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Maintaining Physical Activity Levels of Teachers in a Summer Intervention

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Maintaining Physical Activity Levels of Teachers in a Summer Intervention

Meghan A. Phillips

**A Dissertation submitted to the College of Physical Activity and Sport Sciences
at West Virginia University
In partial fulfillment of the requirements for the degree of**

**Doctor of Philosophy
in
Kinesiology**

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**Morgantown, West Virginia
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**Keywords: Comprehensive school physical activity program, physical activity
interventions, work-site wellness, faculty and staff, physical education, stimulus fading
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ABSTRACT

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Meghan A. Phillips

Schools are in a premier position to promote physical activity programs with students, faculty and staff, and the surrounding community. Since individuals of working age spend a significant portion of their lives in their work environment the workplace potentially represents a convenient, efficient, and effective access point to the individual (McGillivray, 2005). One recent suggestion in the literature discusses the need for physical education teacher education programs to help make physical educators Sport, Physical Activity, and Fitness Education Specialists (Bulger & Housner, 2009). This new role would place physical educators as potential leaders in schools for the promotion of a worksite-wellness model that could be adopted by educational facilities. The purpose of this study was to determine if a physical education teacher could maintain and generalize physical activity behaviors of teachers during summer recess, after they were participants in an on-site worksite wellness exercise class administered by the physical education teacher. Using a stimulus fading approach the physical education teacher served in a new and dynamic role to maintain physical activity within teachers. Evidence of this study indicated that physical educators could serve as physical activity specialist in schools as they promote and change the physical activity level of teachers. This study also found that the use of technology can help in generalizing physical activity behaviors of teachers over summer recess.

Keywords: Comprehensive school physical activity program, physical activity interventions, work-site wellness, faculty and staff, physical education, stimulus fading

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Chapter I

Introduction

McKenzie (2007) stated that sedentary living is a major public health issue as it is associated with a number of preventable diseases. Schools are in a position to be a productive public source to battle inactivity. Physical educators are in a position to be one of the strongest advocates of healthy and active lifestyle choices in the public school setting. In order to effectively promote physical activity on school premises and encourage activity to be sustained in communities, physical educators will need to learn skillfulness beyond what is typically taught in undergraduate physical education teacher education programs. As a result, for schools to play a major role in physical activity promotion, physical education teacher education programs and in-service staff-development programs will need to be revised substantially (McKenzie, 2007).

In 2008, the benefits of physical activity were organized in a review by the Department of Health and Human Services. The 2008 Physical Activity Guidelines have played a significant role in the sending the message to the general public on the importance of physical activity. These guidelines especially focus on the importance that physical activity plays in reducing adverse health risks and outcomes for individuals across all ages. The strategies and suggestions posed by the Department of Health and Human Services can serve as a tool to help professionals establishing interventions that target physical activity. They also serve a variety of age groups and special populations and are considered a credible resource for professionals in the health and wellness fields targeting the change and increase in physical activity behaviors.

The National Association for Sport and Physical Education (NASPE, 2008) has called for a more comprehensive approach to teaching physical activity. According to NASPE,

a Comprehensive School Physical Activity Program (CSPAP) includes physical activity programming during school as well as before and after the school the day. NASPE recommends that a CSPAP include family and community involvement, school employee wellness and involvement, school-based physical activity opportunities, and quality physical education. A lot of pressure continues to fall on physical education for helping decrease the steady rise in obesity. Due to this, physical education may be more effective in the use of a comprehensive approach to increase healthy behaviors in individuals. Over the past decade, health promotion practice has been focused on the concept of ecology in promoting behavior changes for people. The use of the ecological approach in health promotion programs was discussed in an article by Richard, Potvin, Kishchuk, and Green (1996). This article targeted health programs, particularly ones focusing on the environment, versus the individual involved. An ecological approach emphasizes that each person is affected by interpersonal, intrapersonal, organizational, societal, and environmental factors, and allows program planners to understand the complexity of reaching desired healthy objectives. Changing behaviors requires an ecological approach; therefore if students are our target we also need to address changing the behaviors of other influencing people in their environments. Bopp and Fallon (2008), suggest that physical activity programs that take place on school property have the potential to become a community focal point where volunteers, parents and children can come together to address physical inactivity.

Changing the health status of America and our world requires multiple shifts in perspectives. Physical education must establish itself as an important part of a child's education and also an important part to the communities and people that surround educational practices. Physical educators have the potential to create the change needed, but will not be successful if their sole focus is on a child's in-school experience. School districts can unite to provide easily

accessible, in-expensive, and quality wellness programs for students, staff, families, and community members to partake in. McGillvray (2005) argued that the workplace potentially represents a convenient, efficient, and effective access point for the individual. Some occupations are already required by law to have certain levels of fitness in order to carry out their duties. However, there is a recent trend in the importance of wellness for recruitment and selection of employees, as well as in productivity and retention of workers. The economic benefits found in studies include reduction of absentee rates, improved morale and efficiency, reduced insurance costs, and improved working conditions (Griffiths, 1996). Holding staff members accountable for their wellness can enhance the workplace significantly, if done appropriately (Griffiths, 1996). Coulson, McKenna & Field (2008), found that in comparison to days when employees participated in exercise versus no exercise during their work day, those who exercised showed “improved mood and performance, leading to better concentration, work-based relationships and heightened resilience to stress” (p.193). Several associations have been found between perceived worksite policies and physical activity. These associations were strongest when having paid time for non-work related physical activity, an on-site facility at work, and subsidies for health clubs (Marcus, Nigg, Riebe, & Forsyth, 2000). With the current knowledge in the literature supporting wellness workplace initiatives it is important for school districts to understand that both policy and program design affect the staff’s adoption of consistent exercise patterns (Dodson, Lovegreen, Elliot, Haire-Joshu, & Brownson, 2008).

Traditional styles of physical education are limited in being able affect the health status of students. Armour (2010) states “...and we can also surmise from the physical inactivity data that whatever PE has achieved to date, it doesn’t seem to have been very successful in persuading vast numbers of young people – or adults – to be physically active (p.7).” However,

McKenzie (2007) has stated physical education as one of the most suitable vehicles available for the promotion of active, healthy lifestyles among young people. The behavior of physical activity is very complex and there are many factors which must be considered for increasing physical activity levels and healthy behaviors across all age groups. These factors include personal, social, environmental, cultural, and political influences. All of these factors play a role in determining an individual's lifestyle choices (Trost, Owen, & Bauman, 2002). Using a comprehensive approach in physical education could potentially have a positive influence on the population's adoption of more physically active lifestyles. Programs can be made more impactful by targeting families, teachers, and community members that embody the public school systems.

If physical educators can become leaders in the community and the school for promoting physical activity, they may also find more job satisfaction and a sense of belonging in their professional learning community. Physical education must work to transform its position in the public school systems. By providing quality preparation coursework and meaningful professional development opportunities to teachers in the field, physical education can change for the better. Bulger and Housner (2009) discussed the idea that physical education teacher education (PETE) programs can help mold future physical educators into sport, physical activity, and fitness education specialists. In this role, physical educators would obtain competencies and certifications for designing school and community sport, physical activity, and fitness programs. These programs could extend to the school staff and provide opportunities for family participation in programs. Redefining the role of physical education teachers to serve as these specialists may aid in teacher retention and will potentially positively affect physical education's role in the public school system. In order for these specialists to be developed, PETE programs should emphasize building professionals who are looking to create change in the lives of

students, co-workers, families, and community members surrounding the school culture. This requires physical educators to be advocates for change and role models for the promotion of healthy lifestyle choices. Collier (2009) describes a model for PETE programs that places inquiry at the core of teacher learning. Collier's (2009) model represents a cycle of inquiry that a teacher goes through as they advance in their teaching career. The cycle requires teachers to inquire about themselves, their context, and lastly, their advocacy in the profession. Collier proposes that contextualized learning demands examination of real world problems and promotes problem solving using multiple perspectives.

Curtner-Smith (1999) stated a need for more powerful and intensive forms of in-service training for practicing physical education teachers. Armour and Yelling (2004) have provided three suggestions for future professional development in the field of physical education. It should (1) be school based and take place in school settings rather than off site, (2) include collaborative opportunities with teachers seeing themselves as members of a community of physical educators as learners, and (3) include a set of experiences that focus on core curriculum and pedagogy for learning in physical education. Professional development in the field of physical education is extremely limited. Therefore professionals would benefit from model programs offering professional development opportunities. Reshaping the structure of how physical education exists in the school requires disseminating quality practice. Having each state creating one or several model programs will offer help and guidance to other physical education professionals aiming to improve practice.

If 97% of the elementary schools in the United States are offering Physical Education (Sallis et al., 1997) then schools can serve as a powerful resource for reaching family and surrounding communities in the promotion of healthy lifestyle choices. Wellness programs

initiated for the community and staff are strongly suggested as being another part of a physical educator's responsibility. School districts need the knowledge and understanding of how physical activity and the promotion of healthy lifestyle choices can better all those who are a part. As stated above, professionals cannot assume that if facilities and programs are offered people will partake. The use of incentives and further theoretical approaches to changing behavior are needed for recruitment in such programs. Therefore in teacher education programs, aspiring physical educators should be coached and made familiar with the process of grant writing as well as with health promotion practices. Preparing physical educators who do not aspire to create a community practice may be considered detrimental to this process in changing the administration of quality physical education in schools.

As Fullan (1993) stated pertaining to research on professional development, if educators can see themselves as experts in the dynamics of change they can, in-turn, become skilled change agents. Physical education needs to promote advocacy within teachers in promoting best practice and quality physical education. It is important to remember the importance of family support in creating positive healthy lifestyle choices. Therefore schools may be able to reach many families and community members in providing easy and accessible access to fitness facilities and health professionals at school to help in promotion of family wellness.

Due to the nature of the educational setting, school's employees may not have access to work-site programs and facilities promoting physical activity during the extended time off during summer recess. This study targeted maintaining behavior and generalizing physical activity levels of teachers outside of the work setting for the purpose of addressing their lack of availability to work-site programs during their summer recess. The work-site wellness program administered throughout the year indicated that participants' physical activity was affected by the

involvement of the physical education teacher. Using the applied behavior analytic approach of stimulus fading this study considered the physical education teacher as the stimulus related to increasing physical activity behaviors of the participants. Contact and interaction with the physical education teacher was decreased in increments (faded) for each of the participants. The fading allowed for participants to interact based on individual schedules of availability throughout the summer. This study infused technology and distance-based methods to help replace time spent with the physical education teacher. Although literature supports the idea of work-site wellness programs, this study aimed to indicate whether a work-site wellness initiative started by the physical education teacher, could generalize physical activity behaviors of teachers as they are out of school and maintain their physical activity during the summer recess.

Purpose

The purpose of this study was to determine if teachers could maintain physical activity levels during summer recess, after participating in a physical activity class administered by the physical education teacher.

Research Questions

(1) Can teachers effectively self-monitor their physical activity behavior using an online tracking program for monitoring physical activity? And (2) Can the physical education teacher effectively maintain and generalize physical activity behaviors of teachers?

Hypothesis

The participants in this study will be able to maintain desired levels of physical activity as suggested by the U.S. Department of Health and Human Services 2008 Physical Activity Guidelines in order to achieve a health-enhancing level of fitness during the summer-time intervention.

Key Definitions

1. Physical activity- “any bodily movement produced by skeletal muscles that result in energy expenditure. The energy expenditure can be measured in kilocalories. Physical activity in daily life can be categorized into occupational, sports, conditioning, household, or other activities” (Caspersen, Powell, & Christenson, 1985, p.126).
2. Exercise- a subset of physical activity that is planned, structured, and repetitive and has as a final or an intermediate objective the improvement or maintenance of physical fitness (Caspersen et. al, 1985).
3. Physical fitness-a set of attributes that are either health- or skill-related. The degree to which people have these attributes can be measured with specific tests (Caspersen et. al, 1985).
4. Generalized behavior change- is accomplished when “it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors.” (Baer, Wolf, & Risley, 1968, p.96)
5. Stimulus fading - a behavioral procedure which relates to the maintenance of effects in behavior interventions. Fading is achieved by the following steps: (1) Gradually increasing expectations necessary for reinforcement, (2) utilizing a variable schedule with increasing time intervals, and (3) reducing the number of prompts or cues given to signal self-monitoring (Wheeler & Richey, 2005).

Scope of the Study

There were four participants ($N=4$, *Male*=0, *Female*=4) in this study. They were recruited from an already existing worksite-wellness exercise program being administered by the physical education teacher at Mylan Park Elementary School in Morgantown, West Virginia.

This stimulus fading physical activity intervention lasted the duration of the summer recess of 2011 for the Monongalia County School District. A two-week baseline period served to document the participants' regular participation in physical activity during the school year and participation in an existing worksite-wellness exercise program. Following the two-week baseline there was an educational instructional week for the participants in setting up the distance-based technology and participants participated in physical activity on their own schedules. The physical education teacher did not administer the exercise class during the educational week. The participants faded at different rates following this week of educational training. The intervention lasted for the remainder of the summer break to demonstrate maintenance during the summer recess and successful fading from the physical education teacher.

Limitations

1. The investigator's prior involvement with the participants during the worksite wellness exercise program may have positively influenced the participants' adherence to the summer physical activity intervention. In order to address this confounding variable, the investigator faded contact with participants and limited face-to-face contact with all the participants by the end of the intervention. Successful fading demonstrated maintenance of physical activity without the physical presence of the physical education teacher.
2. This study utilized a set of participants that already exhibited behaviors that indicate a desire to maintain their physical activity levels following an on-site exercise class administered throughout the year by the physical education teacher. In order to better understand the reasons as to why the participants desired to maintain their physical

activity levels, participants filled out a follow-up survey to give the researcher insight to their values of physical activity pertaining to their life.

3. The technology used in this study has limitations in its ability to measure certain type of physical activities (i.e. resistance training activities). To help with this limitation participants were required to do a daily physical activity re-call via the web-site created by the physical education teacher.
4. Self-reported data were also a limitation of this study. In order to make sure data entered were accurate the researcher checked the participants online entered data directly to the data saved on the watch. On both occasions that the watches were checked to the data there was an inter observer agreement of 100%.

Significance of the Study

An overall lack of time and limited access to physical activity programs indicates a greater need for individuals to obtain information, skills, and behavior change interventions in ways other than face-to-face programs. Marcus et al. (2000) discussed the need for physical activity interventions to be disseminated across the large population of sedentary adults. The use of web-based and computer-based interventions enables a larger group of individuals to be reached in a given intervention program (Napolitano et al., 2003). Hurling et al. (2007) found physical activity can be increased via a fully automated Internet-based behavior change system with use of accelerometers to measure physical activity levels. “Unless effective interventions for promoting physical activity are developed to deal with the high prevalence of inactivity, cardiovascular disease that is secondary to sedentary behavior will lead to even higher national health expenditures while adding to premature disability, suffering, and death (Wang, Pratt, Macera, Zheng, & Heath, 2004, p.93).”

Theoretical Framework

This study utilized the ecological model to address the complex behavior of physical activity. This model emphasizes that there are multiple levels that influence behavior. The component of the environments in which we live and work are also considered as they influence our behaviors as individuals too (Sallis & Owen, 2002). The social ecological model utilizes five constructs that influence behavior: intrapersonal, interpersonal, organizational, policy, and community. All of these factors contribute to why people behave the way they do.

This study aimed to maintain physical activity by increasing intrapersonal influences such as efficacy, expectations, skills, and capability. The intervention also addressed the interpersonal and environmental influences of the participants by trying to motivate them to be active with others and also to participate in new activities occurring in new environmental settings. The use of this model was the theoretical basis for maintaining the physical activity behaviors of the participants.

Chapter II

Literature Review

The purpose of this literature review is to build support for the purpose of this study, whether physical educators can maintain physical activity levels of teachers during a summer intervention. In order to formulate an argument for the research study being presented in this dissertation, literature in this review will be organized into the following sections: (1) Problems in Teacher Retention, (2) Schools Serve As Agents for Changing Health Behaviors, (3) Worksite Wellness, and (4) Monitoring Physical Activity. The argument being posed is that physical education teachers can improve the health status of faculty and staff through the promotion of physical activity. The purpose of this study is to evaluate the effectiveness of a summer intervention on maintaining the physical activity levels of faculty that participated in an afterschool exercise program at school. The goal of the intervention is to utilize the theory of generalization to show whether participants in a physical activity class can maintain physical activity levels in a summertime intervention using fading contact with the physical education teacher. This new dynamic role of physical education teachers may help impact the physical activity levels of a wider range of individuals by utilizing the schools to intervene with the physical activity behaviors of not only the students but the adult population within and surrounding the school community.

Problems in Teacher Retention

The longstanding debate on teacher quality in the United States is framed by the culture of accountability required by the implementation of The *No Child Left Behind Act* (Public Law 107-110, 2002). This Act has played a large role in changing the teaching profession by setting a higher standard for educators and requiring them to be labeled as “highly qualified” teachers.

Based on the *No Child Left Behind Act* a highly qualified teacher must have a bachelor's degree, full state certification or licensure, and demonstrate competency in the subject matter they teach. This change in policy has brought teacher training programs and certification processes into question.

A publication put out by the U.S. Department of Education and International Affairs Office (2004) discussed three categories of teachers who were most likely to leave the profession. These three categories were (1) the most academically qualified teachers, (2) teachers in hard-to-staff areas, and (3) young and inexperienced teachers. This report also discussed that research suggested teachers who did well on college entrance exams and attended highly selective undergraduate institutions were more likely to leave the profession early in their careers than others and were also significantly less likely to return to teaching later in their careers. Also, teachers who worked in schools with higher concentrations of disadvantaged students, exhibited higher rates of turnover. Lastly, young teachers with inexperience have been known to leave the profession at elevated rates.

Clear conclusions cannot be made as to why some of these trends occur, but it is evident in this report that these three categories of teachers show higher rates of attrition. Henninger (2007) found that teachers who believe they can make a difference both within their students and within the systems which they work are more likely to remain committed to teaching despite occasional setbacks. Morgan, and Kritsonis (2008) discussed the results of a nationwide survey done by the National Education Association in 2007. In this survey it was found that annual teacher attrition (turnover) costs have risen to 7 billion dollars and numbers also indicated an average of 50% of teachers transfer, resign, or retire from high-risk schools within the first five years of employment. Lynn and Woods (2009) found that an increased level of personal teaching

effectiveness results in increased enthusiasm, success, commitment, enhanced teacher-student interactions, and ultimately maintenance and retention of quality teachers.

Another problematic concern for policy makers in the United States is there is no single path to becoming a teacher throughout the country. Though many teachers attend preparatory programs at universities and colleges, there are new routes being designed for alternative certification. Though almost all programs require field experience in some aspect, the way in which teachers are prepared and certified varies from state to state. All of these potential concepts play an important part to attracting and retaining teachers in the profession. (National Council On Teacher Quality and U.S. Department of Education International Affairs Office, 2004).

