fitness level. Students experienced a high level of motivation from their experiences in the class as well as from the instructor. One student stated ‘I enjoy all the encouragement I receive from my classmates and the instructor. This really helps and makes me feel like I’m improving’. Another student stated their appreciation ‘I really enjoy this class...keeps me accountable and makes me get up and run’. The motivation from the instructor was also evident ‘our teacher knows everyone’s potential and can get us pass that’. Another evident theme from the direct instruction group was the fitness benefits associated with the class. At the end of the semester, one student expressed their excitement ‘I was happy to see the difference in my endurance through the repetition of running and pushing myself to be the best I can’. Another student

expressed a similar feeling 'this class motivated me to push myself on distance and speed'. Finally, one student liked the personal improvements 'I have seen huge improvements in my pace and in my weight/dimensions'.

Similar to the direct instruction group, students in the Sport Education group found the class to be motivational and physically rewarding. However, students discussed specific aspects of the class format that they found to be rewarding. Results revealed three themes for the Sport Education group; 1) preference for the competition aspect of the class, 2) the benefits received from working with others, and 3) the enjoyment received from the format of the class. Most comments regarding competition didn't occur until Week 11. This is to be expected considering competition typically occurs later in the scheduling of a Sport Education season. One student summarized the competitive environment 'my favorite thing about the class was the team competitions! They were challenging, competitive and fun. They made us work hard and enjoy ourselves!' The competition aspect also helped students to work together 'team competition helped us work as a team and to motivate each other as we strived to improve'. A strong response from students was related to the benefit of working together

'One thing that I have liked about this class is how supportive everyone is to each other. I don't feel judged for not being the most fit in the class, and I receive caring attention from my classmates and teacher, which also helps keep me motivated.'

Students believed that working together helped make the class more enjoyable 'I like that we do things as a team. It helps everyone get to know each other. Makes class much more enjoyable.' One student summed it up best expressing why they found the class to be enjoyable

'...the most important thing that me and a couple other of my class mates have realized that our influence of running is making a difference with other runners in the class. People are encouraging and helping each other. I've personally heard from others thanking each other for being supportive and encouraging. I feel the same way when someone has encouraged me to run just that much further. The most important part is the encouragement and the effect we have on each other. That really keeps us all going.'

Discussion

In this study university aged students participated in a physical activity course devoted to the activity of jogging. Students participated in either a class being taught using direct instruction or the SEM. This study was driven by two research questions: 1) what impact does the instructional approach have on the running performance and 2) what impact does the instructional approach have on the enjoyment of university students? The findings revealed similarities between the two groups with regards to performance and enjoyment. Student feedback did provide favorable remarks regarding the features of the SEM.

Performance

Based on the findings of previous research (Layne & Yli-Piipari, 2015), it was hypothesized that performance would significantly improve for students in the Sport Education group. Results showed that university student's running performance improved from the beginning to the end of the class regardless of instruction. These results support the previous findings of Pritchard et al. (2008) and Pereira et al. (2015). Participants in those studies showed improvement in performance regardless of instruction. A couple of things could have contributed to these results. First, these findings could be contributed to the motivational impact of classmates and the instructor. Throughout

the class students expressed an appreciation for the support that they received from fellow students as well as the instructor. Both instructors had received high scores on prior semester student evaluations. For future studies, one should examine instructors using the instructional approach for the first time.

Another reason for the positive results of both groups could be contributed to the amount of time devoted to the skill of running. Prior to their college experience, many high school physical education programs lack the appropriate amount of time to devote to one skill. In the state of Tennessee students are required to take one half of a credit of physical education. The percentage of students who took daily physical education in Tennessee decreased from 30% in 2005 to 22% in 2013, which was 7% lower than the national average (TDOE, 2014). Student's transition into college after having one semester of physical education devoted to the learning of a variety of motor skills. Results from the pre-test revealed no difference between the groups. However, after having approximately 2100 minutes devoted to the training of a specific skill, there is a strong likelihood that improvement would occur. In order for aerobic endurance to improve and to receive the associated health benefits, one must be consistent in their training and amount of time spent in activity (Haskell et al., 2007). The combination of motivational support as well as increased time can ultimately lead to greater competency in the skill of running. While this is important, in order for longitudinal consistency to occur, one must have a desire to participate in the activity.

