

Improving Fitness Knowledge with Five for Life: High School Effectiveness

Justin A. Haegele and Xihe Zhu^F, Old Dominion University
(jhaegele@odu.edu)

Background/Purpose: Health-related fitness knowledge plays an important role in promoting physical activity among adolescents (Keating et al., 2009; 2010). As such, the National Standards & Grade-Level Outcomes for K-12 PE includes the “acquisition of the knowledge to achieve and maintain a health-enhancing level of physical activity and fitness” as a primary outcome (Mitchell & Walton-Fisette, 2016, p.4). In order to improve health-related fitness knowledge in PE classes, effective research-based curricula must be available to physical educators. Therefore, the purpose of this analysis was to examine the effectiveness of the Five for Life curriculum for improving health-related fitness knowledge for high school-aged students in a Mid-Atlantic state.

Method: A pretest-posttest group design (Thomas et al., 2005) using secondary data was used to examine the effectiveness of the Five for Life—Advanced curriculum at the high school level. Data collected over a 5 year period (2010–2015) from students enrolled in 64 high schools in a Mid-Atlantic state were utilized for this analysis. Participants received the Five for Life advanced curriculum, which introduces training principles and the use of behavior logs which allow students to track how personal habits affect health, performance, and fitness, over one academic school year. At the beginning and culmination of curricular implementation, students took an 11 question health-related fitness exam, and teachers uploaded scores into a district-wide internet platform. Data were extracted directly from the internet platform by the investigators for this analysis.

Analysis/Results: After data were extracted, school demographic variables (e.g., number of students, grade level distribution, and gender distribution) were summarized descriptively. Next, paired samples t-tests were utilized to determine if there were differences between pre- and post- test scores at the school level. Lastly, Cohen’s *D* and Glass’ Δ were computed to estimate effect size. In total, data from 45,898 students (grades 9–11; 49% female, 51% male) were available and extracted within the 64 schools targeted in this analysis. Inferential statistics revealed that on average, schools experienced significantly greater health-related

fitness scores during the post-test measure ($M = 6.78$, $SE = 0.11$) than during pre-test ($M = 8.12$, $SE = 0.11$), $t(63) = -13.144$, $p = .000$. Effect size calculations using the Cohen’s $d = 1.47$, 95% CI = .92–2.02; and Glass’ Δ ($\Delta = 1.43$) demonstrated large weighted effect sizes at school level.

Conclusions: Health-related fitness knowledge is considered an important aspect of enhancing student physical activity as well as their ability to maintain an active lifestyle into adulthood (Demetriou et al., 2015). This analysis provides preliminary support for the effectiveness for the Five for Life curriculum for improving health-related fitness knowledge among high school-aged students. However, limitations associated with the pretest-posttest design (i.e., lack of a control group) and data collection (i.e., entered into online system by physical educators) are considerations when reviewing these findings. Although this analysis provided favorable results, additional research is needed to further elucidate the effectiveness of this curriculum for enhancing high school-aged students’ health-related fitness.

Influence of a Major in PE on Implementing State Standards

Hong-Min Lee, University of New Mexico
(kine19@gmail.com)

Background/Purpose: According to Lawson (1986), occupational socialization is explained as “all kinds of socialization that initially influence persons to enter the field of physical education (PE) and are responsible for their perspectives and practices as teacher educators and teachers” (p. 107). There are three phases of occupational socialization (Lawson, 1983a, 1983b): acculturation, professional socialization, and organizational socialization that are closely related to explain PE teachers’ teaching conceptions. Little research, however, has examined how a major in PE during professional socialization is associated to the use of the State Standards for PE. Therefore, the aim of this study was to examine the influence of the major in PE on implementing the State Standards for PE.