Teacher Burnout

According to Delgado (1999), many first year teachers experience overwhelming isolation. In addition to isolation, another concern that new teachers are faced with is the lack of a fixed-term contract that provides job protection. Initial teacher contracts generally impose a probationary period, usually lasting three years before they obtain tenure status. The National Council on Teacher Quality and U.S. Department of Education International Affairs Office (2004) indicated that from 1999 to 2000 only 0.3% of public school teachers with at least three years of experience are dismissed annually. However, though worrisome to new teachers, national data also indicated less than 1% of teachers with less than three years of experience are dismissed (National Council Teacher Quality and U.S. Department of Education On International Affairs Office, 2004). One of the earliest studies ever discussing burnout was the one by Freudenberger (1975). The wear-out symptoms among staff working in free health clinics

were observed. Burnout was then defined as a symptom of emotional depletion and a loss of motivation and commitment.

Maslach, Schaufeli, and Leiter (2001) discussed burnout as being a prolonged response to chronic emotional and interpersonal stressors that occur on the job. Also, according to Maslach et al. (2001) burnout occurs in the three dimensions; exhaustion, cynicism, and inefficacy. Maslach et al. (2001) discussed the consistent and strong body of evidence that a lack of social support at the work-place is linked to burnout. Burnout was also shown to be higher for people who have minimal opportunities to participate in decision making at the work-place. Several personality traits have been studied in an attempt to discover which types of people may be at greater risk for experiencing burnout. People who display low levels of hardiness have higher burnout scores, particularly on their level of exhaustion. “Burnout is higher among people who have an external locus of control (attributing events and achievements to powerful others or to chance) rather than an internal locus of control (attributions to one’s own ability and effort)” (Maslach et al., 2001, p.410).

Early research has found coping to aid in an individual overcoming burnout. As defined by Lazarus and Folkman (1984) coping is characterized as the way in which individuals cognitively and behaviorally handle environmental demands in their lives. An article written by Schlichte, Yssel and Merbler (2005) opened with several questions pertaining to teacher burnout: “How do teachers cope with the realities of their profession? Are there any protective factors that would enable first-year teachers to manage better the demands of their new career instead of succumbing to its rigors?” (p.35). A consistent theme throughout the literature on burnout is the challenging relationship between the person and the work environment, which Maslach, et al. (2001) described in the terms of ‘imbalance or misfit’ (2001, p. 191). Maslach et al. (2001) found

that “people thrive in community and function best when they share praise, comfort, happiness, and humor with people they like and respect” (2001, p.418), which can reaffirm a person’s membership in and give individuals a joint sense of ideals.

Research on interventions to deal with burnout has been limited (Maslach et al., 2001). However, it would not be unreasonable to suggest that participation in group exercise may enhance a teacher’s sense of belonging and intern better assist in their coping with burnout. Kokkinos (2007) found both personality and work-related stressors were associated with burnout dimensions. Chang (2009) discussed in a review of the literature that K-12 teaching is a profession that typically has high levels of burnout and emotional exhaustion and further discussed that, “the psychological property of burnout seems to be a temporary state on a continuum rather than just an end-product” (Chang, 2009, p.197). Chang further argued,

While the paradigm of educational research has shifted to a more social constructive approach, more and more studies explore teacher burnout as the result of an interaction between individual (i.e. age, gender, years of teaching experience, and personality) and organizational factors (i.e. institutional and job characteristics, e.g., inappropriate work demands, socioeconomic status of school, and administrative support)” (Chang, 2009, p.199).

Chang (2009) concluded that coping is a significant underlying aspect that has an inverse relationship with teacher burnout.

Beginning teachers, particularly within their first year, are at a higher risk for leaving the profession. Even quality academic training and successful student teaching experiences are affected if adequate support and guidance are not present in the school setting (Delgado, 1999). According to the Council of Chief State School Officers (2002), the induction and support of new teachers in the United States is primarily the responsibility of local school districts and schools.

Understanding the personal and organizational factors of the environment that promote or deter job satisfaction is detrimental and should be considered in the design of positive professional experiences. These opportunities should be based on the contextual and individual needs of teachers at specific career levels in order to help ease in the retention of quality physical education teachers (Lynn & Woods, 2009).

Professional Development and Physical Education Teacher Retention

Lawson (1986) defined occupational socialization as ‘all kinds of socialization that initially influence persons to enter the field of physical education and later are responsible for their perceptions and actions as teacher educators and teachers’ (p. 107). Some of these influences include: apprenticeship of observation, the influence of family (Lortie, 1975) former teachers and coaches influences, love of sport, desire to be affiliated with sport (Templin, Woodford & Mulling, 1982), lack of administrative support (Locke, 1990), marginalization (Sparkes, Templin, & Schempp, 1993), all impact the socialization processes of physical education teachers and their fulfillment of their professional responsibilities (Stroot and Williamson, 1993). Due to the fact that schools are highly ‘custodial bureaucracies’ and exert such a powerful influence, life can be very difficult for young teachers who enter the workforce with new beliefs and values (Lawson, 1983). Curtner-Smith (1999) stated a need for more powerful and intensive forms of in-service training for practicing physical education teachers.

Several issues have been identified in the problems of introducing quality professional development into the field of physical education. The introduction of school-based in-service training can be problematic in schools where physical education is marginalized (Fejgin & Hanegby, 1999). Unfortunately, the traditional model of professional development (PD) that prevails in many schools is characterized by a long and somewhat uncertain trail leading from an

external professional development provider/activity to teacher learning and then to pupil learning which is overly optimistic (Garet, Porter, Desimone, Birman, & Yoon, 2001). Armour and Yelling have done extensive research in professional development in the field of physical education. The teachers in their study recognized barriers to collaboration, but also tended to view PD and the day-to-day practice of teaching as two distinct and separate things. Thus, in order for them to engage in PD, they believed they had to leave their classes, with all the difficulties that follow as a result of being out of their classrooms and away from their students. Teachers in this study placed a high value of learning collaboratively with and from each other in informal networks or communities (Armour & Yelling, 2004). Armour and Yelling (2004) and Craft (1996) also discussed the idea of career long professional development (CPD), which are learning experiences that occur after completion of initial teacher education by in-service teachers. Armour (2010) later identified CPD as a defining characteristic of all professions. However, she also states that much of the CPD traditionally offered to physical education teachers is limited in both scope and challenge. Armour and Yelling (2007) have provided three suggestions for future professional development in the field of physical education. It should be (1) school based and take place in school settings rather than off site, (2) include collaborative opportunities with teachers seeing themselves as members of a community of physical educators as learners, and (3) include a set of experiences that focus on core curriculum and pedagogy for learning in physical education must be developed (Armour & Yelling, 2004). Betchel and O'Sullivan (2006) discussed the many factors that affect the design of effective PD programs in physical education. Betchel and O'Sullivan stated, "Some of the longstanding assumptions have been challenged. These include the assumption that only outside experts can provide PD for teachers. Most outside experts have little knowledge of local contexts and many are not viewed

as credible with teachers in the school” (2006, p. 377). The major suggestion by Betchel and O’Sullivan (2006) was that providers of professional development must actively engage teachers in meaningful experiences to aid in shifting teachers’ practice to ensure better-quality physical education for the children and youth they serve. With a lack of quality professional development, Armour and Yelling (2007) discuss that teachers practice for many years and are sometimes unaware that they are failing to meet their professional commitments to the pupils in their care. Instead, Armour and Yelling (2007) found that physical education teachers placed a high worth on learning collaboratively in informal networks or communities with and from other physical educators.

Early research in physical education, completed on in-service and veteran teachers, stems from two primary foci: What is it like to be a beginning PE teacher?; and What factors work to facilitate or inhibit one’s ability to demonstrate “best practice” and to “enjoy life in the gym”? (Metzler, 2009). These two core questions have led to several questions concerning the transition to being a full-time independent teacher and role conflicts. It also brought to light many of the challenges that new physical education teachers face in the work world such as; subject matter marginality, isolation, lack of mentoring, and work place conditions. Napper-Owen (1996) demonstrated that recently inducted teachers benefited from an articulated and continuous approach to mentoring spread over the first two years of teaching.

Other research on teacher socialization in PETE has found that teacher beliefs need to be challenged (Mantanian & Collier, 2003). Research on professional development in physical education was addressed in three different strands by Betchel and Sullivan (2006). According to Betchel and O’Sullivan research has focused on the contextual factors of teachers’ lives, the impact of dispositions, and the scope and effectiveness of continuing professional development

(2006). Collier (2009) describes a model for Physical Education Teacher Education (PETE) programs that places inquiry at the core of teacher learning. This model is based on Cochran-Smith and Lytle's *knowledge in and of practice*. Knowledge *in* practice is, to a great extent, an uncertain and spontaneous craft situated and constructed in response to particularities of everyday life in schools and classrooms. Knowledge *of* practice is defined as the knowledge of teachers' needs to teach well emanates from systematic inquiries about teaching, learning, learners and learning subject matter and curriculum, and schools and schooling (Cochran-Smith & Lytle, 1999). Keay and Lloyd (2009) discussed the challenge of professional development is how to encourage providers to develop and engaging with their "own quality assurance processes and practices rather than passively reacting to externally imposed control procedures" (p. 675). Collier's (2009) model represents a cycle of inquiry that a teacher goes through as they advance in their teaching career. The cycle requires a teacher to inquire about themselves, their context, and lastly, for advocacy in the profession. Collier proposes that contextualized learning demands examination of real world problems and promotes problem solving using multiple perspectives.

One recent suggestion in the literature discusses the need for physical education teacher education programs to help make physical educators Sport, Physical Activity, and Fitness Education Specialists (Bulger & Housner, 2009). In this role, they would obtain competencies and certifications for designing school and community sport, physical activity, and fitness programs. The program could extend to the school staff and provide opportunities for family participation in programs. Re-defining the role of physical education teachers to serve as these specialists may aid in teacher retention will positively impact physical education's role in the school. Some of these professional opportunities may include obtaining certifications from organizations such as the National Strength and Conditioning Association, American College of

Sport Medicine, and the American Council of Exercise etc. Through professional development and continuing education opportunities, physical education teachers can reach a higher level of professional image in schools (Bulger & Housner, 2009).

Schools Serve As Agents for Changing Health

McKenzie (2007) stated that sedentary living is a major public health issue as it is associated with a number of preventable diseases. Schools are in a position to be a lucrative public source to battle the inactivity phenomenon. Physical educators are positioned to be strong activists and role models for the promotion of healthy and active lifestyle choices. In order to effectively promote physical activity on school premises and encourage activity to be sustained in communities, physical educators will need to learn skillfulness beyond what is typically taught in undergraduate physical education teacher education programs. As a result, for schools to play a major role in physical activity promotion, PETE programs and in-service staff-development programs will need to be revised substantially (McKenzie, 2007).

Over two decades ago, the concept of health related physical education was developed (Sallis & McKenzie, 1991). McKenzie (2007) discussed health related physical education in the realm of teaching children, but it can easily be generalized to all individuals being taught the process of physical activity. The health-related concept focuses on the development of lifelong physical activity, which is noted to be a process versus a product such as physical fitness. Health related components that are taught include; cardiovascular endurance, muscular endurance, muscular strength, flexibility, and body composition. This indicates that being healthy through physical activity is much more in depth and requires multiple factors that contribute to health status. This notion of physical education is directed towards reaching public health initiatives and objectives. It involves the integration or multiple disciplines in the fields of mental health,

sociology, physiology, and psychology. This shift indicates a deviation from fitness training towards behavioral training. This concept not only helps individuals become physically active, but also they learn behavior skills, that can be generalized, to help them maintain physical activity behaviors for a lifetime (McKenzie, 2007).

Physical Activity as a Behavior

Behavioral approaches typically involve lifestyle modification of behavior versus a short term change. Behavioral approaches may offer hope for more successful long-term benefits. Behaviorally-based programs typically involve a blend of the following strategies: self-monitoring, goal setting, modeling, stimulus control, cognitive-behavioral strategies, reinforcement control, and relapse prevention. “These strategies are used to increase environmental stimuli for healthy eating and physical activity and decrease those that do not support healthy eating and physical activity” (Shields, 2009, p.147).

The Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) discussed the idea in a 1995 article that, “schools should deliver comprehensive health and physical education programs that provide and promote physical activity at every opportunity” (Pate et al., 1995, p. 406). Over the past decade, health promotion practice has been more focused on the concept of ecology in promoting behavior changes for people. The introduction of the ecological model in health promotion was discussed in an article by Richard et. al (1996), which targeted health programs, particularly ones focusing on the environment versus the individual involved. Sallis, Prochaska and Taylor (2000) stated that the school has the ability to reach much of the youth and population in promoting health-related behavior change. The health status of today’s generation has become one of the largest current global concerns. Physical activity levels are remaining suboptimal, and obesity rates are

continuing to rise in adults and children (Sallis, Prochaska, & Taylor, 2000). One of the Healthy People 2010 developmental objectives focused on increasing the number of the nation's public and private schools that provide access to their physical activity spaces and facilities outside of school hours. It has been stated in the literature that the lack of convenient facilities for both adults and their families is one of the most cited problems for increasing physical activity levels (U.S. Department of Health and Human Services, 2000).

Coulson et al. (2008) stated, "Physical activity is currently regarded as the parent discipline that houses structured exercise" (p.177). It is common knowledge that there are many factors that must be considered for increasing physical activity levels and healthy behaviors across all age groups. These factors include personal, social, environmental, cultural, and political influences. All of these factors play a role in determining an individual's lifestyle choices (Troost, Owen, & Bauman, 2002). A study looking at managing weight for an individual's lifespan, indicated that a comprehensive approach to physical activity is needed as well as support by public policy to help make physical activity a part of daily life for individuals (Goldberg & King, 2007).

Successful programs today include multilevel systematic analyses of programs and include strategies within and across different environmental levels. This allows for a better understanding of the social ecology of health-related behavior and the potential leverage points for change (Kok, Gottlieb, Commers, & Smerecnik, 2008). Using this approach to behavior change health is viewed as a function of the individuals and the environments in which they live and work. It is important to take into account the interpersonal networks organizations, communities, societies, and supranational systems of people. The use of an ecological model may reduce the complexity of the interrelationships between the individual and all of their

relevant environmental factors. This model may help facilitate the development of effective interventions that impact environmental conditions for targeting health of individuals (Kok et al., 2008). Schools offer facilities and social structures to promote physical activity programs (Bopp & Fallon, 2008). Bopp and Fallon also suggest that physical activity programs that take place on school property, have the potential to become a community focal point where volunteers, parents, and children can come together to address physical inactivity.

Family Influence in Behavior Change

Stimuli such as family rules and family support are associated with health behaviors (Sallis, Nader & Broyles, 1993). Unfortunately, most studies focusing on the influence of family on an individual's physical activity behaviors do not address the complexity of the overarching family construct (Sallis, Simmons-Morton & Stone, 1992). In a later study, Sallis et. al (1993), found that family is one of the most powerful influences in shaping health behaviors of individuals. Little attention has been devoted to the development of models to help select relevant variables for interventions on physical activity and the role of families in the maintenance of the targeted behaviors (Sallis, Bauman, & Pratt, 1998). Several theories and models have been proposed in the literature to address the complexity of factors that effect people's behaviors. The Social control theory is a theoretical framework that examines how significant others positively or negatively influences the promotion of behaviors in individuals (Lewis & Rook, 1999). Another model, which was proposed by Caldwell et al. (2006) is the socio-ecological model, where social norms and values, behavioral settings, and individual reasons all play an important role in determining an individual's behavior. Shields (2009) specifically found that, "Home, family, school, and work environments, policies, communities,

organizations, practices, and social norms all affect a person's choices and ability to live a healthy lifestyle" (p. 145).

Cleland et al. (2011) looked at longitudinal influences of the family physical activity environment on children and adolescent's physical activity. The Family Influence Model demonstrates the complexity of family and its relation to an individual's behavior. The model comprises a number of interrelated make-ups, including: family demographic characteristics, parents' and siblings' beliefs, and family procedures. This specific model hypothesizes that family member beliefs and behaviors influence the family processes, in-turn these processes influence the individual's beliefs and their physical activity (Cleland et al., 2011).

Heath et al. (2006) found community-wide campaigns were an effective means for increasing physical activity levels. Although few studies have examined the possible parental influence on adolescents' health promoting behaviors (Bylund, Baxter, Imes, & Wolf, 2010), families are often critical to the development of creating an environment that encourages healthful eating and participation in physical activity (Gruber & Haldeman, 2009). Giles-Corti and Donovan found that, "the influence of individual and social environmental determinants outweighed the role played by physical environmental determinants of exercising as recommended" (2002, p.1804). Family behaviors are strong predictors of an individual's lifestyle choices. Kok et al. (2008) discussed that public places employments such as school districts to have a role to demonstrate a commitment to promoting healthy lifestyles in their employees and surrounding family and community in intervention programs. Blom-Hoffman, Wilcox, Dunn, Leff and Power (2008) found a nutritional program did not change the home's fruit and vegetable availability or accessibility. The authors concluded that their findings were consistent

with other health education research, stating that the provision of knowledge was not sufficient for behavior change (Blom-Hoffman et al., 2008).

As Shields (2009) concluded, the majority of Americans are currently overweight and due to the seriousness of obesity and its effects on both health and economic ramifications efforts to reverse these trends are no longer optional. Although, behavioral strategies have proven to be very effective in promoting individual health behavior changes, they represent only one step toward reversing the trend. Family, school, and work environments must all support and sustain healthful behaviors in the population. Supportive environments allow individual behavior changes to survive and sustain into lifelong habits.

Modeling

Shields (2009) discussed a definition of modeling in its relationship to changing behavior. Modeling is “when an individual observes another person performing the target behavior successfully” (Shields, 2009, p.148). Shields (2009) discussed a coping model as someone who may have had difficulty, but through coping strategies, in time was able to perform the target behavior successfully. Both teachers and parents can serve as coping models for students in schools in order to promote physical activity and healthy lifestyle choices. Bois, Sarrazin, Brustad, Trouilloud and Cury (2005) found that mothers’ involvement in physical activity was related to their children’s involvement in physical activity. Zecevic, Tremblay, Lovsin and Michel (2010) found that parental support of physical activity, their own level of physical activity, and their enjoyment of physical activity significantly predicted the extent to which their young engaged in physical activity with sufficient intensity and duration.

Though research on teacher’s role modeling physical activity in an attempt to change student’s physical activity behaviors is limited, it is probable to infer that parental role modeling

could have similar effects as teacher role modeling in changing physical activity behaviors in students.

Generalized Behavior Change

Generalization of behavioral skills is an important component to any behavioral intervention (Barry & Harraway, 2005). Generalization takes three forms: stimulus, response, or interpersonal (Elder, Guadalupe, & Harris, 1999). Baer, Wolf, and Risley, (1968) offered this definition of generalization “A behavior change may be said to have generality if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors” (p.96). Cooper, Heron, and Heward, (2007) further defined the idea of setting/situation generalization. They stated that generalization occurs when a “target behavior is emitted in the presence of stimulus conditions other than those in which it was trained directly” (p. 617). The setting in which generalized responding is desired can contain one or more elements, but not all of the elements of the intervention that was implemented in the instructional environment (Cooper, Heron, & Heward, 2007). Instructional setting is defined as the “total environment where instruction occurs, including any aspects of the environment, planned or unplanned, that may influence the learners’ acquisition of the target behavior” (Cooper, Heron, & Heward, 2007, p.618). As suggested by Cooper, Heron, and Heward (2007), generalization to an extent occurs whether planned intentionally or not. If left unmonitored, this type of generalization may lead to undesirable outcomes. In order to achieve optimal generalized outcomes, Cooper, Heron, and Heward (2007) suggested selecting target behaviors that meet natural contingencies of reinforcement, and specification of all desired variations of the target behavior and the settings in which the target behavior should occur after instruction has ended. Wheeler and Richey (2005) discussed that maintenance of effects in behavior interventions need

to be addressed by using fading procedures that are developed and based on individual needs. Decisions to fade procedures and the rate of fading should be done cautiously and always be data driven (Wheeler & Richey, 2005). Fading is achieved by the following steps: (1) Gradually increasing expectations necessary for reinforcement, (2) utilizing a variable schedule with increasing time intervals, and (3) reducing the number of prompts or cues given to signal self-monitoring.