Enjoyment

Over time research has been consistent in claiming that participation in the SEM can increase enthusiasm and enjoyment in both students and teachers (Wallhead & O'Sullivan, 2005; Hastie et al., 2011). Regardless, research is limited on the examination of university students' enjoyment from their Sport Education participation. Our hypothesis regarding enjoyment was partially supported. Although significance was found in only the direct instruction group, the Sport Education group did experience a positive change (+.53) in their enjoyment of jogging. These results would support the findings of Bennett and Hastie (1997), as well as Mohr, Mobley, and Townsend (2012). In both of those studies students were found to have a positive attitude towards the SEM. Student feedback from this study indicated that they enjoyed the competition and affiliation features of the model. This enjoyment may stem from previous physical activity course experiences. For instance, in the study done by Layne and Yli-Piipari (2015), students in the direct instruction group would come to class each day and be placed on a random team for competition. There was no affiliation throughout the semester. Through the use of team affiliation, competition could become more important to the students as they work together to accomplish a goal.

Regardless, student feedback from both groups in the current study suggested that benefits were received from teammates as they worked together to accomplish team goals. Although all teams in the Sport Education group didn't finish first in the final standings, negative comments didn't exist by students regarding the competition feature. Likewise, students in the direct instruction group praised the support they received from their teammates during class workouts.

Given that students receiving direct instruction improved significantly in enjoyment, future research must specifically address the learning environment of a university physical activity course. The role of the teacher or the students in the class may provide the template for creating a positive learning environment which may lead to an increase in enjoyment from students.

Critical Incidents

Findings from this study produced favorable responses from the students regarding the jogging class. Students from the direct instruction group expressed an appreciation for the support they received from both classmates and their instructor. In addition, students appreciated the

performance gains that they experienced from the class. McPherson and French (1991) suggested that students should develop some skill ability before strategies are introduced. The format of the direct instruction group enabled the instructor to focus on the development of students running ability. Regardless of instructional approach, it may be beneficial for instructors to incorporate aspects of both direct and indirect teaching strategies (Rink, French, & Graham, 1996). Throughout a period of learning, instructional approach should be determined based upon the developmental needs of the student.

While the responses from the Sport Education group were similar, they also expressed an interest in the features of the model which were not part of the direct instruction format. These features included competition and working with a team. With appropriate planning competition in physical education can provide a beneficial template for learning and enjoyment in physical education (Layne, 2014). Research on Sport Education has shown that students in elementary (Layne and Hastie, 2015), secondary (Carlson & Hastie, 1997; Grant, 1992; Sinelnikov & Hastie, 2010), and university settings (Bennett & Hastie, 1997; Mohr, Mobley, & Townsend, 2012) were attracted to the competition aspect of the SEM. The competition phase has also been an attractive feature for students with disabilities (Fittipaldi-Wert et al., 2009). From the time competition was introduced to the class students were consistent with their interest in the competition phase of the season and the benefits received from their participation. Although more research is needed on competition in physical activity courses, these findings help support the future use of Sport Education in a university setting.

Students also expressed an appreciation for the affiliation aspect of the Sport Education season. Students received encouragement from other teammates as well as members of other teams. As a result, students received support and motivation to complete each workout and to strive towards the goals that they established. These findings support the belief that 'team affiliation is one of the most attractive features of the model' (Hastie et al., 2011, 105). It should be noted that no student in the study had previous experience with Sport Education; therefore the attractive features of the model were being introduced for the first time. It could be argued that Sport Education is an important approach for students to receive health benefits during their college years. Opposite of high school, students are now on their own and many tasks are completed with autonomy. Sport Education reintroduces students to working with others and receiving the benefits associated with team affiliation. Future studies should examine the benefits associated with affiliation in a university physical activity course.

Limitations

Even with favorable results, the study is not without limitations. Based on the fact that only two classes were used, the sample size from this study was low (15 males, 11 females; 15 SE, 11 Direct Instruction). Due to experimental control, approximately 10 students were removed from this study. Because the class occurred during the fall and winter months, there was a lack of consistency with outdoor climate. Students completed physical activity in warm, cold, and wet environments. In addition, the location of the classes was located in an area where other physical activity courses occurred. Although this did not prove to be problematic, future studies should attempt to be set up in an area free of distraction. Finally, the study examined the instructional approach of two different instructors. Regardless of instructional approach, the positive findings from this study could have been the result of effective instruction. Future studies should investigate numerous instructors using multiple approaches to have an even greater understanding of instructional impact on university physical activity courses. In addition, an examination of students who have participated in both approaches can provide a clearer understanding of performance and enjoyment gains.