Method: This study used data from the School Health Policies and Practices Study (SHPPS) 2014, a national survey conducted by the Centers for Disease Control and Prevention (CDC), which evaluated school health policies and practices at the classroom and school levels in the United States (CDC, 2015). Classroom-level data in 2014 was used in the current study ($N = 722$),

Promoting Adolescent Health-Related Fitness Knowledge Using Five for Life Curriculum

Xihe Zhu^F and Justin A. Haegele, Old Dominion University
(x2zhu@odu.edu)

Background/Purpose: Developing healthy behaviors and concepts in school is vital to building a culture of health in our society. Teaching fitness-related knowledge has become critical in developing students' healthful living behaviors (Corbin et al., 2007). While many large scale studies have examined adolescent physical activity and fitness-related behaviors, there is limited understanding about what adolescents know about health-related fitness. This study examined adolescents' health-related fitness knowledge improvement over a year as they learned Five for Life—Intermediate curriculum (Focused Fitness, 2015; Spokane Valley, WA).

Method: This study was conducted using a large-scale dataset. The participants were 81,519 middle school students (48.8% female) from 57 middle schools in an eastern state. The participants ranged from 10 to 15 years old. The 57 middle schools implemented the Five for Life intermediate curriculum embedded into their physical education classes. Content validated knowledge tests were conducted either online or in paper-based format. All items were multiple-choice format with four choices and only one correct answer. Data collection occurred from June 2011 to June 2015, simultaneously throughout these schools. All test scores were scaled on a 10 point system for consistency.

Analysis/Results: Data were weighted based on school size, and aggregated at the school level for analyses. We conducted descriptive statistical analyses on pre and posttest scores. Pearson product-moment correlation analyses were then conducted to examine the association between them. Lastly, we conducted a paired samples t-test to evaluate the difference in pre and posttest scores and we computed Cohen's *d* for effect size. At the school level, adolescents on average scored 5.78 ($SD = .77$) and 7.59 ($SD = .96$) on the pretest and posttest, respectively. Correlation analyses showed that the pre and posttest scores were highly correlated ($r = .79$, $p < .01$). Paired samples t-test showed that adolescents scored significantly higher in the posttest than they did in the pretest, $t = -23.39$, $df = 56$, $p < .01$. We computed the effect size based on school level results, with Cohen $d = 2.09$ (95% CI = 1.45–2.73), Glass' $\Delta = 1.89$, indicating a large effect size.

Conclusions: These results demonstrated that adolescents had limited understanding of health-related

fitness concepts as evidenced in the low pretest score (average 5.78 on a 10 point scale). This finding points out the need to enhance health-related fitness education in physical education classes. Despite the limitation of pre-posttest design with no comparison group, the large effect size suggested that at school level Five for Life curriculum was effective in improving adolescent health-related fitness knowledge on a large scale. Practitioners should expect to enhance adolescent health-related fitness knowledge if they teach using this curriculum. Future studies should include a comparison group to identify the relative effectiveness in comparison with others available to physical educators.

Promoting Health in a Virtual World: Virtual Reality and Autism

Hai Yan, University of Illinois at Urbana-Champaign
(haiyan2@illinois.edu)

Background/Purpose: Autism spectrum disorder (ASD) is a lifelong developmental disability that is characterized by deficits in social communication and social interaction and constrained, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2013). Approximately 1 in 68 children in the United States has been classified with ASD (CDC, 2014). Effective technology like Virtual Reality (VR) based programs for addressing social, behavioral, and adaptive skills in children with ASD are gradually gaining attention among researchers and practitioners. The purpose of this study was to provide a systematic overview of how virtual reality based therapy could help children with ASD.

Method: Keyword and reference searches were conducted in PubMed, Google Scholar, and ClinicalTrial, and the inclusion criteria included: (a) study design: cohort studies, pre-post studies, or cross-sectional studies; (b) main outcome: physical and mental health improvements through virtual reality approach; (c) population: children with ASD; (d) language: articles written in English; and (e) article type: peer-reviewed articles or theses. A total of 67 articles were identified in the search, among which 39 were excluded in the title and abstract screening and 16 were excluded after full-text review. The remaining articles were carefully evaluated and results were summarized.

Analysis/Results: Among the 12 studies, 6 studies demonstrated that VR-based approach can help facilitating improvements in social communication skills such as contextual processing and cognitive flexibility