Another concern of behavior in the generalization setting is in the maintenance of the target behavior if the behavior does not make sufficient contact with reinforcement. The variables that tend to diminish contact with reinforcement are the following: (1) Accuracy of the behavior; (2) the frequency, duration, latency, and magnitude (“dimensional quality”) of the behavior; and (3) the form of the behavior (Cooper, Heron, & Heward, 2007).

Utilizing self-management techniques is one potential effective approach to mediating generalized behavior changes. This concept is when a learner is taught a behavior that can prompt or reinforce the target behavior in relevant settings, at appropriate times, and in all of its forms (Cooper, Heron, & Heward, 2007).

Willner and Tomlinson (2007) evaluated the extent to which anger management training provided on a learning disabilities day service generalized to residential settings. After the intervention participants showed a decrease in anger coupled with an increase in coping skills which focused on handling anger. These behaviors were maintained at the six month follow up of the study.

Naik-Polan and Budd (2008) investigated stimulus generalization of parenting skills to the home from Parent Child Interaction Therapy (PCIT) delivered in a community mental health setting. The intervention included four urban, low-income, and single mothers who were at risk

for child maltreatment. At the end of the treatment, parent ratings suggested that both child problems and parenting stress had decreased to below clinical levels.

Worksite Wellness

Owen and Sallis (1998) stated that, “Modern lifestyles require almost no physical exertion. As a result, physical inactivity is a significant health problem in most industrialized nations” (p.424). Iverson, Fielding, Crow, and Christenson (1985) stated, “The work setting is an ideal site for recruiting participants in physical activity programs (p. 214).” As stated by the CDC and ACSM (1995), “Organized programs emphasizing lifelong physical activity should be promoted in schools, worksites, and community organizations” (Pate et al., 1995, p. 406).

Individuals of working age spend a significant portion of their lives in their work environment. McGillvray (2005) also stated that the workplace potentially represents a convenient, efficient, and effective access point to the individual. Some occupations are already required by law to have certain levels of fitness in order to carry out their duties. However, there is a recent trend in the importance of wellness for recruitment and selection of employees, as well as in productivity and retention of workers. The economic benefits found in these studies included reduction of absenteeism rates, improved morale and efficiency, reduced insurance costs, and improved working conditions (Griffiths, 1996). Griffiths (1996) found that holding staff members accountable for their wellness can enhance the workplace significantly, if done appropriately.

Though providing on-site facilities to promote physical activity is a great way to convenience the promotion among staff, not all employees find these facilities of value. For some employees the provision of such facilities at their place of work is viewed positively and given value because they would be partaking in exercise somewhere else regardless. Not all workers value physical activity, therefore, employees should be considered passive receivers in

wellness, which are influenced by age, life cycle, and family responsibilities (McGillvray, 2005). Organizational wellness encompasses both the language and practices which institutionalize workplace health promotion programs in organizational settings. Recent studies have revealed links between promotion of active workers and productivity gains (Holiday & Thompson, 2001).

The history of lifestyle physical activity interventions is closely linked with the history of public health recommendations for physical activity such as those from the CDC and ACSM guidelines first put out in 1995, as well as The National Institutes of Health Consensus Panel and the Surgeon General published recommendations for physical activity and health in 1996. As stated by Dunn, Anderson and Jackicic (1998), “There are large numbers of adults in the United States and worldwide who do not engage in adequate amounts of physical activity (p.408).” Due to the increase in awareness of sedentary lifestyle diseases Dunn et al. (1998) discussed the need for life-style physical activity interventions. They stated in their review of literature that “strategies such as lifestyle physical activity could play a role in reducing inactivity in sedentary populations. The effect of any intervention can be measured in numbers of people who adopt a physically active way of life (short-term effect) or whether individuals maintain the change over time (long-term effect). Both approaches need to be addressed” (Dunn et al., 1998, p.408).

Interventions need to be well matched to the local needs and capabilities, and careful implementations of the specific interventions are critical elements to increasing physical activity in a target population (Task Force on Community Preventative Services, 2001). Ward, Saunders, and Pate (2007) explained that many health professionals used traditional and structured frequency, intensity, and time approach to exercise prescription. Though this is valid, participation in fitness and other wellness activities are not attractive to everyone. There is a need for alternative programs based on newer consensus and recommendations. Also programs should

use behavioral intervention methods and techniques for the success and maintenance of such programs. Coulson, McKenna, and Field (2008) found that in comparison to days when employees participated in exercise versus no exercise during their work day, those who exercised showed ‘improved mood and performance, leading to better concentration, work-based relationships and heightened resilience to stress’ (p.193). Physical education teachers can serve as one outlet in a workplace wellness initiative. They can provide both education and access to a variety of tools for feedback to employees (i.e. pedometers, accelerometers, heart rate monitors, pre and post fitness measures, etc.). Dodson et al. (2008) found that personal services such as fitness testing and counseling as well as the provision of exercise facilities and equipment aided in employees reaching daily physical activity recommendations. Work-site based interventions offer the opportunity to reach large and diverse groups of people in a specific setting where a large amount of time is typically spent (Bopp & Fallon, 2008). Physical activity programs offered at work may benefit employers who pay for large parts of their employees’ health-care. In the case where an employer doesn’t pay for healthcare benefits they still may see reduction in illness cases and job-absenteeism, and an increase in employee retention, morale, and overall improvement in the corporation’s image (Bopp & Fallon, 2008).

Several associations have been found between perceived worksite policies and physical activity. These associations were strongest when: (1) having paid time for non-work related physical activity; (2) an on-site facility at work; and (3) subsidies for health clubs (Marcus et. al, 2000). With the current knowledge in the literature supporting wellness workplace initiatives it is important for school districts to understand that both policy and program design affect the staff’s adoption of consistent exercise patterns (Dodson et al., 2008). The shift in a school’s culture toward physical activity and wellness may act as a supportive environment for all staff to

participate in physical activity. Several corporations have initiated wellness programs for staff and families and found it to benefit the lives of its employees. These programs should be modeled for future initiatives in education concerned with the promotion of health in faculty and staff.

An ecological model has been addressed in the literature in the creation of successful programs for changing physical activity levels of individuals. Kok et al. (2008) defined programs utilizing an ecological model as a combination of educational, organizational, regulatory, and economic interventions aimed to achieving specific health objectives for a given population and are supported by a complex structure. Levels of interventions of a specific target are made up of both individual and environmental levels within systems of various degrees of social and institutional complexity including the following: individual, interpersonal, organizational, community, and societal and supranational policy (Kok et al., 2008). The use of multilevel approaches to creating effective programs is suggested. The following interventions are examples of how programs can positively influence employee wellness by using multiple approaches to enhance employees' wellness.

Successful Work-site Wellness Programs

The General Mills Corporation has a mission for employees to not smoke, have active lifestyles, maintain a healthy weight, and have normal cholesterol and blood pressure levels. Their corporate headquarters offers many options to promote their mission. The following aspects are employed at their headquarter facility: healthful on-site dining, no candy or high calorie impulse purchases at their checkout counters, free bottles of water included for healthy value meal choices, open and attractive stairwells, attractive walking paths between buildings, on-site fitness facilities, regular campaigns and communications on tobacco awareness, nutrition,

weight management, physical activity, and health professionals provided on-site. This one example shows a variety of ways, both on a large scale and on a small scale, that a major corporation emphasizes healthy behaviors in their striving for healthy employees (Heinen & Darling, 2009)

Baptist Health in South Florida uses multiple incentives to promote healthy behaviors in their staff. One incentive is the inclusion of a Weight Watchers at Work program that is provided at multiple off-work sites for employees to attend meetings. The unique aspect is the offer of an incentive to employees who participate. Participants that are able to reach and maintain their goal weight can earn up to \$500 at the end of each year's cycle. This incentive based program offers an idea to educational systems in trying to get employees motivated to maintain and or lose weight (Heinen & Darling, 2009).

The last example is perhaps one of most interest for representing a positive intervention targeted towards changing both employee and family behaviors. Texas Instruments reflects an understanding for the importance of family support in their employees' health and wellness. They offer child care supervision at their on-site fitness centers as well as offering subsidized memberships to their exercise facilities for family units. Other valuable programs offered by the company are kid and teenage summer camps offered for employees' children. These camps teach youth and adolescents the importance of healthy active lifestyle choices. Texas Instrument's program model would be most idealistic if adopted by a school setting. Physical education could help in offering such programs to faculty and staff's families as well as for students and families in the school to help reach out to the family unit for supporting changes in behaviors (Heinen & Darling, 2009).

These three interventions that emphasized employee wellness all show different and unique ways to incorporate the promotion of healthy lifestyles in staff and are all good examples of offering both on and off-site opportunities to promote behavior change. As addressed previously, using multiple approaches to address different levels that individuals are impacted by is more beneficial to having employees reach intended healthy lifestyle objectives. There are many different aspects to creating programs of large magnitude at a work-site.

A study done in 2004, looked at a worksite wellness intervention targeting firefighters. The Promoting Healthy Lifestyles: Alternative Models' Effects (PHLAME) intervention identified four goals: (1) Increase physical activity to 30 minutes each day, (2) reduce percent calories from fat to less than 30%, (3) increase servings of fruits and vegetables to at least 5 per day, and (4) improve energy balance and normalize body fat (Elliot et al., 2004). The uniqueness of this intervention was that authors took two approaches, a team-based and an individual based curriculum. "The team approach significantly increased co-worker cohesion, personal exercise habits, and coworkers' healthy behaviors. The one-on-one strategy significantly increased dietary self-monitoring, decreased fat intake, and reduced depressed feelings" (Elliot et al., 2004, p.13).

Haines et al. (2007) studied an intervention targeting college faculty and staff. The program consisted of a 12-week walking program that was supplemented with a pedometer, computer educational program, and weekly e-mails. After evaluation of the program's effectiveness, results of this study demonstrated that this health promotion program using innovative motivation tools had a positive impact on the health of employees and in turn, may serve as a program that could have a positive impact on the financial burden of health care for the employee and employers (Haines et al., 2007).

Mills, Kessler, Cooper, & Sullivan (2007) evaluated the impact of a multi-component workplace health promotion program on employee health risks and work productivity. The health promotion program incorporated a health risk appraisal questionnaire, access to a tailored health improvement web portal, wellness literature, and seminars and workshops focusing on identified wellness issues. Results indicated an effective intervention that positively impacted health risk status and work performance while also decreasing absenteeism from work (Mills et al., 2007).

Vingard et al. (2009) evaluated a physical fitness program offered during paid working hours and its' effects on the general health of women employed in the social service sector. The results indicated, that physical activities during paid working hours are effective investments to attain and maintain health and work ability (Vingard et al., 2009).

Chapman (2009) offers several important factors for building and sustaining an administrative infrastructure for worksite wellness programs. Administrations are a universal process of organizing people and resources efficiently to direct activities toward common goals and objectives (Chapman, 2009). The school's administrative team is very important in helping build the support of work-site wellness programs. The school administrators are a integral part in creating such an infrastructure for the faculty and staff and the school. Infrastructure is defined by Chapman (2009) in three ways. First, as the basic physical and organized structures needed for the operation of a society or enterprise. Secondly, it is viewed as the services and facilities necessary for an economy or program to function. Lastly, it is considered the technical structures that support a society or specific culture.

In the case of an educational work-site wellness program the infrastructure may be considered fitness facilities, before and after school programs for employees and families,

educational programs communicating healthy behaviors (weight management, physical activity, etc.), and on-site support for any questions concerning health and wellness of the staff. Physical educators can play several key roles required for such an infrastructure. As size and complexity of operations grow, there is a greater need for necessary components of the infrastructure.

Chapman (2009) lists different parts to creating a successful administrative infrastructure.

Though many are important, not all may be necessary for given programs, they are: (a) A program brand or name; (b) a program website; (c) a wellness coordinator or manager; (d) wellness vendors; (e) a program proposal; wellness program design team; (f) wellness advisory board; (g) wellness program work plan; (h) wellness program budget; (i) employee wellness network; (j) ad- hoc action teams; (k) program goals; (l) wellness program objectives; (m) email capabilities; and (n) a program evaluation plan (Chapman, 2009).

Distant -Based Worksite Wellness Interventions

An overall lack of time and limited access to physical activity programs indicates a greater need for individuals to obtain information, skills, and behavior change interventions in ways other than face-to-face programs. Marcus et al. (2000) discussed the need for physical activity interventions to be disseminated across the large population of sedentary adults.

Suggestions offered included the use of newer technologies such as the internet. Pinto et al. (2002) studied the effects of a computer-based, telephone counseling system on physical activity and found that though effects were short term, they were positive in influencing the physical activity level of sedentary adults. The literature has continued to discuss the importance in the delivery methods of physical activity interventions so that they can reach populations that do not participate in group or facility based programs. The use of web-based and computer-based interventions have been discussed in being able to enable a larger group of individuals to be

reached in a given intervention program (Napolitano et al., 2003). However, it is important to note that no matter the form in which an intervention is administered, enjoyment is a critical element in physical activity interventions. Participants with higher levels of enjoyment of physical activity prior to interventions tend to be more effected by the program than those who start with lower levels of enjoyment towards physical activity (Williams et al., 2006).

One study looked at the efficacy of an internet intervention targeted to increase physical activity levels of participants. Results of this study indicated that a theoretically web-based internet site resulted in an increase in moderate to vigorous physical activity levels of participants (Napolitano et al., 2003). Most recently, web-based wellness programs have been created in interventions with employees in means to promote cost efficient and easily accessible approaches to increasing physical activity (Irvine et al., 2011). Literature has revealed evidence that computer-based interventions targeting nutrition have been relatively effective. Recently, web-based wellness programs have been created in interventions with employees (Kroeze, Werkman, & Brug, 2006). Another study found a means of using automated telephone-linked delivery systems to positively impact physical activity levels in adults. This study served as the first systematic form of evidence that automated, telephone-based computer systems can lead to improvements in physical activity levels over time (King et al., 2007). This study further concluded that, “delivery of individualized advice and support via telephone-based automated systems is an effective and attractive option for middle- and older-aged adults that should be considered for improving regular physical activity participation” (King et al., 2007, p. 725). Hurling et al. (2007) found physical activity can be increased via a fully automated Internet-based behavior change system with use of accelerometers to measure physical activity levels. In this study, those who were in the experimental group showed a greater perceived control over

their exercise behavior and greater intention to exercise (Hurling et al., 2007). One problem with computer based and distant interventions is that they have indicated high dropout rates and lack of retention of participants (Spittaels, De Bourdeauhuji, & Vandelanotte, 2007). One way to overcome the dropout and problems in retention may be through the use of fitness technology to monitor activity in participants. Pruit et al. (2008) found that accelerometer data collected in their exploratory study were a viable measure of physical activity levels of older adults in their free-living environments. Researchers may further be able to collect reliable data and give participants necessary feedback during distant based interventions using technology, therefore helping in the retention of participants.

A study that promoted physical activity through hand-held computer technology found that hand-held computer devices may be effective tools for initial increase in physical activity among less active adults (King et al., 2008). Block et al. (2008) studied an email-delivered, computer-tailored intervention designed to reach individuals on a large scale. The program *Alive!* (A Lifestyle Intervention Via Email) was found to significantly improve important health parameters in those who were a part of the intervention. The parameters include: (a) physical and mental quality of life, (b) self-assessed health status, (c) self-efficacy for improving these health behaviors, and (d) stage of adoption of change (Block et al., 2008). Results reported in Robroek, Brouwer, Lindeboom, Oenema, & Burdorf (2010) indicated participants who did not meet the recommended level of physical activity were less likely to visit a website used in a worksite program promoting physical activity and health nutrition. Authors were still able to conclude that participants in the intervention group were found to visit the website more often during a 3-month period than those in the control group (Robroek et al. 2010). Another study looked at an online intervention targeting sedentary employees in an effort to increase their activity levels.

Results of this study showed that the “Get Moving” intervention positively influenced the sedentary behaviors of workers, those who would most likely be difficult to affect (Irvine et al., 2011).

Monitoring Physical Activity

Caspersen et al. (1985) characterize physical activity as any bodily movement which is produced by skeletal muscle and results in energy expenditure. Sirard and Pate (2001) stated that based on this “direct observation of the individual’s movement should be used as the gold standard for physical activity research” (p. 39). Though direct observation is a more comprehensive criterion measure for physical activity research (Sirard & Pate, 2001), when comparing behavioral observation to objective measures such as accelerometry and heart rate telemetry, observation lacks practicality (Scruggs, Beveridge, & Clocksin, 2005). Relatively newer accelerometers have been commonly reported in the physical activity literature and have been suggested as a possible alternative to behavioral observation (Sirard & Pate, 2001). To control for factors that confound the heart rate, such as emotional stress, it is recommended that heart rate only be used to assess moderate to vigorous physical activity (Scruggs et al., 2005).

Accelerometers

Accelerometers are electro-mechanical devices that detect and record motion in not only single but also multiple planes. Overall, they take into account acceleration, which is a change in velocity with respect to time (SI unit; m/s^2 to quantify movement patterns for each joint (Corder Ekelund, Steele, Wareham, & Brage, 2008). One type of accelerometer is the uniaxial Computer Science and Application monitor, which has been validated and considered reliable for estimating the energy expenditure. Uniaxial devices measure vertical displacement during specified periods of time. They record and store acceleration in the vertical plane. Triaxial

accelerometers measure acceleration in an additional plane (Ott, Pate, Trost, Ward, & Saunders, 2000). Ott et al. (2000) found that both triaxial and uniaxial accelerometers were significantly correlated with individual's predicted MET Levels, intensity levels, and heart rates of participants. Ott et al. (2000) did conclude that Triaxial accelerometers may be better suited to measure movements of children at play. Accelerometer-based activity monitors are frequently used by researchers and clinicians to measure and assess physical activity (Abel et al., 2008). Although pedometers are low cost, they are typically attached to a waist band and therefore primarily record walking, they do not monitor 24-hour intervals of physical activity (Hurling et al., 2007). "In contrast to the spring mechanisms of pedometers, accelerometers use piezoelectric transducers and microprocessors that convert recorded accelerations to a quantifiable digital signal referred to as counts" (Sirard & Pate, 2001, p.445). Overall, accelerometry tools record a wider range of movement and have greater flexibility for body positioning, allowing for sustained monitoring even during individual's rest periods (Hurling et al., 2007).

Accelerometers provide an objective, non-reactive and re-useable form for the assessment of physical activity. Limitations to this technology are "they have a limited ability to assess cycling, locomotion on a gradient, or other activities with limited torso movement" (Sirard & Pate, 2001, p. 447).