Conclusion

The results of this study add to the existing literature examining the instructional impact on university physical activity courses. In order to positively impact university students one final time before entering life beyond college, it is imperative that we continue to examine instruction to determine the most beneficial approach. Research has shown that university student's time engaged in leisure time physical activity is minimal (Haase et al., 2004). More alarming is the finding that university students' knowledge of the available benefits associated with physical activity is limited. Participation in a university physical activity course can help students achieve the recommended amount of moderate to vigorous activity which can lead to important health benefits (USDHHS, 2008). A few of these benefits may include improved cardiorespiratory health, a decrease risk of premature death, and prevention of weight gain (USDHHS, 2008). The goal is to prepare students for healthy living through their participation of lifetime activity and their overall understanding of the health benefits. If the instructional format can improve performance and the enjoyment of the activity, there is potential for increasing physical activity engagement.

As evident from the results of this study, the university setting provides students with the opportunity to improve in performance due to the amount of time available through activity courses. While time is important, other factors contribute to the benefits received through participation in an activity course. Classmates can provide the needed motivation to continually strive to achieve the goals that one may set. Likewise, the instructor can play a critical role in the performance of a university student through the formatting of the class and the example that is set through their own participation and motivation they provide.

While enjoyment did occur in both groups, university instructors must continue to develop ideas to provide students with an optimal learning environment with the goal of increasing enjoyment. If enjoyment increases, there is a greater likelihood that students will continue to participate in the activity, thus increasing the potential for healthy behaviors into their adult years. Nevertheless, studies in the university setting should continue to help confirm the rich potential of all instructional approaches. While research supports the use of each model at different levels of learning, more examination in university physical activity courses could potentially confirm the efficiency of an instructional approach for all students.

References

- Bennett, G., & Hastie, P. (1997). A sport education curriculum model for a collegiate physical activity course. *JOPERD: The Journal of Physical Education, Recreation & Dance*, 68(1), 39.
- Browne, T., Carlson, T., & Hastie, P. (2004). A comparison of rugby seasons presented in traditional and sport education formats. *European Physical Education Review*, 10(2), 199-214.
- Carlson, T. B., & Hastie, P. A. (1997). The student social system within sport education. *Journal of Teaching in Physical Education*, 16, 176-195.
- Fittipaldi-Wert, J., Brock, S. J., Hastie, P. A., Arnold, J. B., & Guarino, A. J. (2009). Effects of a sport education curriculum model on the experiences of students with visual impairments. *Palaestra*, 24(3), 6-10.
- French, K. E., Rink, J. E., Rikard, L., Mays, A., Lynn, S. & Werner, P. (1991). The effects of practice progressions on learning two volleyball skills. *Journal of Teaching in Physical Education*, 10, 261-274.