Heart Rate Monitoring

According to the American Sports Medicine Institute Cardiovascular fitness represents the efficiency of the heart, lungs and vascular system in delivering oxygen to the working muscles so that prolonged physical work can be maintained. Endurance capacity is an individual's ability to perform exercise at both sub-maximal and maximal intensities as demonstrated either by the ability to exercise longer at a similar workload or by increasing the

workload attained at a given heart rate (Fletcher et al. 2001). Heart Rate Monitors are mainly used to determine the exercise intensity of a training session. Compared with other indications of exercise intensity, heart rate is relatively easy to monitor (Achten & Jeukendrup, 2003). Sirard and Pate (2001) discussed heart rate monitoring as a means of estimating physical activity and caloric expenditure that relies on the linear relationship between heart rate and oxygen consumption (VO₂). Sirard and Pate (2001) stated that heart rate monitors are an unobtrusive, cost effective means for the assessment of physical activity and energy expenditure. The relationship between heart rate and oxygen consumption can predict both maximal oxygen uptake and used to estimate energy expenditure (Achten & Jeukendrup, 2003). Heart rate monitors serve as an easy and form measuring maximal intensity and energy expenditure for both the participants and the experimenters. Gameline, Berthoin, and Bosquet, (2006) found that heart rate monitor data had a very strong correlation with electrocardiogram data ($r > 0.99$, $P < 0.001$), making them a valid tool for measuring heart rate. Some limitations have been indicated with the use of heart rate measurement. The necessity for skin contact does impact on the feasibility of using heart rate monitors in young children. Due to skin sensitivity amongst individuals, there is a higher risk for reactions to occur on the skin. HR monitoring is useful in older children and adults but may be more difficult in young children (Corder et al., 2008). Welk (2008) stated that heart rate monitors have less utility for promoting interest and involvement in physical activity outside of school settings. Welk (2008) also suggests that heart rate monitoring be used to promote awareness and to develop fitness education in participants.

Self-Report Instruments

Welk (2008) defined “self-report” instruments as assessments where individuals report or record elements of their previous and past involvement in physical activity. They also may report

typical levels of physical activity engaged in. A major benefit of self-report instruments is that they can be distributed to large groups of people at a time and they are cost-effective. Depending on the instrument, they can offer very comprehensive or very general information in regards to physical activity. A limitation of self-report tools is that they are prone to error and bias.

Measures obtained over a week are based more on relative amounts of activity and tend to be broader. Single-day recalls, result only from a single day. Though they provide more detail about physical activity a major disadvantage is the lack of generalization. Welk (2008) also discussed the use of several validated self-report instruments. The Previous Day Physical Activity Recall (Weston, Petosa, & Pate, 1997) is time-based, where participants recall the main activity they participated during each 30-min time block in the day. In contrast, the Self-Administered Physical Activity Checklist (Sallis, Nader, & Broyles 1993), is activity-based, participants recall activities they participated in and for how long.

Summary of Literature Review

A population-based study, administered by the National Center for Chronic Disease Prevention and Health Promotion and Centers for Disease Control and Prevention, used a nationally representative sample and found a high occurrence of inactivity and a large positive association between individual's inactivity and the prevalence of cardiovascular disease. Also, findings indicated that among the 3.79 million cardiovascular disease cases in sedentary or inactive individuals, 29% were associated with inactivity. "Unless effective interventions for promoting physical activity are developed to deal with the high prevalence of inactivity, cardiovascular disease that is secondary to sedentary behavior will lead to even higher national health expenditures while adding to premature disability, suffering, and death (Wang et al., 2004, p.93)."

Physical education programs can no longer solely focus on influencing youth during school hours. This means that teacher preparation programs and professional development opportunities must aim to educate physical education teachers in becoming skilled change agents as demonstrated in Collier's Cycle of Inquiry (2009). This model demonstrates how teacher preparation programs or professional development opportunities could guide a teacher and develop their reflective practices in becoming an inquirer of their practice. One professional development opportunity physical educators may benefit from is in becoming certified personal trainers. This may award physical educators the opportunity to get involved in the lives of both community and staff members surrounding the school.

The literature states that work places can be affected positively by emphasizing wellness programs at work. School teachers are often overwhelmed and stressed with the demands of the job requirements in being a teacher. Emphasizing wellness in school districts may help in teacher retention, and also perhaps a decrease in the negative effects of teacher burnout. Russell Carson related teacher burnout to being relative of the emotional aspects teaching sometimes encompasses. In his article, Carson (2008) also discussed studies that found that emotions may influence cognitions, intrinsic motivation, attributions, efficacy, beliefs, and goals, and teachers' emotional responses vary across career stages, and when depleted, can result in early departure from the profession. Providing exercise as an outlet to some of the negative emotional responses may better aid in teachers' coping with negative emotional experiences at work and improved health status of teachers. This may also benefit the role of physical educators being "Sport and Physical Activity Specialists" as discussed by Bulger and Housner (2009). Providing worksite wellness opportunities may help in retaining quality physical education teachers and aid in the impact physical education can make on the school, families, and community by promoting

physical activity. This new dynamic role that physical educators will serve in will require a shift in the philosophies of physical education teacher preparation programs (Bulger & Housner, 2009). If schools are the premier option for reaching the general public through promotion of physical activity, physical educators must be prepared to step into the role of leaders and activists who will be at the center of causing this change.

As the work-site aims to initiate behavior change it can also look to maintain behaviors. This study is important to the literature as it adds another component to the complexity of changing behavior in addressing maintenance and generalizability. Schools are unique in that not all employees may have access to the facilities and programs offered year round on-site. As schools are often closed or dismissed for summer break, employees may need to be given alternative opportunities to help maintain physical activity or other behaviors related to health promotion. Providing economical and innovative technologies to maintain physical activity level of employees once they were no longer participating in an on-site program was the goal of this intervention.

Chapter III

Methods

Research Questions

The purpose of this study was to determine if teachers can maintain physical activity levels during summer break recess, after participating in a physical activity class administered by the physical education teacher during the school year. In order to answer this question the following questions were posed: (1) Do teachers effectively self-monitor their physical activity behavior using an online tracking program for monitoring physical activity? And (2) can the physical education teacher effectively maintain and generalize physical activity behaviors of teachers?

Research Design

This study incorporated the use of a stimulus fading approach. The stimulus conditions that were faded were the participants' face time and contact with the physical education teacher. Each participant received a different treatment over the intervention to distinguish between differences in the form of the fading. Participant 1 received a distance-based intervention using technologies to communicate with the physical education teacher via the internet. Participants 2 and 3 received a combination of face time and distance-based technologies using the internet. Lastly, Participant 4 received the most face-time with the physical education teacher and the least of distance-based technologies during the intervention. The effect of the web-site and the face-to-face time with the physical education teacher was determined based on the participants' adherence to the summer intervention. Participants were guided to maintain health-enhancing levels of physical fitness based on the U.S. Department of Health and Human Services 2008 Physical Activity Guidelines.

The dependent variable of physical activity was measured by minutes in a fitness enhancing level of activity. The independent variable consisted of a stimulus fading intervention using diminishing face-time with the physical education teacher along with a physical activity web-site.

Participants

The participants ($N=4$, *Male*=0; *Female*= 4) of this study were recruited from a physical activity program being administered by the physical education teacher after school in an elementary school located in Morgantown, West Virginia. The convenience sample was comprised of four females who were currently participating in the physical activity program during the school year and had confirmed a desire to remain physically active during the summer recess.

Procedures

This study was approved by the Institutional Review Board at West Virginia University prior to the intervention being initiated. All participants were given a written letter of the description of the study. Participants gave implied consent after reading the cover letter. Participation was considered voluntary during the intervention and at any time if they desired to withdraw they were told they could do so. Data were analyzed on a weekly basis in order to make the correct change in the fading process. The website was updated on a weekly basis, but was checked daily for any questions or comments participants may have posted. The participants' self- reported their data on a daily or weekly basis throughout the intervention. At two points during the intervention data on the watches were compared to the self-reported online data spreadsheet to help insure inter-observer agreement. Based on the weekly reports fading occurred when participants successfully maintained the level of physical activity desired for the

intervention (300 minutes or five hours weekly). If participants did not achieve the desired level of physical activity the following week participants were dropped to the previous level of fading until they were back to the level of physical activity intended for the intervention. The goal of the intervention was to have teachers maintain physical activity as their contact with the physical education teacher faded. The web-site was designed to help participants maintain limited contact with the physical education teacher and each-other, as well as serve as a means of accountability for the participants.

The four participants started at different levels of fading. Participant 1 received no face-to-face time and was 100% faded immediately after baseline. She utilized the online website to maintain physical activity levels and only remained in contact with the instructor via the web-site or phone. Participant 2 started at 80% fading and received a one-day-a-week with the instructor prior to additional fading. Participant 3 started at 60% fading. She received face time for two days of the week. Each week she reached the intended activity goals she was faded 20% or one less day of face-to-face time with the physical educator. Participant 4 received the most face-time with the physical education teacher. Face-to-face contact remained for almost the entire summer, but was faded out over the last four weeks of the intervention. All participants thus received the independent variable, but did not receive it in equal gradations. The reason behind this design was to accommodate to the participants' summer schedules and their accessibility in meeting face-to-face with the physical education teacher.

Instrumentation

During the summer intervention the main source of data collection occurred from the Polar Active Monitor. The U.S. Department of Health and Human Services 2008 Physical Activity Guidelines were used to establish the desired goal of weekly and daily physical activity

minutes for the participants during the intervention. Participants were tracked and monitored using Google Documents, Google Sites, and Google Analytics. For fading contact participants were be able to remain in contact with the physical education teacher and one another via the Google Website that was set up by the researcher prior to the start of the intervention. This website was used to help participants monitor their physical activity while remaining in contact with the researcher for support and motivational purposes.

Polar Active. This monitor registers physical activity that is favorable to health, continuously 24 hours a day, 7 days a week and graphically depicts motion during use. The monitor measures physical activity on five different planes: Vigorous +, Vigorous, Moderate, Easy, and Very Easy. It also displays calories burned, the number of active steps taken, and the total amount of moderate to vigorous physical activity (MVPA) for that day. Active steps are characterized as steps taken during active time at an intensity that will improve health and fitness. Though accelerometers have been found to under predict energy expenditure in children (Eisenmann et. al, 2004), Resnick, Nahm, Orwig, Zimmerman, and Magaziner (2001) looked at reliability and validity of a Step Activity Monitor, which is similar to the classification of the Polar Active monitor, and found that intra-class correlation for the recordings was $r = .84$ and there was an overall step counting accuracy of 96%. This study showed that step activity monitors are valid and reliable tools for measuring activity in adults. For the purpose of this study the Active monitors were used for the purpose of holding participants accountable on a daily basis for reaching their daily activity levels. Though the aim was to maintain activity levels of the participants, there wasn't a specific focus on how they achieved daily minutes. It was not directed how the participants needed to achieve daily minutes, but rather participants determined how to earn them in the activities they chose.

Physical Activity Guidelines. For the purpose of this intervention participants were aiming to reach the U.S. Department of Health and Human Services 2008 Physical Activity Guidelines. These guidelines state the following recommendations:

- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.
- For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount.

Google WorkSiteGetFit Website. This website was used as a component of the independent variable to monitor participants' physical activity and remain in contact with participants during the intervention. The website served many functions that were created to help motivate the participants throughout the summer. Participants set up Google accounts and received emails prior to the intervention for access to shared Google Documents and the address to access the website. This allowed participants the ability to access a shared spreadsheet where they entered data read from their Active watches. The website included a weekly challenge and an inspirational note. The researcher utilized these two components to aid in keeping motivation levels high for the participants. There also was a question and comment feature on the website

where the participants could ask questions or post comments. The researcher responded to these questions and comments on the response section of the Website. Lastly, there was a resistance training guide on the website. This was used to help participants recall exercises and also give them routines to help maintain muscle mass throughout the intervention. The website was limited in its ability to act as a social network site; it was used more for educating and motivating participants while also keeping them accountable throughout the summer. The website served as the primary instrument to remain in contact during the face-to-face fading process. For inter-observer agreement the participants' data recorded on the web site were checked twice against their watches during the intervention to ensure that data, which was self-reported, was 100% accurate.

Intervention Summary

The intervention lasted the duration of the summer recess of 2011 for the Monongalia County School Districts (June 9, 2011 through August 15, 2011). A 12-day baseline period served to document the participants' regular participation in physical activity during the school year and participation in an existing worksite-wellness exercise program. During the 12-day baseline the participants were educated on the distance-based technology and participants participated in physical activity with the researcher. The participants began fading immediately following the Baseline period. The fading levels were pre-determined prior to the start of the intervention based on the participants' summer schedules. The intervention lasted for the remainder of the summer break in order to demonstrate maintenance during the summer recess and successful fading from face-to-face time with the physical education teacher.

The constructs targeted in the intervention pertaining to the social-ecological model were Intra-personal, Inter-personal, and Environmental factors. During the intervention Intra-personal

beliefs such as efficacy, expectations, behavioral skills, and behavioral capability were targeted through the use of the web-site and fading design. Weekly inspirational posts inspired and challenged the participants to push themselves and get as much physical activity as possible. Their own personal data entry and self-reported physical activity represented their behavioral skills and capabilities. Inter-personal relationships were emphasized through the challenge portion of the web-page and also in some of the weekly inspirational pots. This quote exemplifies how during the intervention participants were challenged and directed to be active with others,

As we roll into week 4 my words of inspiration are simply Carpe Diem. Seize the beautiful days and long evenings with some quality family time. Maybe walk as a group or instead of sitting down for ice-cream take a bike-ride together. There is no better way to spend quality time with one another in my eyes, it helps all of us find support in creating the healthy habit of exercise.

The challenge section also helped in trying to emphasize the participant's involvement in a variety of types of physical activities as well as challenge the environments in which they participated in. This quote was taken from the challenge portion of the web-site,

Find a new hobby that involves being active! There are a ton of places in local communities that promote physical activity, whether it's a Kayak club, a tennis club, a golf club etc. find a new fun hobby this week! This is more of a step out of your comfort zone challenge. Share with me your new endeavors in the Q and C section.

This intervention utilized the social-ecological model to emphasize that the behavior of physical activity is complex and many factors contribute to the reasons which people are motivated to be physically active. The web-site served primarily as a stimulus to increase the intrapersonal beliefs of the participants in regards to their self-efficacy in accomplishing the distance-based intervention. However, multiple constructs were addressed through the use of inspirational messaging and physical activity challenges.

Stimulus fading

“In stimulus fading the antecedent stimulus changes gradually, while the response stays the same.” (Cooper et al., 2007, p.426) The antecedent stimulus was the contact with the physical education teacher shifting from face-to-face contact to distant based contact. The fading contact was based on a percentage scale of fading in 20% increments. At each increment of change the face-to-face contact with the physical education teacher decreased by one day per week. To replace the face-to-face contact, participants utilized the Google Website to maintain contact. Table 1 displays a summary of the fading. As the percent increases participants received less face-to-face time with the physical education teacher and more contact via the web-site.

Table 1

Illustration of the Fading Procedures

% Fading	Face-to-Face Contact (days)	Website Contact (days)	Distant Based Contact
0	5	0	None
20	4	1	Web post with inspiration and weight training exercises.
40	3	2	Web post with inspiration, weight training exercises, Weekly Activity Challenge. Report activity data from Active Monitor.
60	2	3	Web post with inspiration, weight training exercises, Weekly Activity Challenge, report activity data from Active Monitor, Questions and

			comments
80	1	4	Web post with inspiration, weight training exercises, writing on community board, Activity challenge, report activity data, and daily activity log report submission.
100	0	5	Participation via web-based activities is optional, but activity data and logs must be submitted.

Participants were evaluated weekly on their ability to reach the targeted dependent variables measuring their physical activity levels. Fading would be decelerated in case any of the participants dropped below the desired dependent variable values. Once participants had successfully maintained the level of physical activity for one-week, they increased their percent fading until they reach and maintain 100% fading. The success of this intervention was determined on whether the participants could fade to a level of 100% and maintain their physical activity levels at 100% fading without face-to-face contact with the physical educator for a minimum of three weeks.

0% Fading. Participants at this level participated Monday through Friday in structured exercise with the physical education teacher. Though it wasn't mandatory, participants were encouraged to start getting familiar with the distance-based technology and in the habit of entering data and filling out the physical activity log. Participants at this level were doing nothing different from the structure of their routine during the school year.

20% Fading. At this percent the physical education teacher remained in face-to-face contact with the participants four days of the week. The contact with the physical education teacher consisted of about an hour and it incorporated physical activity in a structured form of exercise similar to the exercise class administered throughout the year. The goal at this level was for participants at a minimum to have access to the weekly dose of inspiration and to have access to resistance training techniques that might aid in participation in activity later in the intervention. Though this was still not the phase of the intervention where participants were doing anything that different from the norm, it was important as they began having less participation with the physical educator, and they were phasing in more of the distance-based web-site to ensure participants would be successful once on their own.

40% Fading. At this percent fading participants remained in face-to-face contact with the physical education teacher for three days of the week. The contact with the physical education teacher consisted of about an hour and it incorporated physical activity in a structured form of exercise similar to the exercise class administered throughout the year. At this level participants were required to start entering the activity data from their watch onto the website. They were also directed to partake in the challenges that the physical educator was posting weekly.

60% Fading. At this percent the physical education teacher remained in face-to-face contact two days of the week with the participant. The contact with the physical education teacher consisted of about an hour and it incorporated physical activity in a structured form of exercise similar to the exercise class administered throughout the year. Daily physical activity logs were suggested for participants at this level to better help in understanding what type of activities the participants were engaged in while reaching their desired level of activity.

Questions and answers were made available for participants through a Google Document Form; responses were posted after the researcher received any questions or comments on the response page.

80% Fading. At this percent the physical education teacher remained in face-to-face contact one day a week with the participants. The contact with the physical education teacher consisted of about an hour and it incorporated physical activity in a structured form of exercise similar to the exercise class administered throughout the year intervention. Daily submission of the participants' physical activity logs was required at this level of fading. In this log participants detailed specifics of the type of physical activities they participated in for that day. Though it was suggested to enter daily, for best possible re-call most of the participants recalled several days after they participated (more of a weekly re-call).

100% Fading. At this percent the physical education teacher remained in face-to-face contact zero days a week with the participant. The contact with the physical education teacher consisted of mainly online communication. In the case that participants were dropping below a desired levels of activity they were contacted by phone using text message. At this point participants chose a training program from the website to complete. The participants reported their weekly totals at the end of each week, but participation in the activities at the previous levels of fading were optional as desired by the participants. Participants received weekly inspirational posts and activity challenges for the duration of the intervention.

During the intervention data on the Active Monitors were checked twice (40 days) over the intervention against data hand-entered into the Google Spreadsheet in order to demonstrate inter-observer agreement. The first check was on or around the fourth week of the intervention

and the second came directly at the conclusion of the summer recess. Participant 1 re-called the entered data on the watch over the phone with the investigator for the first check.

For the purpose of this intervention and in utilizing the U.S. Department of Health and Human Services Physical Activity Guidelines moderate-intensity activities were defined as 3.0 to 5.9 metabolic equivalents (METs) and vigorous-intensity activities are defined as 6.0 METs or more. In order for participants to fade they had to achieve 300 MET-minutes per week within the moderate to vigorous ranges. If they achieved and maintained any combination of moderate-vigorous activity minutes fading was increased or kept at the 100% faded stage. The two participants who did not achieve this desired level of activity were excused for their week and asked to immediately demonstrate adherence to the desired level of activity the following week prior to decelerating. The reason for this is both of the participants' indicated that the lack of activity was due to illness and not for any lack of desire or willingness to want to participate in physical activity.

Face-to-Face Contact

During face-to-face meetings with the physical education teacher participant's participated in a exercise class similar to the program administered at the school during the year. Due to the school's closing, participants would meet at different times throughout the week based on meeting everyone's schedule. Once fading began the participants attended the class one less day per week of fading. Face-contact was faded based on each participant's summer schedule. Once fading started, it continued unless participant's physical activity data indicated a drop in physical activity below the established 5 hours weekly goal.

Follow-Up Survey

The follow up survey was distributed via Google documents. The survey consisted of 10 4-point Likert Scale Items and six open ended questions. The purpose of this survey was to identify key reasons why these participants were a good selection for this type of intervention. The main purpose in administering this survey was to identify critical elements that contribute to the participants' desire to be physically active and their value and reasoning behind being active. Future studies should consider looking at key characteristics that may help recruit such participants for work-site wellness initiatives. This survey was designed to give readers a better understanding of who these participants were and a little about what factors influenced their desire to be physically active.

The qualitative data was used in this study to give more in depth understanding as to the type of physical activities each participant was participating in. The physical activity logs helped determine and conclude whether the participants were maintaining structured bouts of exercise on a daily basis, similar to their participation in the on-site program during the year. The survey drew further conclusions as to why these participants became and desired to stay active. Their responses help future researchers as they plan and implement interventions focusing on physical activity behaviors of individuals. The qualitative data was very important to this study as it brought much needed depth and understanding about the physical activity behaviors of the participants as well as more insight to their behavior maintenance.

Qualitative Analysis

Qualitative data was coded and organized into themes and category systems to help identify patterns in each participant's responses. The physical activity log for each participant organized responses into categories and themes, so analysis consisted of analyzing responses by the frequency in which they occurred. Patterns were also identified in each participant's

responses and summarized in the results and discussion chapters. The follow up survey consisted of 10-Likert-Scale and open-ended questions. This survey was designed to inform the readers and researcher about the participants. This survey provided a more in-depth and personal reflection as to why the participants desired to be physically active. Themes were drawn out from the participant's responses and their responses were summarized in the results and discussion chapters.

Summary

This study incorporated the use of a stimulus fading approach. Fading was achieved by the following steps: (1) Gradually increasing expectations necessary for reinforcement, (2) utilizing a variable schedule with increasing time intervals, and (3) reducing the number of prompts or cues given to signal self-monitoring (Wheeler & Richey, 2005). These steps were achieved in this study by decreasing fading weekly and losing only one day of face time per percent fading drop for each participant. For each level of fading something else was introduced to maintain participation in physical activity. Each day a face-to-face expectation was faded a new distance based form of accountability or motivation was added. Prompts and cues for self-monitoring were reduced for each level of fading due to the lack of face-time and contact with the physical education teacher. All of these steps occurred in the process of fading during our intervention classifying it as a sound stimulus fading applied behavioral study.

Chapter IV

Results

The results of this study revealed positive results. All four participants of the study adhered to the summer intervention, and none withdrew. All the participants successfully logged their daily physical activity and hand-entered data from their Active Monitor into the online database. There was an inter observer agreement of 100% for all participants when the researcher compared six weeks of physical activity directly from the Active Monitor to the Google Spreadsheet data. Although two participants did not achieve their desired weekly minutes on one occasion, no decrease occurred with fading. These two participants remarked that they had contracted illness over the one week in which they did not achieve their weekly desired level of MVPA. On these two occasions the researcher made the fading decision based on the immediate following week's data. The results for amount of daily MVPA for each participant are depicted graphically. The participants participated in a multitude of activities during the intervention to maintain their activity levels. Participants' physical activity logs are depicted in a series of tables found in Appendix A to better explain the types of activities they participated in over the summer intervention. Lastly, the participants filled out a survey to better describe why their background, opinions about physical activity, and past and present experiences contributed to why they were good candidates for this type of intervention. Results from the Follow-Up Survey for each participant are depicted in tables found in Appendix A.

Research Questions

The research questions to be answered from this study were: (1) Do teachers effectively self-monitor their physical activity behavior using an online tracking program for monitoring physical activity? And (2) can the physical education teacher effectively maintain and generalize physical activity behaviors of teachers? This study confirmed the first question with all of the four participants being able to monitor themselves over the entire intervention. All participants entered data on a daily basis, and their data were checked twice during the intervention to confirm inter observer agreement. Each participant's data supported the research question in finding that teachers are capable of self-monitoring during an online worksite-wellness program.

The second question emphasizes a new role for physical education teachers in the promotion of fitness in schools. The physical education teacher effectively generalized and maintained the behaviors of the teachers in this study. Participants' data indicated that maintaining physical activity under a new set of conditions can be accomplished with the aid of a distance-based program. The success of the participants' physical activity data is an indicator that physical education teachers are capable of serving as promoters of fitness for more than just students in schools and can affect the maintenance and generalization of physical activity behaviors among teachers.

Participant 1

This participant received the least amount of face-to-face time with the physical education teacher. Immediately following the baseline period at the start of the intervention the participant went straight to 100% fading. The participant successfully maintained weekly desired MVPA levels (5 hours) for the duration of the intervention with the exception of one week. This summative data expanding on the types of daily physical activity is depicted in Table 2 (Appendix A). A weekly average MVPA target was determined by dividing the desired weekly

minutes by seven resulting in about 43 minutes per day. In Figure 1 daily MVPA levels are depicted for the participant. Participant 1 was able to maintain both daily and weekly MVPA levels during the intervention. Figure 2, which shows weekly MVPA data, illustrates graphically that the physical activity time did decrease slightly for weekly totals. Although there was a decrease weekly, daily minutes were reached consistently. The only drop in activity that resulted in falling below the desired weekly MVPA time occurred from sickness. Participant 1 remained 100% faded for the entire summer, and achieved desired MVPA minutes both daily and weekly.

Figure 1. Participant 1 graphical depiction of daily moderate to vigorous physical activity.

Figure 2. Participant 1 graphical depiction of weekly moderate to vigorous physical activity.

Physical Activity Log Data Analysis Participant 1. After analyzing the qualitative data in the physical activity log of Participant 1, data indicated that her physical activity came from less structured and more leisure types of activities. Her physical activity was classified in four major categories: own body weight and free weight resistance training activities, cleaning and shopping activities, leisure play with children, and active transportation (walking at amusement parks, etc.). Participant 1 did not seem to have a pattern of participating in resistance type of activities. Time seemed to be spent most with participating in the activities that her children did that day. She remarked, “I walked briskly or ran, I played outside with my kids, I carried my 30lb meatball around an amusement park because I forgot the stroller at home! What a workout that was.” On some days where swimming was indicated as an activity the participant’s data did not

register as more than an hour, and also at times while walking with a stroller, the activity data did not indicate accurate MVPA. She observed, “I didn't have time, I don't understand it. I took my kids to a park and an amusement park today. I was there for over 5 hours and I still didn't get any minutes on my watch? I was walking the whole time, but pushing the stroller so I don't think it registered any minutes.” In spite of these data collection anomalies, Participant 1 was able to consistently meet daily activity goals. It is evidenced in her weekly data that her physical activity appeared to steadily decrease weekly throughout the intervention, though she continued to meet the recommended weekly criterion.

Follow Up Survey Participant 1. Results from the follow-up survey are illustrated in Table 3 and Table 4 found in Appendix A. The 10 Likert-scale responses illustrate perceptions and values toward exercise. They summarize why this participant may partake in physical activity. Participant 1 indicated valuing exercise for health purposes, and also her attitudes depict a general positive perception about exercise. Her social dependency in participation is very high, so for the purposes of this intervention she may have struggled with not having a group or other individuals with whom to partake in exercise. Her responses indicate that she knows the importance of physical activity and when she isn't active she feels guilty. This makes her a good candidate for a worksite-wellness initiative, as she appears to have the mind-set to participate in physical activity for a lifetime.

Participant 1 had the least amount of time with the physical education teacher and was successful at meeting the challenge of doing it on her own. Although she seemed to struggle with illness and watching her children, she was successful at achieving daily and weekly activity goals. The intervention proved to be enough of a support for her to overcome the challenges.

Participant 2

This participant received the second to least amount of face-to-face time with the physical education teacher. Immediately following the baseline period at the start of the intervention the participant began at 80% fading. After maintenance of MVPA during the second week of the intervention, this participant was then faded to 100%. The participant successfully maintained weekly desired MVPA levels for the entire intervention with the exception of the first week being faded to 100%. During this week the participant indicated a lack of participation only due to illness; therefore, was kept at 100% faded. The researcher determined the fading process on the following week, to ensure adherence to the MVPA weekly goal. This participant's weekly summative data expanding on daily physical activity is depicted in Table 5 (Appendix A). A weekly average was determined by dividing the desired weekly minutes by seven resulting in about 43 minutes per day being the desired amount of MVPA. In Figure 3 daily MVPA levels are depicted for the participant and in Figure 4 weekly levels are depicted. As graphically depicted in both Figure 3 and Figure 4, Participant 2 was able to maintain both daily and weekly MVPA levels during the summer-intervention.

Figure 3. Participant 2 graphical depiction of daily moderate to vigorous physical activity.

Figure 4. Participant 2 graphical depiction of weekly moderate to vigorous physical activity.

Physical Activity Log Data Analysis Participant 2. After analyzing the qualitative data in the physical activity log of Participant 2 in Table 5 Appendix A, data indicated that her physical activity came from job-related activities. The qualitative data from the physical activity log Participant 2 had four major categories that occurred in achieving her daily exercise. They were: Work-related activities (horseback riding lessons), house-related activities (cleaning and landscaping type), walking/running activities, and low impact leisure activities (swimming). Her highest frequency of physical activity was briskly walking or running, followed by administering riding lessons, and swimming. Although she participated in resistance training activities in the beginning of summer, she did not maintain those types of exercises closer to the end of the intervention. Although she remained active, there appeared to be an immediate drop in her participation of resistance training forms of physical activity once out of touch with the physical

education teacher. The decrease in her muscle maintaining/building activities is a clear indication that her fading impacted the type of activities she participated in throughout the intervention.

Follow Up Survey Participant 2. Results from the follow-up survey are illustrated in Table 7 and Table 8 in Appendix A. The 10 Likert-scale responses illustrate some reasons why this participant participates in physical activity. Participant 2 indicated a strong attitude towards valuing physical activity for a multitude of reasons. Although she stated being happy with her body's condition she values exercise for how it makes her feel, wanting to be healthy, and using it to negate calories for indulging in foods she loves. Although weight-loss doesn't seem to be the most important reason in being active, Participant 2 identified that social support and support of others in motivating her to be active. She has a desire to remain active for the rest of her life, which indicates a true commitment to staying physically active and finding ways to maintain her health through exercise.

After qualitative analysis was completed on Participant 2's short answers it was evident that her love for working with horses and her children are integral components in her desire to remain active. Participant 2 also identified in her responses that the worksite can initiate physical activity and help individuals maintain their levels of fitness through social support, motivation, and education about exercise.

Participant 3

This participant received the second to most amount of face-to-face time with the physical education teacher. Immediately following the baseline period at the start of the intervention the participant began at 60% fading. After maintenance of MVPA during the second week of the intervention, this participant was then faded to 100%. The participant successfully maintained weekly desired MVPA levels for the duration of the intervention. This participant's

weekly summative data expanding on daily physical activity is depicted in Table 8 (Appendix A). As graphically depicted in both Figure 5 and Figure 6, Participant 3 was able to maintain both daily and weekly MVPA levels during the intervention. Of all of the participants she was able to maintain the highest desired levels of MVPA on a consistent daily basis, for the most days in the intervention. Participant 3 maintained the highest level of activity during the intervention. Her data illustrates that her physical activity steadily increased during each phase of fading and was maintained during 100% fading.

Figure 5. Participant 3 graphical depiction of daily moderate to vigorous physical activity.

Figure 6. Participant 3 graphical depiction of weekly moderate to vigorous physical activity.

Physical Activity Log Data Analysis Participant 3. After analyzing the qualitative data in the physical activity log of Participant 3 in the physical activity log found in Table 8 (Appendix A) data indicated that her physical activity came mostly from job-related activities. The qualitative data from the physical activity log Participant 3 had four major categories that occurred in achieving her daily exercise. They were: (1)walking/ running activities, (2)house-related activities (cleaning and landscaping), (3)media-related activities, and (4)resistance training activities. Of all the participants, Participant 3 did the best job in maintaining her weekly resistance training. Also, unlike the other participants, Participant 3 used media technologies to participate in structure routines of exercise. On all or most of the days using the media source she

was able to achieve her resistance training needs for muscular building or maintaining.

Participant 3 had the highest level of activity during the intervention and appeared to have a very high level of success with the intervention.

Follow Up Survey Participant 3. Results from the follow-up survey are illustrated in Table 9 and Table 10 (Appendix A). The 10 Likert-scale responses illustrate some reasons why this participant participates in physical activity. Participant 3, unlike the other participants, did not indicate a motivation towards participating in competitive sports and also was the only one to disagree with needing others to motivate her to exercise. Her short answer questions indicated that much of her education and desire to become active was due to her aunt and father having suffered heart attacks. Participant 3 indicated in her qualitative data that she values both her own and her family's well-being, which is why she continues to be active. This evidence indicates existing literature supporting the family's important role in changing and maintaining behavior. In order to help make work-site wellness initiatives meaningful to individuals who are participants the family's role cannot be ignored in the promotion of physical activity.

Participant 4

Participant 4 received the most amount of face-to-face time with the physical education teacher. Immediately following the baseline period at the start of the intervention the participant began at 0% fading. After maintenance of MVPA for each week Participant 4 was faded through the fifth week of the intervention. After success of reaching MVPA through the fifth week this participant was then faded to 100%. The participant successfully maintained weekly desired MVPA levels for the duration of the intervention. This participant's weekly summative data expanding on daily physical activity is depicted in Table 11 (Appendix A). As graphically depicted in both Figure 7 and Figure 8, Participant 4 was able to maintain both daily and weekly

MVPA levels during the intervention. Although Participant 4 received the most face time, her MVPA did not register the highest minutes among the participants. Her data illustrate a consistent maintenance of the desired level of weekly and daily MVPA.

Figure 7. Participant 4 graphical depiction of daily moderate to vigorous physical activity.

Figure 8. Participant 4 graphical depiction of weekly moderate to vigorous physical activity.

Physical Activity Log Data Analysis Participant 4. After analyzing the qualitative data in the physical activity log of Participant 4, data indicated that her physical activity came from house-related activities and low impact leisure activities. The qualitative data from the physical activity log Participant 4 had four major categories that occurred in achieving her daily exercise. They were: walking/ running activities, house-related activities (cleaning and landscaping), low impact leisure activities (swimming and playing with children), and resistance training activities. Participant 4 was able to maintain weekly resistance training activities during her weeks at 100% faded. Participant 4's data indicate that face contact didn't result in the highest MVPA minutes of activity. However, a factor impacting these minutes might be due to the type of activities that were participated in with the physical education teacher like resistance training activities versus walking/jogging types of training.

Follow Up Survey Participant 4. Results from the follow-up survey are illustrated in Table 12 and 13 in Appendix A. The 10 Likert-scale responses illustrate some reasons why this participant participates in physical activity. Participant 4 indicated a dislike about her body and also indicated that she exercises for general health purposes and enjoys how it makes her feel. This participant indicated a dependence upon someone else motivating her to exercise.

Participant 4 indicated many important factors that work-site initiatives must consider as they try to motivate and get employees on-board with being physically active. A lot of her comments show that physical activity can positively change people's lives and her story perhaps is one that should be consider in the planning of quality, motivating, and effective work-site wellness programs. Prior to the program administered at the school, this participant did not have the knowledge or support to become physically active. She exemplifies how K-12 physical education failed to prepare her as an adult to sustain a physically active lifestyle that was suitable for her lifestyle. Physical educators need to reach out to teachers and adults surrounding the school. Participant 4 represents how the profession can positively impact people into adulthood, even if they failed to be reached as children and adolescents.

Conclusion

After assessing the quantitative and qualitative data of the four participants involved in the summer-time intervention it can be concluded that the summer program was successful in maintaining physical activity for these participants. All of the participants were able to reach a daily goal of 43 minutes of MVPA and a weekly goal of 500+ minutes MVPA consistently. The researcher had to make decisions for deceleration of fading for two participants, but based on the failure to meet weekly MVPA being a direct result of illness, none of the participants were decelerated. The participant's qualitative data allowed the researcher to develop a deeper

perspective on the type of activities that the participants participated in over the duration of the intervention. Qualitative data also led to the conclusions of many valid and valuable points regarding both motivators and inhibitors to individual's physical activity patterns. This intervention serves as an example of an inexpensive and feasible means to administer distance-based physical activity interventions. The success of the participants seemed to stem largely from their desire to want to be physically active and their knowledge and understanding of how it benefits their own health and their family's health. These participants have many unique and many similar components to their lives and their views of physical activity. As employers try to motivate their employees to be active they should consider the uniqueness of each individual in the process. Everyone has different sources of motivation and this study represents how an intervention can positively impact the maintenance of individual's physical activity.

The participants successfully maintained and documented their physical activity during the summer-time intervention. Their involvement proves that programs like this can be adopted by school systems and by physical education teachers in the drive to become leaders of fitness to the entire school, not just with the children they teach. All findings confirmed McGillvray (2005), who stated that the workplace potentially represents a convenient, efficient, and effective access point to the individual.

Chapter V

Discussion

The Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) discussed the idea in a 1995 article that, “schools should deliver comprehensive health and physical education programs that provide and promote physical activity at every opportunity” (Pate et al., 1995, p. 406). This study is a good representation of how a cost efficient and successful distance-based worksite wellness program can deliver more comprehensive approaches to physical activity specifically in targeting the maintenance of employee physical activity levels. This study was built on the thoughts of Wang et al. (2004): “Unless effective interventions for promoting physical activity are developed to deal with the high prevalence of inactivity, cardiovascular disease that is secondary to sedentary behavior will lead to even higher national health expenditures while adding to premature disability, suffering, and death” (2004, p.93). In concluding that all four participants were successful, this study confirmed the idea of physical educators serving in the role of “Sport and Physical Activity Specialist” as discussed by Bulger and Housner (2009). This study confirmed that the physical educators are capable in initiating physical activity behaviors among teachers and that they also can play an important role in the maintenance of physical activity behaviors of individuals. This study also confirmed Bopp and Fallon (2008), finding that schools can offer facilities and social structures to promote physical activity programs.

One unique component in this research study was the participants. Utilizing the school to promote employee wellness serves multiple purposes. Teachers are a special population that this research study targeted not only because of their employee status, but also due to their ability to serve as role models for students in schools in the promotion of physical activity. Teachers are individuals that worksite wellness initiatives need to consider targeting for helping make schools the hubs of physical activity and positive health promotion that they can be. Teachers can serve

as coping models as defined by Shields (2009) for students in the promotion of physical activity behaviors. During this study three of the four participants indicated a strong need of support for their exercise habits. Utilizing the social support with co-teachers' relationships can also help aid in the success of worksite wellness programs. Although this study took place after teachers had already been participating in an on-site fitness program, it has shown that schools can not only be initiators of physical activity programs, but also can help individuals in the maintenance phase. This study was a test of the participants' ability to generalize their behavior from the set of conditions changing from the on-site program to distance based independent program.