- Graham, G., & Heimerer, E. (1981). Research on teacher effectiveness: A summary with implications for teaching. *Quest*, 33(1), 14-25.
- Grant, B.C. (1992). Integrating sport into the physical education curriculum in New Zealand secondary schools. *Quest*, 44, 304-316.
- Gurvitch, R., Lund, J., & Metzler, M. (2008). Chapter 1: Researching the adoption of model-based instruction—context and chapter summaries. *Journal of Teaching in Physical Education*, 27(4), 449-456.
- Gusthart, J. L., & Sprigings, E.J. (1989). Student learning as a measure of teacher effectiveness in physical education. *Journal of Teaching in Physical Education*, 8, 298-311.
- Haase, A., Steptoe, A., Sallis, J., & Wardle, J. (2004). Leisure-time physical activity in university students from 23 countries: Associations with health beliefs, risk awareness, and national economic development. *Preventive Medicine*, 39(1), 182–190.
- Haskell, W. L., Lee, I., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., & ... Bauman, A. (2007). Physical activity and public health: Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Medicine & Science in Sports & Exercise*, 39(8), 1423-1434.
- Hastie, P. (1998) Skill and tactical development during a sport education season. *Research Quarterly for Exercise and Sport*, 69(4), 368-379.
- Hastie, P., Sinelnikov, O., & Guarino, A. (2009). The development of skill and tactical competencies during a season of badminton. *European Journal of Sport Science*, 9(3), 133-140.
- Hastie, P. A., de Ojeda, D. M., & Luquin, A. C. (2011). A review of research on Sport Education: 2004 to the present. *Physical Education & Sport Pedagogy*, 16(2), 103-132.
- Layne, T. (2014). Competition within physical education: Using sport education and other recommendations to create a productive, competitive environment. *Strategies*, 27, 3-7.
- Layne, T. & Yli-Piipari, S. (2015). Effects of the sport education model on university students' game performance and content knowledge in basketball. *Journal of Sport Research*, 2(2), 24-36
- Layne, T. & Hastie, P. (2015). A task analysis of a sport education physical education season for fourth grade students. *Physical Education and Sport Pedagogy*, 20(3), 314-328, DOI: 10.1080/17408989.2013.837437
- Leenders, N., Sherman, W., & Ward, P. (2003). College physical activity courses: why do students enroll, and what are their health behaviors? *Research Quarterly For Exercise & Sport*, 74(3), 313-318.
- Lincoln, Y. S. & Guba, E. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
- McPherson, S. L., & French, K. E. (1991). Changes in cognitive strategies and motor skill in tennis. *Journal of Sport & Exercise Psychology*, 13, 26-41.
- Mohr, D. J., Sibley, B. A., & Townsend, J. S. (2012). Student perceptions of university physical activity instruction courses taught utilizing sport education. *Physical Educator*, 69(3), 289-307.
- National Association for Sport and Physical Education. (2007). *College/University physical activity instruction programs: a critical piece in the education of young adults* [Position statement]. Reston, VA: Author.
- Pereira, J., Hastie, P., Araújo, R., Farias, C., Rolim, R., & Mesquita, I. (2015). A comparative study of students' track and field technical performance in sport education and in a direct instruction approach. *Journal of Sports Science & Medicine*, 14(1), 118-127.
- Pritchard, T., Hawkins, A., Wiegand, R., & Metzler, J. (2008). Effects of two instructional approaches on skill development, knowledge, and game performance. *Measurement in Physical Education and Exercise Science*, 12(4), 219–36.
- Richards, K. A., Blankenship, B. T., Smith, A. L., Templin, T. J., & Cho, O. (2012). Motor skill development of students enrolled in a sport education volleyball season delivered by in-service physical education teachers. *Physical Educator*, 69(4), 375-394.

- Rikard, G. L., & Boswell, B. B. (1993). Teacher effectiveness in using direct instruction for student skill acquisition. *Physical Educator*, 50(4), 194.
- Rink, J. E. (1994). Task presentation in pedagogy. *Quest*, 46, 270-280.
- Rink, J. E. (2013). *Teaching physical education for learning* (7th ed.). New York: McGraw-Hill.
- Rink, J. E., French, K. E., & Graham, K. C. (1996). Implications for practice and research. *Journal of Teaching in Physical Education*, 15, 490-502.
- Rink, J. E., French, K. E., Werner, P. H., Lynn, S., & Mays, A. (1992). The influence of content development on the effectiveness of instruction. *Journal of Teaching in Physical Education*, 11, 139-149.
- Siedentop, D. (1998). What is sport education and how does it work? *The Journal of Physical Education, Recreation, and Dance*. 69(4), 18-20.
- Sinelnikov, O. A., & Hastie, P. (2010). Students' autobiographical memory of participation in multiple sport education seasons. *Journal of Teaching in Physical Education*, 29, 167-183.
- Sweeting, T., & Rink, J. E. (1999). Effects of direct instruction and environmentally designed instruction on the process and product characteristics of a fundamental skill. *Journal of Teaching in Physical Education*, 18, 216-233.
- Tennessee Department of Education. 2014. *Physical Activity Physical Education Annual Report 2013-2014*. Retrieved from website:
http://www.state.tn.us/education/health_safety/coordinated_school_health.shtml
- U.S. Department of Health and Human Services. (2008). Physical Activity Guidelines for Americans. Available at: <http://www.health.gov/paguidelines/pdf/paguide.pdf>.
- Wallhead, T., & O'Sullivan, M. (2005). Sport education: Physical education for the new millennium? *Physical Education and Sport Pedagogy*, 10, 181-210.
- Werner, P., & Rink, J. (1989). Case studies of teacher effectiveness in second grade physical education. *Journal of Teaching in Physical Education*, 8, 280-297.