The two research questions that this study aimed to answer were: (1) Do teachers effectively self-monitor their physical activity behavior using an online tracking program for monitoring physical activity? And (2) can the physical education teacher effectively maintain and generalize physical activity behaviors of teachers? Based on these two questions the intervention can be declared successful. Not only did the teachers prove their ability to self-monitor, but the physical education teacher was also successful at helping these participants in their process of becoming active on their own. The reason in using these questions as the main purpose for this intervention was to prove that the intervention was feasible and applicable to the real-world setting. Findings indicate that teachers are a good target population for work-site wellness initiatives and the physical education teacher can effectively serve as a physical activity specialist for schools in the promotion of fitness. This confirms the statement by the CDC and ACSM (1995), "Organized programs emphasizing lifelong physical activity should be promoted in schools, worksites, and community organizations" (Pate et al., 1995, p. 406).

This study also was strongly impacted by the literature pertaining to comprehensive school-based physical activity programs (McKenzie, 2007). Schools do have the ability to make

a significant difference in physical activity for not only youth, but for all of the people who are a part of creating the school culture. McKenzie (2007) made critical arguments in addressing the need for quality comprehensive physical activity programs. He openly encouraged employee staff wellness initiatives as a part of a comprehensive school based physical activity program. This current intervention addressed how employee wellness initiatives can be successful within schools.

Prior To the Intervention

The participants in this study all were a part of a year-long physical activity class that was administered 3-5 days a week after-school in the gymnasium. During this time Teachers, community, and friends/families were all welcome to come and participate. Children were allowed to join the class and or play in the gymnasium while their parents were exercising. This class was a relatively high intensity class that consisted of cardio-vascular, muscular endurance, and muscular strength building activities. The four participants that were chosen for this study all had previous experience in using technology while they exercised. All of these participants had purchased and used a heart rate monitor to track their progress in class. The reason they were chosen for the intervention was largely in-part due to their prior use of a fitness technology. They had invested their own money in purchasing the monitors and they all had made it clear and evident in their consistent participation that they wanted to continue to be as active as they were during the class for the rest of their lives.

The exercise class ran for two years prior to the summer intervention. Three of the four participants in this study were also attendees in the previous year's class. Returning to school after the summer in which they first started exercising with the physical education teacher, they voiced a disappointment in themselves, as they were not as active as they had wanted to be.

These three participants showed a decrease in their strength and muscular endurance that they had gained during the year. This intervention was initially created based on the three participant's failure to stay as active as they were during the year with the on-site exercise class. This study proves that physical education teachers can maintain physical activity behaviors, but it is important to address that the physical education teacher helped initiate the behavior in some of the participants. For those that were already active the class provided on-site increased frequency, intensity, time, and type of exercises that they were participating in. There was a lot of education and exposure to a variety of forms physical activity prior to this intervention. Future-research should plan on implementing on-site programs for 1-2 years prior to utilizing a summer intervention model used in this study.

Qualitative Analysis Participant 1. Participant 1 did not have a pattern of participating in resistance types of activities. Time seemed to be spent most with participating in the activities that her children did that day. She remarked, "I walked briskly or ran, I played outside with my kids, I carried my 30lb meatball around an amusement park because I forgot the stroller at home! What a workout that was." On some days where swimming was indicated as an activity the participant's data did not register as more than an hour, and also at times while walking with a stroller, the activity data did not indicate accurate MVPA. She observed, "I didn't have time, I don't understand it. I took my kids to a park and an amusement park today. I was there for over 5 hours and I still didn't get any minutes on my watch? I was walking the whole time, but pushing the stroller so I don't think it registered any minutes."

This participant seems to have achieved higher levels of activities in a less structured format over the intervention. Her data did not indicate any structured daily routine; it seems as though her activity was more dependent on the activities her children were doing. The beginning

of the intervention seemed to lend itself to more structure and higher levels of activity compared to the end. Her behavior indicated that daily desired MVPA might be reached with less structured and lower intensity type of activities. Although Participant 1 was able to achieve daily MVPA targets, there seemed to be issues with child care as evidenced in this statement: “I couldn't run because it rained this afternoon and that was the only time I had someone to watch the kids.” This participant was successful and her daily success seemed more dependent on the activities that her children participated in. The lack of structure and routine proved to be a challenge for this mom in some ways, especially in getting her resistance training activities in consistently. However, she achieved daily goals by participating in activities that were of more moderate intensity and that involved her family. This is an important result because her children were the significant factor in why she stayed active or wasn't able to be active during the intervention. Findings from Participant 1's responses confirm the Social Control Theory, which examines how significant others positively or negatively influence the promotion of behaviors in individuals (Lewis & Rook, 1999). This participant's responses also confirms the statement of Shields (2009), “Home, family, school, and work environments, policies, communities, organizations, practices, and social norms all affect a person's choices and ability to live a healthy lifestyle” (p. 145).

Follow Up Survey Responses Participant 1. Further analysis of the follow-up survey for Participant 1 revealed many valuable responses. For response one she indicated that her main purpose in becoming physically active was directly related to her children. Not only is she motivated to lose weight to be healthy, as indicated in the Likert-Scale questions, but she also responded in being a good model for her children: “I also want to be a good role model for my girls and show them that being active and eating healthy is a fun way of life.” Participant 1

viewed the intervention as an extended challenge because she was dependent upon the group at work, and knowing that social involvement is important in her participation with exercise, she seems to have viewed this summer as a challenge she wanted to meet. This is evidenced in her statement; “I also wanted to see how much I could push my body on my own without someone doing it with me. I guess I just wanted to test myself.” Participant 1 seemed to have more barriers related to her family relations in her desire to be active. Her distance from her husband seemed to make it difficult for spousal support as well as her not having anyone to watch her children while she exercised. “Having my girls also made it harder to exercise. I love to run now, but found myself unable to do so many times because nobody could watch the girls.” This confirms that the lack of convenient facilities for both adults and their families is one of the most cited problems for increasing physical activity levels (U.S. Department of Health and Human Services, 2000). As stated in the literature, family has a huge influence over our behaviors (Sallis et. al, 1993), so although her children and husband motivate her to be active, it seems that during the summer intervention the lack of support inhibited her ability to participate at a higher level of intensity and duration in her exercise sessions. This idea also relates to the Social Control Theory, which examines how significant others positively or negatively influence the promotion of behaviors in individuals (Lewis & Rook, 1999).

It is evidenced in her responses that she was also very motivated by losing weight and seeing the physical benefits of exercise on her body. It seemed her involvement in the on-site worksite-wellness program at her school was a great door-opener into the world of fitness: “I started exercising in November 2010 at Mylan. I felt good about myself and stuck with it even though I didn't see results right away. I liked the energy it gave me and it made me happier throughout the day. It became something I looked forward to doing.” Her physical education

experience was limited, which is another important note to mention in this participant's journey to being active. Her responses indicated many important components to help the researcher understand the complexities of maintaining physical activity levels in individuals. There are many important considerations that need to be taken into account when looking at keeping participant's motivation high during a distance-based physical activity intervention over the summer. The lack of structure and support seemed to impact this participant's structured exercise routine; however she appeared to have found a plethora of activities where she could get activity while spending time with her children. The success of this participant seems to be indicative of her desire for her children to be active and healthy. She is a strong example of how the family can be a huge motivator in the promotion of physical activity (Sallis et al., 1993).

Qualitative Analysis Participant 2. The physical activity of Participant 2 stayed relatively high and consistent throughout the intervention. The only drop in her level of activity came in correspondence to illness. The researcher did not decrease her fading due to the illness, but rather made a judgment on the fading based on the following weeks' MVPA data. Her daily life/work contributed to her MVPA, but also daily walking/running activities led to her success. She seemed to have more success in aerobic types of activities than resistance training, which is not desirable for an individual of her age due to muscle atrophy. Although she remained active, there appeared to be an immediate drop in her participation of resistance training forms of physical activity once out of touch with the physical education teacher. The decrease in her muscle maintaining/building activities is a clear indication that her fading impacted the type of activities she participated in throughout the intervention.

Follow Up Survey Responses Participant 2. After qualitative analysis was completed on Participant 2's short answers it was evident that her occupation and passion for working with

horses is a huge component to her desire to remain active. This is exemplified in her statement; “I wanted to be able to continue doing my job with horses and to be as strong and healthy as I can. Working with horses requires strength and stamina and I believe exercising helps me to accomplish my goals.” Along with her children, Participant 2 took a lot out of the worksite-wellness program in her commitment to being physically active. She said, “Having three children that were involved in sports has kept me very busy. I would help them practice their particular sport...” This quote confirms the work of Bois, et al. (2005), which found that mothers’ involvement in physical activity was related to their children’s involvement in physical activity. Another study also confirmed this participant’s beliefs. Zecevic et al. (2010) found that parental support of physical activity, their own level of physical activity, and their enjoyment of physical activity significantly predicted the extent to which their young engaged in physical activity with sufficient intensity and duration. The need for social support of others while participating in exercise became evident as she expressed; “I like to exercise with a group, but after the group dispersed, my daughter and I continued to exercise and started running. I have found out I really enjoy running.” Participant 2 did not have much of a physical education background to help build her knowledge and foundation for being active, however she quoted, “Meghan's program has inspired and showed me that at fifty-six I can be as active as I want to be. She encouraged and taught me how I can incorporate exercise into my life.” This statement reiterates the ideas of Sallis, Prochaska, and Taylor (2000), which stated that the school has the ability to reach much of the population in promoting health-related behavior changes. The remarks of Participant 2 indicated a positive life change for her participation in physical activity. Participant 2 exemplifies how the worksite can initiate physical activity and help individuals maintain their level of fitness through social support, motivation, and education about exercise.

Qualitative Analysis Participant 3. The only days during the intervention that the Participant 3 did not achieve over an hour of activity were due to migraines or sickness. Participant three participated in a variety of activities both daily and weekly to contribute to her maintaining high levels of MVPA. Although the Active monitor is typically weak in the measurement of activities like swimming and weight training, Participant 3 was still able to achieve more than enough MVPA during her week. Also, unlike the other participants, Participant 3 used media technologies to participate in structure routines of exercise. On all or most of the days using the media source she was able to achieve her resistance training needs for muscular building or maintaining. Participant 3 had the highest level of activity during the intervention and appeared to have a very high level of success with the intervention.

Follow Up Survey Responses Participant 3. Participant 3's short answer questions indicated that much of her education and desire to become active was due to her aunt and father having suffered heart attacks. For example she remarked, "When my aunt died so young and my dad had a heart attack shortly after that it made me want to see what I could do to take care of my family and myself." Participant 3 also indicated that her spouse's involvement in physical activity is an enjoyable benefit to their relationship as she said, "We both enjoy doing outdoor activities and want to be able to share that with our kids." This spousal importance in affecting Participant 3's physical activity levels is confirms the findings of Lewis and Rook (1999). Although, she doesn't need people to motivate her to exercise, Participant 3 also emphasized enjoying the company of her husband while she participates in physical activity. Participant 3's children played a factor in her physical activity when she commented, "I need to be able to keep up. I like to play with my kids at home and my students at recess. I didn't like when I didn't have the energy to do that! The kids motivate me!" Family was identified as a major part in her

participation in physical activity. Findings in this participant's data confirmed the findings in the study where Sallis et al. (1993) found that family is one of the most powerful influences in shaping health behaviors of individuals.

Qualitative Analysis Participant 4. The most valuable conclusion made through Participant 4's physical activity data, was that face contact didn't result in the highest minutes of MVPA out of the four participants. Face-time with the physical education teacher may be more impactful in determining the type of activities that are chosen. For example more resistance training types of activities were participated in with higher amounts of face-time. Participant 4's physical activity was impacted by the amount of face-time she received, but more in the realm of the type of activities participated in.

Follow Up Survey Responses Participant 4. As indicated in her general description Participant 4 is divorced. This is one key element that is different in comparison to the other participants. As indicated in her short answer responses, her divorce played a critical part in her physical activity. She stated, "My ex-husband was the one who participated in all of the active activities with my children. So, after I filed for divorce, I wanted my children to be active and I knew that I was the one who had to do it. So, as a result, I began exercising and became active for myself and my children as well." This participant discussed a desire to wanting to continue to stay active in the summer as she said, "I wanted to continue to maintain my strength and weight over the summer. If I lost weight, I considered that to be a bonus. I was looking to maintain what gains I had made throughout the school year, so that when school started back up, I wasn't starting from square one." This statement confirms Baer, Wolf, and Risley (1968) definition that "A behavior change may be said to have generality if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors"

(p.96). Participant 4, along with the other participants, had made gains in her physical abilities pertaining to fitness through hard work and dedication in the work-site wellness program and those gains are an important feature regarding why this intervention was a success with Participant 4.

Participant 4 openly discussed the social support of significant others in her exercise routine when she stated, “There are very few days when I am motivated alone. I also do not like to exercise alone, therefore, this is the biggest component to my success in sticking with an exercise program.” Participant 4’s responses confirm that schools can offer facilities and social structures to promote physical activity programs (Bopp & Fallon, 2008). This is also potentially why Participant 4’s weekly activity data, although maintained, decreased as the fading process progressed. Another inhibitor of activity was in relation to finding child-care. Participant 4 remarked, “...the only time I can get an "enjoyable" workout is when I have someone to watch my girls. Also, my workouts are a minimum of 1 hour. That is a long time for two young children to entertain themselves.” This statement also confirmed the notion that a lack of convenient facilities for both adults and their families is one of the most cited problems for increasing physical activity levels (U.S. Department of Health and Human Services, 2000). Employers or fitness facilities need to consider how child-care can impact members exercise routines. Another notable statement was, “I had NEVER exercised (other than walking) until I was 31 years old.” Employees having little to no education on how to exercise is one thing that cannot be underestimated as employers try and design worksite-wellness programs. It cannot be assumed that individuals understand and know how to exercise; therefore if there aren’t education experience or guidance in some physical activity initiatives, they could be set up to fail.

The concluding statements made by Participant 4 pertained to her physical education experience, which confirmed that her physical education experience did not help her achieve and understand how to become physically active and maintain it for a lifetime. She stated, “I do not blame my PE experience for my inactive lifestyle that I lead, but it certainly didn't help to inspire me or motivate me to be active.” The physical education profession must consider opinions and statements like this one. As a profession we cannot steer a way from educating individuals on how to be active as adults, not just in how to play games as children and adolescents.

Limitations

During the course of this intervention there were many factors that surfaced as being problematic with distance-based physical activity programs. Future research should consider these factors in the design of future employee wellness programs. The technology component was the heart of measurement and evaluation in the success of maintaining physical activity levels. Based on the technology used in this study it became clear that choosing a form of technology to assess physical activity can make or break the intervention. The Polar Active Monitor was used to measure MVPA of the participants and although it gave detail to the minutes achieved daily it did not accurately depict the type of activity participants were partaking in. Due to the inability of the researcher to understand or know what type of activities the participants were participating in, they were required to submit daily recaps of the type of activities they participated in by submitting a log via the internet. This log was pivotal in seeing what participants were actually doing to achieve MVPA. Therefore future research should consider using logs of some sort. However, there is a disadvantage in not having software that allows for downloading and monitoring of the activity for participants. Cost-efficiency was a goal of this intervention due to the limited budget that schools often have to work with, so the

expensive Polar Software was not an option. The free online software offered by Polar Products was not compatible to the technology used, which was a huge disadvantage in using the Polar Active as the form of measurement of MVPA for this study.

Although participants found some disadvantages to the technology for the most part they did feel more active because of it. The following is a statement posted on the website by one of the participants,

“Well just a few frustrations that I have found with the activity monitor as opposed to the heart rate monitor. I acquire more minutes on my activity monitor for low impact activity like walking and housework. On the days that I bust my butt at the gym for an hour plus, I generally get less than an hour on my watch for that day. I think this watch would be way more beneficial for individuals who are not active at all, as opposed to those of us who are generally active and work hard during actual cardio stations and strength training. So, I am definitely glad that we are filling out the daily activity log. I tend to be more motivated by the calorie burn on my HRM rather than the number of hours on my activity monitor. I am also WAY more motivated when I work out with a trainer and/or friends...very un-motivating to do it on my own! However, I will say this is the most active I have ever been during the summer. This is usually my "off" time that doesn't resume until my schedule gets back on track during the school year.”

This statement is a powerful reflection that future researchers must consider as they plan similar interventions. Of the four Participants, three had relatively young children who needed care while the participant's participated in their own exercise routine. The following reflection also needs to be considered by researchers: “I am finding it hard to go for a run. I have my kids by myself all day and no babysitter. It is also SO hot out. I hope when I get back home I can re-

join a gym and get back in my groove.” Although these participants seemed to be active in large part because of their children, they also have issues in being able to independently exercise without having care for their children. This disadvantage to distance-based physical activity interventions cannot be ignored in future efforts. During the on-site program, we encouraged the children to come and play while their parents exercised. Child-care was not an issue throughout the yearly program, which is one consideration for future on-site programming and distant-based transition programs.

The use of Google in this intervention was one of the most positive components to its cost effectiveness and manageability of the Internet components of the website. Google offers a lot of great free and user -friendly applications that were critical in making this intervention a success. Google Sites was used to build the website, Google Documents was used to collect the activity data, and Google Forms was used for the physical activity log and follow-up survey. Google Analytics was also used to provide feedback and track the usage of the site during the intervention. Over the course of the intervention, the site’s homepage was viewed 273 times. Most of the page visits were on the physical activity log page (135 views). Individuals viewed the Inspiration page and the Challenge page both 53 times, the weight training exercise page 44 times, and the question and comment page 40 times. Individuals did not view the response page much at all (14 page views). Although the web-site helped maintain some of the interaction with the physical education teacher, participants seemed to mainly use the web-site to enter their physical activity log. Earlier in the intervention the website received more hits daily versus the last few weeks. Although the web-site helped maintain contact it didn’t appear to be as much of a motivator as originally anticipated. Although the Google products were user friendly and cost-

efficient they may be limited in their ability to serve as a source of motivation for participants in future research studies.

Future Research

Each participant's background and feelings towards physical activity should be strongly considered in posing advice for future research. The participants in this study all possessed a desire to be active for achieving and maintaining their level of health. Not all people are ready to participate in physical activity and these individuals were not only at the stage of change where they were actually participating, but they then were ready to move into a maintenance phase. Researchers need to understand that participants with higher levels of enjoyment of physical activity prior to interventions tend to be more effected by the program than those who start with lower levels of enjoyment towards physical activity (Williams et al., 2006). Future studies must take into consideration the desire of these four participants to be physically active as they look to identify individuals who would be successful in the participation in a work-site wellness program targeting maintenance. All the individuals had a reason to want to be active whether it was family history, divorce from their significant other, or their children; all of these participants showed a desire to active and achieve their level of health.

Teaching is known as a self-less profession, which means it can lend itself to individuals who are very giving to others and often neglect themselves. Carson (2008) discussed studies that found that emotions may influence cognitions, intrinsic motivation, attributions, efficacy, beliefs, and goals, and teachers' emotional responses vary across career stages, and when depleted, can result in early departure from the profession. Providing exercise as an outlet to some of the negative emotional responses may better aid in teachers' coping with negative emotional experiences at work and improved health status of teachers. Physical activity interventions

targeting teachers should be cost and time efficient. Teachers and all employees may not be willing to spend a lot of additional money nor spend a large amount of time on an intervention; therefore researchers must find creative ways to use space within schools to administer such programs.

One future potential for research is through the utilization of different-distance based technologies to maintain physical activity. Although this study confirms the finding in Hurling et al. (2007), which found physical activity can be increased via a fully automated Internet-based behavior change system with use of accelerometers to measure physical activity levels. A newer piece of technology called the FitBit incorporates a very similar technology used in the Polar Active watch, but comes with a free web-based software that allows for easy and cost efficient means of measuring and tracking physical activity patterns of individuals. The use of FitBit in future work-site wellness research studies will help introduce new and cost efficient technologies into the worksite wellness literature. There is an abundance of worksite wellness literature, but few incorporate a comprehensive approach to wellness. Looking at interventions that target multiple behaviors related to health and wellness should be considered in future intervention research. Lastly, research studies should consider taking an applied behavior analysis approach. Utilizing the basic behavioral principles to drive research related to changing or maintaining behaviors in participants is strongly suggested. The use of stimulus fading is only one of the many behavioral approaches that should be considered in future worksite wellness initiatives.

Results from this study indicated that worksite wellness interventions can be both cost effective and successful. This study should serve as an example to inform practices of worksites in their promotion of physical activity through interventions offered by employers. This intervention also exemplified how schools can incorporate more comprehensive approaches in

the administration of physical activity programs and impact teachers' physical activity levels as introduced by McKenzie (2007). This study confirmed Bopp & Fallon (2008) which stated that physical activity programs that take place on school property, have the potential to become a community focal point where volunteers, parents and children can come together to address physical inactivity. In order to help change the health status of our population physical education needs to contribute more opportunities to the families, communities, and employees surrounding the school. This intervention proved the utilization of a distant-based, cost efficient intervention that schools and physical education programs can adopt in the future.

Implications for Physical Education Teachers

This study proves that Physical educators can serve as SPAFES for schools and communities (Bulger & Housner, 2009). In order to further impact and support physical education teachers serving in this role several suggestions are made from this study. First, physical education teacher preparation programs (PETE) must consider recruiting students into programs that show a strong desire to advocate and change the current status of physical education in the K-12 settings. Recruiting and being more critical of the individuals entering into PETE programs will help the professor ensure that those being prepared to teach physical education will be committed to staying and transforming physical education. Secondly, students in PETE programs should become well-versed on grant writing and up to date things occurring in the literature. PETE programs need to consider exposing students to a variety of curricula including sport, fitness, and lifetime leisure activities. Physical education has been out-resourced by sport camps and recreational leagues designed to promote youth involvement in sport, the profession now needs to consider shifting what is being taught to children and to the adult populations in schools in order to ensure our value and worth to the K-12 setting. Lastly,

universities must consider adopting new forms of professional development (PD) to support new and veteran physical educators. One proposed model is using content-focused coaching to help provide in-service teachers with educational mentors and colleagues that support and help teachers create an environment to produce high amounts of learning. University supervisors should shift or balance focusing on providing in-service teachers more quality PD opportunities versus focusing solely on pre-service teachers. Allowing in-service supervisors the control of mentoring the pre-service student teachers may relieve university supervisors from that responsibility and make them more impactful as they directly impact the in-service cooperating teachers. Physical education is in a unique position to shift it's role in the public school setting. Adopting more comprehensive approaches to administering physical activity is strongly advised in order to solidify our importance in schools. If we don't change and re-direct our goals as a profession, there is no guarantee that physical education will stay in schools. Times have changed and change is required now, all these suggestions may potentially increase physical education's existence in schools.

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Appendix A

Table 2

Illustration of daily physical activity log for Participant 1.

What is today's date?	Select the following statement which describes your activity minutes for today	If you participated in resistance training exercise please select from the following that describe the type of resistance activities you did. Utilize the OTHER section to describe activities that are not included.	Select from the following types of physical activities that apply to what you did today. Select ALL that apply and utilize the OTHER section to describe any type of activity not included.	If you did not participate in activity please select the options to why this occurred.
6/11/2011	I achieved between 45 minutes to 60 minutes of activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I played outside with my kids	
6/12/2011	I achieved over an hour of physical activity today	I did nothing with resistance	I walked briskly or ran	I didn't have time, I was traveling all day.
6/13/2011	I achieved over an hour of physical activity today	I did none	I walked briskly or ran, I went swimming, I played outside with my kids	

6/14/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I lifted a 27lb meatball over waves for at least an hour.	I walked briskly or ran, I went swimming, I played outside with my kids, I did resistance training type of activities	
6/15/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I went for a bike ride, I went swimming, I played outside with my kids	
6/16/2011	I achieved between 45 minutes to 60 minutes of activity today	I lifted my 4 year old over waves.	I went for a bike ride, I went swimming, I played outside with my kids	
6/17/2011	I achieved between 45 minutes to 60 minutes of activity today	I did none	I went swimming, I played outside with my kids	
6/18/2011	I achieved less than 30 minutes of activity today	None	I did none. I traveled all day.	I came home from the beach. We woke up at 4:00 am so I was tired and just rested the rest of the day.
6/19/2011	I achieved less than 30 minutes of activity today	None	I played outside with my kids, Food shopped and unpacked clothes.	I didn't have time

6/20/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body combining moves like squat press, lunge curl etc. , I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids, I did resistance training type of activities
6/21/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc. , I used medicine balls during my training activities	I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids

6/22/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc. , I used free-weight machines like the leg extension, lat-pull down etc., I used medicine balls during my training activities	I walked briskly or ran, I did cleaning activities around my house, I did resistance training type of activities
6/23/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids, I did resistance training type of activities
6/24/2011	I achieved over an hour of physical activity today	Pushed furniture	I did cleaning activities around my house
6/25/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids

6/26/2011	I achieved between 30 and 44 minutes of activity today		I played outside with my kids	I didn't have time
6/27/2011	I achieved between 30 and 44 minutes of activity today		I played outside with my kids	I didn't have a babysitter
6/28/2011	I achieved between 30 and 44 minutes of activity today	none	I did cleaning activities around my house, packing for my trip and running errands.	I didn't have time
6/29/2011	I achieved less than 30 minutes of activity today	none	traveled to NY	I didn't have time
6/30/2011	I achieved over an hour of physical activity today	I used a meatball during my arm exercises	I walked briskly or ran, I played outside with my kids, I carried my 30lb meatball around an amusement park because I forgot the stroller at home! What a workout that was.	
7/1/2011	I achieved over an hour of physical activity today	I carried a 27lb child on my right hip for over two hours.	I walked briskly or ran, i walked around a zoo all day carrying my child whom all of a sudden forgot how to walk on this trip.	
7/2/2011	I achieved over an hour	none	I walked briskly or ran, I played	

	of physical activity today		outside with my kids	
7/3/2011	I achieved between 30 and 44 minutes of activity today	none	none	I didn't have time
7/4/2011	I achieved over an hour of physical activity today	none	I walked briskly or ran, I played outside with my kids	
7/5/2011	I achieved over an hour of physical activity today	none	walked around great adventure all day.	
7/6/2011	I achieved less than 30 minutes of activity today	none	I played outside with my kids	I didn't have time
7/7/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran	
7/8/2011	I achieved less than 30 minutes of activity today	none	I played outside with my kids	I couldn't run because it rained this afternoon and that was the only time I had someone to watch the kids.
7/9/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I played outside with my kids	

7/10/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I played outside with my kids	
7/11/2011	I achieved between 45 minutes to 60 minutes of activity today	none	I played outside with my kids	i didn't have anyone to watch the kids
7/12/2011	I achieved between 30 and 44 minutes of activity today	none	none	we stayed inside because it was too hot today
7/13/2011	I achieved over an hour of physical activity today	none	I walked briskly or ran, I played outside with my kids	
7/14/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I played outside with my kids	
7/15/2011	I achieved between 30 and 44 minutes of activity today	none	I played outside with my kids	I didn't have anyone to watch the kids
7/16/2011	I achieved between 30 and 44 minutes of activity today	none	I played outside with my kids	I went to a birthday party with my kids so I didn't have a chance to workout

7/17/201 1	I achieved over an hour of physical activity today	none	I walked briskly or ran, I played outside with my kids	
7/18/201 1	I achieved between 30 and 44 minutes of activity today		I played outside with my kids	I didn't have time
7/19/201 1	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran, I played outside with my kids	
7/20/201 1	I achieved between 30 and 44 minutes of activity today		I played outside with my kids	I didn't have time
7/21/201 1	I achieved over an hour of physical activity today		I walked briskly or ran, I played outside with my kids	
7/22/201 1	I achieved between 45 minutes to 60 minutes of activity today		I played outside with my kids	I didn't have time
7/23/201 1	I achieved over an hour of physical activity today		I walked briskly or ran, I went swimming, I played outside with my kids	
7/23/201 1	I achieved less than 30 minutes of activity today		I played outside with my kids	it rained in the afternoon so I couldn't run.

7/24/2011	I achieved less than 30 minutes of activity today		I went swimming, I played outside with my kids	I didn't have time
7/25/2011	I achieved less than 30 minutes of activity today		none	I was sick
7/26/2011	I achieved less than 30 minutes of activity today	none	none	I was sick
7/27/2011	I achieved less than 30 minutes of activity today	none	none	I was sick, I was still sick and I really don't know how I even had minutes on my watch for today and yesterday. I did NOTHING except lay in bed.
7/28/2011	I achieved less than 30 minutes of activity today	none	I walked briskly or ran, I played outside with my kids	I didn't have time, I don't understand it. I took my kids to a park and an amusement park today. I was there for over 5 hours and I still didn't get any minutes on my watch? I was walking the whole time, but pushing the stroller so I don't think it registered any minutes.

7/29/2011	I achieved less than 30 minutes of activity today	Holding meatball.	Shopping! Holding meatball and pushing "the big one" in the stroller.	I didn't have time, I don't think my watch works well when holding lily because it's stable. I realized this after holding her for two consecutive hours.
7/30/2011	I achieved over an hour of physical activity today	None	I went swimming, I played outside with my kids	I didn't have time
7/31/2011	I achieved between 30 and 44 minutes of activity today	None	None	I didn't have time, I was traveling home all day :(
8/1/2011	I achieved between 30 and 44 minutes of activity today	None	I played outside with my kids, Moved into my classroom	I didn't have time
8/2/2011	I achieved between 30 and 44 minutes of activity today	Carried boxes	I did cleaning activities around my house, I played outside with my kids	I didn't have time

8/3/2011	I achieved between 30 and 44 minutes of activity today	None	I did cleaning activities around my house, I played outside with my kids, Shopping	I didn't have time, I did a lot of running around and shopping with
8/4/2011	I achieved over an hour of physical activity today	None	I did cleaning activities around my house, I played outside with my kids, Fixing and organizing classroom	
8/5/2011	I achieved over an hour of physical activity today	None	I did cleaning activities around my house, I played outside with my kids	
8/6/2011	I achieved between 45 minutes to 60 minutes of activity today		I did cleaning activities around my house, I played outside with my kids	
8/7/2011	I achieved between 30 and 44 minutes of activity today		I did cleaning activities around my house, I played outside with my kids	
8/8/2011	I achieved between 45 minutes to 60 minutes of activity today	Carried boxes and materials up flights of multiple stairs.	I did cleaning activities around my house, I played outside with my kids	I didn't have time, I didn't have a babysitter ton watch the girls so I could run
8/9/2011	I achieved over an hour of physical activity today	Carried boxes and moved furniture	I did cleaning activities around my house, I played outside with my kids	I didn't have time

8/10/2011	I achieved over an hour of physical activity today	None	I did cleaning activities around my house, I did used a DVD or other forms of media to exercise	I didn't have time
8/11/2011	I achieved between 30 and 44 minutes of activity today	None	Played inside with the girls and went shopping	I just didn't feel like doing it, My meatball didn't sleep last night so I was in a tired and horrible mood all day.
8/13/2011	I achieved between 30 and 44 minutes of activity today	None	I played outside with my kids, Walking at black-water falls	I didn't have time
8/14/2011	I achieved between 45 minutes to 60 minutes of activity today	None	I did cleaning activities around my house	I didn't have time, Went to a BBQ to try and not thing about today being the last day of my summer vaca

Table 3

Illustration of Likert-Scale Items follow-up survey responses for Participant 1.

What is your age?	What is your current job title?	If you have children please list the Names and Ages of your children	What is your martial status
33	2nd grade teacher but still waiting to hit the lottery	Maddie age 4 ½ Lily (aka meatball) age 1 ½	Married

	Strongly Agree	Agree	Disagree	Strongly Disagree
I am happy with the way my body looks.			X	
I exercise so I can feel good about my body.		X		
I Exercise so I can be healthy.		X		
I enjoy exercising or the way it makes me feel after I do it.	X			
I prefer to exercise with other people.	X			
I need someone to motivate me to exercise.	X			
When I don't exercise I feel guilty.	X			
I want to exercise for the rest of my life.		X		
I like participating in competitive athletics.		X		
I view exercise as a way to negate calories so I can indulge in the foods I want to eat			X	

Table 4

Illustration short answer of follow-up survey responses for Participant 1.

Question	Response
Why have you become physically active?	After I had my kids it has been so hard to get back to my previous weight. I also want to Bradford so I can keep up with them and their energy levels. I don't want to be using a walker to visit them play their sports in high school. I also want to be a good role model for my girls and show them that being active and eating healthy is a fun way of life.

What were some reasons in wanting to continue to be active over the summer after participating in the work-site wellness program?

I was just starting to lose some weight before the summer started and I wanted to see if I could continue on this course by myself. I also wanted to see how much I could push my body on my own without someone doing it with me. I guess I just wanted to test myself.

Do you have a spouse or significant other that is physically active? Explain how this may or may not play a role in why you are physically active.

My husband is very physically active. He runs 6 miles a day and lifts weights. He is a great inspiration to me. The only trouble is that we were apart all summer so I didn't have that push I usually get from him. It was like I was on a deserted island and I had to see what I could do on my own this summer.

Do you have children, if so how many? Explain how children may help or inhibit your physical activity.

I have two very active and demanding children. I was with my children all summer so I had to use Crawford ways to exercise with them. My youngest is sort of connected to my hip, so I got some exercise workouts by carrying her everywhere this summer. Having my girls also made it harder to exercise. I love to run now, but found myself unable to do so many times because nobody could watch the girls. I tried taking them with me (not a great idea) and I tired only taking one (and she didn't last more than five minutes). I guess it is easier for me if I workout before they wake up or after work when I still have a babysitter for them.

Explain any significant event in your life that has influenced your desire to become physically active.

What started my whole reason to become physically active was that I wanted to fit into a bathing suit this summer with my girls and enjoy playing with them and not worry about how I felt in the god-awful bathing suit. I also wanted to keep up with my girls and have more energy. I don't want to be that mom at the playground that is sitting on the bench watching my child play while eating potato chips. I want to be the mom running with them and creating fun and memorable memories with them.

How long have you participated in exercise? Explain why you started exercising?

I started exercising in November 2010 at Mylan. I felt good about myself and stuck with it even though I didn't see results right away. I liked the energy it gave me and it made me happier

throughout the day. It became something I looked forward to doing.

Briefly explain your physical education experience? Has it played a part in you being physically active or in-active, explain?

I didn't have much physical education experience before I started. I was a yo yo dieter. I would starve myself if I knew I had an event coming up (unsuccessfully). I would try the newest crazes like pilates, yoga, DVDs and many other crazy things but nothing worked. I was active in high school but I lost that when I went to college. Now that I have kids, I'm looking for a life change. Something that my whole family and I can do together forever.

Table 5

Illustration of daily physical activity log for Participant 2.

What is today's date?	Select the following statement which describes your activity minutes for today	If you participated in resistance training exercise please select from the following that describe the type of resistance activities you	Select from the following types of physical activities that apply to what you did today. Select ALL that apply and utilize the OTHER section to describe any type of activity not included.	If you did not participate in activity please select the options to why this occurred.
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		did. Utilize the OTHER section to describe activities that are not included.		
6/11/2011	I achieved between 30 and 44 minutes of activity today	Riding lessons	I walked briskly or ran	I did not wear the watch until late in the day
6/12/2011	I achieved between 30 and 44 minutes of activity today	Riding lessons	I walked briskly or ran	
6/13/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I did resistance training type of activities	
6/14/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I did resistance training type of activities	

6/15/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc. I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining	I did resistance training type of activities	
6/16/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I did resistance training type of activities	
6/17/2011	I achieved less than 30 minutes of activity today	Sat on my ass	Rode in car	Vacation
6/18/2011	I achieved less than 30 minutes of activity today	Walked	I walked briskly or ran	Vacation
6/19/2011	I achieved over an hour of physical activity today	pulling my kids on skateboard	I walked briskly or ran, I went swimming	
6/20/2011	I achieved between 30 and 44 minutes of activity today	pulled my kid on skateboard	I walked briskly or ran	

6/21/11	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran	I was sick
6/22/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran	I was sick
6/23/2011	I achieved less than 30 minutes of activity today		I did cleaning activities around my house, Unpacking	I was sick
6/24/2011	I achieved less than 30 minutes of activity today		I did cleaning activities around my house	I was sick
6/26/2011	I achieved between 30 and 44 minutes of activity today	Swimming	I walked briskly or ran, I went swimming	
6/27/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran, I did cleaning activities around my house	
6/28/2011	I achieved between 45 minutes to 60 minutes of activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body	I walked briskly or ran, I did resistance training type of activities	

		combining moves like squat press, lunge curl etc. , I used medicine balls during my training activities	
6/29/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran, I did landscaping or gardening activities around my yard, I did resistance training type of activities
6/30/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran, horseback riding,jumped on trampoline
7/1/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/2/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/3/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/4/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for	I walked briskly or ran

		my upper or lower body like curling, pressing, squatting, lunging etc..	
7/6/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran, I did resistance training type of activities
		I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used resistance bands in my training	
7/7/2011	I achieved over an hour of physical activity today	activities, I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I went swimming
7/8/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I went swimming, I did resistance training type of activities
7/9/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran
7/10/2011	I achieved between 45 minutes to 60	I used my own body weight in exercises like	I walked briskly or ran, I did cleaning activities around my

	minutes of activity today	push-ups, squats, leg drives etc., I used resistance bands in my training activities	house
7/11/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did resistance training type of activities
7/12/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/13/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/14/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/15/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did cleaning activities around my house
7/16/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I went swimming
7/17/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I went swimming
7/18/2011	I achieved over an hour of physical activity today		I walked briskly or ran

7/19/2011	I achieved less than 30 minutes of activity today	I walked briskly or ran, I went swimming
7/20/2011	I achieved over an hour of physical activity today	I walked briskly or ran, I did cleaning activities around my house
7/21/2011	I achieved between 30 and 44 minutes of activity today	I did landscaping or gardening activities around my yard, I did cleaning activities around my house
7/22/2011	I achieved over an hour of physical activity today	I walked briskly or ran
7/25/2011	I achieved over an hour of physical activity today	I walked briskly or ran, I did landscaping or gardening activities around my yard, I did cleaning activities around my house, I went swimming
7/26/2011	I achieved between 45 minutes to 60 minutes of activity today	I walked briskly or ran, I went swimming
7/27/2000	I achieved over an hour of physical activity today	I walked briskly or ran, I went swimming, horseback riding
7/28/2011	I achieved over an hour of physical activity today	I walked briskly or ran, I went swimming

7/29/2000	I achieved over an hour of physical activity today	I walked briskly or ran, I did cleaning activities around my house, I went swimming
7/30/2011	I achieved over an hour of physical activity today	I walked briskly or ran
7/31/2011	I achieved over an hour of physical activity today	I walked briskly or ran, I went swimming
8/1/2011	I achieved between 30 and 44 minutes of activity today	I walked briskly or ran, I did landscaping or gardening activities around my yard, I did cleaning activities around my house
8/2/2011	I achieved between 30 and 44 minutes of activity today	I walked briskly or ran, I did cleaning activities around my house, I went swimming
8/3/2011	I achieved between 30 and 44 minutes of activity today	I walked briskly or ran, I did cleaning activities around my house
8/4/2011	I achieved over an hour of physical activity today	I walked briskly or ran, I went swimming

8/5/2011	I achieved between 45 minutes to 60 minutes of activity today	I walked briskly or ran, I went swimming
8/6/2011	I achieved between 45 minutes to 60 minutes of activity today	I walked briskly or ran, I did cleaning activities around my house
8/7/2011	I achieved between 45 minutes to 60 minutes of activity today	I walked briskly or ran, I did cleaning activities around my house
8/8/2011	I achieved between 45 minutes to 60 minutes of activity today	I walked briskly or ran, I did cleaning activities around my house, riding lessons
8/9/2011	I achieved less than 30 minutes of activity today	I walked briskly or ran, I did landscaping or gardening activities around my yard
8/10/2011	I achieved over an hour of physical activity today	I walked briskly or ran, riding lessons
8/11/2011	I achieved over an hour of physical activity today	I walked briskly or ran, riding lessons
8/12/2011	I achieved between 30 and 44 minutes of activity today	I walked briskly or ran, I did cleaning activities around my house, riding lessons

8/13/2011	I achieved over an hour of physical activity today	I walked briskly or ran, riding lessons
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Table 6

Illustration of follow-up Likert-Scale Items survey responses Participant 2.

	What is your age?	What is your current job title?	If you have children please list the Names and Ages of your children	What is your martial status
	56	Riding instructor/t aide	Britten, 25 Lunden, 21 Ciara, 16	Married
	Strongly Agree	Agree	Disagree	Strongly Disagree
I am happy with the way my body looks.		X		
I exercise so I can feel good about my body.		X		
I Exercise so I can be healthy.	X			
I enjoy exercising or the way it makes me feel after I do it.		X		
I prefer to exercise with other people.	X			
I need someone to motivate me to exercise.	X			
When I don't exercise I feel guilty.	X			
I want to exercise for the rest of my life.	X			

I like participating in competitive athletics.	X
I view exercise as a way to negate calories so I can indulge in the foods I want to eat	X

Table 7

Illustration of follow-up Open-Ended Items survey responses Participant 2.

Question	Response
Why have you become physically active?	I wanted to be able to continue doing my job with horses and to be as strong and healthy as I can. Working with horses requires strength and stamina and I believe exercising helps me to accomplish my goals. I had my children late in life and I want to be able to continue to help and watch my children in their life's journey.
What were some reasons in wanting to continue to be active over the summer after participating in the work-site wellness program?	I enjoyed the program (during the year) so much it inspired me to continue through the summer. I thought just doing my everyday activities that I was fit, but I found out different. I like to exercise with a group, but after the group dispersed, my daughter and I continued to exercise and started running. I have found out I really enjoy running. My daughter is too busy now with soccer and doesn't have the strength and time to run with me, so I have been running on my own. I run at least a mile every day and sometimes two.
Do you have a spouse or significant other that is physically active? Explain how this may or may not play a role in why you are physically active.	My husband has knee problems and cannot exercise. It takes all his energy to continue working his job. It doesn't affect me that much, I will continue to exercise on my own. Really. I need to be stronger now since his health is compromised

Do you have children, if so how many? Explain how children may help or inhibit your physical activity.

I have three children, two live on their own and my daughter is still at home. She plays a big part in my business. We ride, train, and show together. She is very athletic and that inspires me to keep up with her. Ha Ha

Explain any significant event in your life that has influenced your desire to become physically active.

As a child, I always wanted a horse and finally at age 11, I got my first horse. The love of horses continued into my adult life. I started taking riding lesson my senior year and went to England to riding school. The experience was life changing, not only did I learn to ride horses, but learned about how to live on my own. Returning from school, I started Echo Mountain Stables and purchased my second horse. I started showing my horses and soon was showing other peoples horses. I train, ride, teach, and show horses. Horses, I believe, has kept me in fairly good shape and definitely of sound mind. Having three children that were involved in sports has kept me very busy. I would help them practice their particular sport. Meghan's program has inspired and showed me that at fifty-six I can be as active as I want to be. She encouraged and taught me how I can incorporate exercise into my life

How long have you participated in exercise? Explain why you started exercising?

I worked at Elaine Powers for a year. I have rode horses all my life. We started exercising last fall. I knew I needed to get back in shape.

Briefly explain your physical education experience? Has it played a part in you being physically active or in-active, explain?

In elementary school, we played games. High school I didn't have PE because of band. Later, I worked at Elaine Powers one year.

Table 8

Illustration of daily physical activity log Participant 3.

What is today's date?	Select the following statement which describes your activity minutes for today	If you participated in resistance training exercise please select from the following that describe the type of resistance activities you did. Utilize the OTHER section to describe activities that are not included.	Select from the following types of physical activities that apply to what you did today. Select ALL that apply and utilize the OTHER section to describe any type of activity not included.	If you did not participate in activity please select the options to why this occurred.
6/13/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I did resistance training type of activities	

6/14/2011	I achieved between 45 minutes to 60 minutes of activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used medicine balls during my training activities	I walked briskly or ran, I did used a DVD or other forms of media to exercise
6/15/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I walked briskly or ran, I did resistance training type of activities
6/16/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I walked briskly or ran, I did resistance training type of activities

		I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free-weight machines like the leg extension, lat-pull down etc.	
	I achieved over an hour of physical activity today		I walked briskly or ran, I did resistance training type of activities
6/17/2011	I achieved between 45 minutes to 60 minutes of activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran, I did yoga and pilate type of activities, I played outside with my kids
		I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	
	I achieved over an hour of physical activity today		I walked briskly or ran, I did cleaning activities around my house, I did resistance training type of activities
6/20/2011	I achieved over an hour of physical activity today		
	I achieved over an hour of physical activity today	WALKED @ PARK	I played outside with my kids
	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	
6/24/2011			I walked briskly or ran
	I achieved between 45 minutes to 60 minutes of activity today		
6/25/2011		walked @ park	walked around @ park

6/26/2011	I achieved between 30 and 44 minutes of activity today	sick	sick	I was sick
6/27/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran, I did landscaping or gardening activities around my yard	
6/27/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did landscaping or gardening activities around my yard	
6/28/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I walked briskly or ran, I did landscaping or gardening activities around my yard	
6/29/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did resistance training type of activities	

6/30/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I did cleaning activities around my house, I did resistance training type of activities
7/1/2011	I achieved between 45 minutes to 60 minutes of activity today		I did landscaping or gardening activities around my yard, I did cleaning activities around my house
7/2/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I did landscaping or gardening activities around my yard, I did resistance training type of activities
7/3/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body combining moves like squat press, lunge curl etc.	I did landscaping or gardening activities around my yard, I did cleaning activities around my house, I did resistance training type of activities

7/6/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did landscaping or gardening activities around my yard
7/7/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I did used a DVD or other forms of media to exercise
7/8/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/9/2011	I achieved over an hour of physical activity today		I went swimming, boating
7/10/2011	I achieved between 45 minutes to 60 minutes of activity today		walked/ travel

7/11/2011	I achieved over an hour of physical activity today		I did landscaping or gardening activities around my yard
7/12/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I did used a DVD or other forms of media to exercise
7/13/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I did used a DVD or other forms of media to exercise
7/14/2011	I achieved over an hour of physical activity today		I went swimming, I played outside with my kids
7/15/2011	I achieved between 45 minutes to 60 minutes of activity today		I did cleaning activities around my house
7/16/2011	I achieved over an hour of physical activity today		I walked briskly or ran

7/16/2011	I achieved over an hour of physical activity today		I walked briskly or ran	
7/17/2011	I achieved over an hour of physical activity today		I did landscaping or gardening activities around my yard	
7/18/2011	I achieved over an hour of physical activity today		I went swimming	
7/19/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I did used a DVD or other forms of media to exercise	
7/20/2011	I achieved between 45 minutes to 60 minutes of activity today		I did cleaning activities around my house	migraine most of day
7/21/2011	I achieved over an hour of physical activity today		I went swimming	

7/22/2011	I achieved over an hour of physical activity today		I did landscaping or gardening activities around my yard, I did cleaning activities around my house
7/23/2011	I achieved over an hour of physical activity today		I did cleaning activities around my house, I went swimming
7/24/2011	I achieved over an hour of physical activity today		I went swimming
7/25/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I did resistance training type of activities, I did used a DVD or other forms of media to exercise
7/26/2011	I achieved over an hour of physical activity today		I walked briskly or ran
7/27/2011	I achieved between 45 minutes to 60 minutes of activity today		I did cleaning activities around my house

7/28/2011	I achieved between 45 minutes to 60 minutes of activity today		I did landscaping or gardening activities around my yard	
7/29/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I did cleaning activities around my house, I did used a DVD or other forms of media to exercise	
7/30/2011	I achieved over an hour of physical activity today		I went swimming	
7/31/2011	I achieved between 30 and 44 minutes of activity today		I did cleaning activities around my house	MIGRAINE
8/1/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I played outside with my kids, I did used a DVD or other forms of media to exercise	
8/2/2011	I achieved between 30 and 44 minutes of activity today		I walked briskly or ran	I didn't have time, travel time too long

8/3/2011	I achieved between 45 minutes to 60 minutes of activity today		I went swimming, I played outside with my kids
8/4/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used medicine balls during my training activities	I walked briskly or ran, I did used a DVD or other forms of media to exercise
8/5/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I went swimming, I played outside with my kids
8/6/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I went swimming
8/7/2011	I achieved over an hour of physical activity today	I used free weights for my total body combining moves like squat press, lunge curl etc.	I went swimming, I did resistance training type of activities
8/8/2011	I achieved over an hour of physical activity today		I did cleaning activities around my house

8/9/2011	I achieved over an hour of physical activity today		I went swimming	
8/10/2011	I achieved between 45 minutes to 60 minutes of activity today		I did cleaning activities around my house	
8/11/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc..	I walked briskly or ran, I did used a DVD or other forms of media to exercise	
8/12/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran, I did used a DVD or other forms of media to exercise	
8/13/2011	I achieved between 30 and 44 minutes of activity today		I did cleaning activities around my house	migraine
8/14/2011	I achieved between 30 and 44 minutes of activity today		I did cleaning activities around my house	migraine

Table 9

Illustration of follow-up Likert-Scale Items survey responses Participant 3.

	What is your age?	What is your current job title?	If you have children please list the Names and Ages of your children	What is your martial status
	46	Teacher	Patrick 13 Hannah 6	Married
	Strongly Agree	Agree	Disagree	Strongly Disagree
I am happy with the way my body looks.			X	
I exercise so I can feel good about my body.		X		
I Exercise so I can be healthy.	X			

I enjoy exercising or the way it makes me feel after I do it.	X	
I prefer to exercise with other people.	X	
I need someone to motivate me to exercise.		X
When I don't exercise I feel guilty.		X
I want to exercise for the rest of my life.	X	
I like participating in competitive athletics.		X
I view exercise as a way to negate calories so I can indulge in the foods I want to eat		X

Table 10

Illustration of follow-up Open- ended Items survey responses Participant 3.

Question	Response
Why have you become physically active?	I was always active in the past. However, a few years ago I had no energy and couldn't understand why. I wasn't able to exercise and as a result pounds of fat replaced my muscle - I was not happy. I didn't feel like playing with my kids, my job teaching became exhausting. I found out I had a thyroid problem. I am now on Synthroid for my thyroid problem and I want to get my self back in shape so I can enjoy my life again!

What were some reasons in wanting to continue to be active over the summer after participating in the work-site wellness program?

The work-site program gave me the kick-start that I needed. Once I got back into exercise I felt so much better. I still need to gain more muscle -but I feel so much better when I exercise! I need to exercise to keep myself healthy so I can enjoy my life!

Do you have a spouse or significant other that is physically active? Explain how this may or may not play a role in why you are physically active.

My husband has always been physically active with sports. He is also trying to get back on track after breaking his leg. We both enjoy doing outdoor activities and want to be able to share that with our kids.

Do you have children, if so how many? Explain how children may help or inhibit your physical activity.

Yes I have two children and I also teach first grade. I need to be able to keep up. I like to play with my kids at home and my students at recess. I didn't like when I didn't have the energy to do that! The kids motivate me!

Explain any significant event in your life that has influenced your desire to become physically active.

My dad had a heart attack when he was 34 (I was in 5th grade.) His sister died of a heart attack at 33. My dad died of a heart attack at the age of 54. I decided I needed to be and stay active for my health.

How long have you participated in exercise? Explain why you started exercising?

I started in grade school (around 5th grade) because of my family history.

Briefly explain your physical education experience? Has it played a part in you being physically active or in-active, explain?

When my aunt died so young and my dad had a heart attack shortly after that it made me want to see what I could do to take care of my family and myself. My family had to make several changes in the way we ate and what we did to become active. We wanted to learn to help our dad recover. I don't always do what I know is right. But I have researched the importance of eating healthy and being physically active.

Table 11

Illustration of daily physical activity log Participant 4.

What is today's date?	Select the following statement which describes your activity minutes for today	If you participated in resistance training exercise please select from the following that describe the type of resistance activities you did. Utilize the OTHER section to describe activities that are not included.	Select from the following types of physical activities that apply to what you did today. Select ALL that apply and utilize the OTHER section to describe any type of activity not included.	If you did not participate in activity please select the options to why this occurred.
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7/8/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights for my total body combining moves like squat press, lunge curl etc. , I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I did resistance training type of activities
7/9/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used resistance bands in my training activities	I walked briskly or ran, I played outside with my kids, I did resistance training type of activities
7/11/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I did resistance training type of activities
7/12/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids

7/13/2010	I achieved between 45 minutes to 60 minutes of activity today		I played outside with my kids	I didn't have time
7/14/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids	
7/15/2011	I achieved between 30 and 44 minutes of activity today	Arm lifts with Paxson...more weight than I usually use! ;)	I walked briskly or ran, I played outside with my kids	busy day...will make up for it tomorrow! :)
7/17/2011	I achieved over an hour of physical activity today	I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I played outside with my kids, I did resistance training type of activities	
7/18/2011	I achieved less than 30 minutes of activity today		I did cleaning activities around my house, I went swimming	
7/19/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I went swimming, I played outside with my kids, I did resistance training type of activities	

7/20/2011	I achieved less than 30 minutes of activity today		I did cleaning activities around my house, I went swimming, I played outside with my kids
7/21/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc.	I walked briskly or ran, I did cleaning activities around my house, I went swimming, I played outside with my kids
7/22/2011	I achieved less than 30 minutes of activity today		I did cleaning activities around my house, I played outside with my kids
7/23/2011	I achieved between 30 and 44 minutes of activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free weights for my total body combining moves like squat press, lunge curl etc. , I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I did resistance training type of activities
7/24/2011	I achieved between 45 minutes to 60 minutes of activity today		I did cleaning activities around my house, I played outside with my kids

7/25/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran, I did cleaning activities around my house	
7/27/2011	I achieved less than 30 minutes of activity today		None	I was sick
7/28/2011	I achieved over an hour of physical activity today		I walked briskly or ran, I did cleaning activities around my house, Packed and organized for vacation...more of a workout than I had anticipated...haha	
7/29/2011	I achieved over an hour of physical activity today	none	I walked briskly or ran, I did cleaning activities around my house, I played outside with my kids	
7/30/2011	I achieved between 45 minutes to 60 minutes of activity today	None Water park with my kiddos	I went swimming, I played outside with my kids	Traveled in a car all day
7/31/2011	I achieved less than 30 minutes of activity today		none	
8/1/2011	I achieved over an hour of physical activity today		I went swimming, I played outside with my kids	

8/2/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I went swimming, I played outside with my kids, I did resistance training type of activities
8/3/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I went swimming, I did yoga and pilate type of activities, I played outside with my kids, I did resistance training type of activities
8/4/2011	I achieved over an hour of physical activity today	I used my own body weight in exercises like push-ups, squats, leg drives etc., I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I went swimming, I did yoga and pilate type of activities, I played outside with my kids, I did resistance training type of activities

8/5/2011	I achieved between 45 minutes to 60 minutes of activity today	none	I did cleaning activities around my house, I played outside with my kids	
8/6/2011	I achieved over an hour of physical activity today	none	I walked briskly or ran, I went swimming, I played outside with my kids	
8/7/2011	I achieved between 45 minutes to 60 minutes of activity today	none	I went swimming	
8/8/2011	I achieved over an hour of physical activity today	none traveling	I walked briskly or ran, I did cleaning activities around my house, I went swimming, I played outside with my kids, Unpacking	I didn't have time
8/9/2011	I achieved between 30 and 44 minutes of activity today	none	I did cleaning activities around my house, I played outside with my kids	
8/10/2011	I achieved over an hour of physical activity today	I used resistance bands in my training activities, I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did cleaning activities around my house, I did yoga and pilate type of activities, I did resistance training type of activities, prepared my classroom	I was sick
8/11/2011	I achieved less than 30 minutes of activity today		I did cleaning activities around my house	

8/12/2011	I achieved over an hour of physical activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I played outside with my kids, I did resistance training type of activities
8/13/2011	I achieved between 45 minutes to 60 minutes of activity today	I used free weights in activities for my upper or lower body like curling, pressing, squatting, lunging etc., I used free-weight machines like the leg extension, lat-pull down etc.	I walked briskly or ran, I did resistance training type of activities
8/14/2011	I achieved between 45 minutes to 60 minutes of activity today		I walked briskly or ran, Food Shopping I didn't have time

Table 11

Illustration of follow-up survey responses. Likert-Scale Items

	What is your age?	What is your current job title?	If you have children please list the Names and Ages of your children	What is your martial status
	32	Teacher	Sabrina-6 Summer-5	Divorced
	Strongly Agree	Agree	Disagree	Strongly Disagree
I am happy with the way my body looks.			X	
I exercise so I can feel good about my body.		X		
I Exercise so I can be healthy.	X			
I enjoy exercising or the way it makes me feel after I do it.	X			
I prefer to exercise with other people.	X			
I need someone to motivate me to exercise.	X			
When I don't exercise I feel guilty.		X		
I want to exercise for the rest of my life.	X			
I like participating in competitive athletics.			X	
I view exercise as a way to negate calories so I can indulge in the foods I want to eat			X	

Table 12

Illustration of follow-up Open- ended Items survey responses Participant 4.

Question	Response
Why have you become physically active?	My ex-husband was the one who participated in all of the active activities with my children. So, after I filed for divorce, I wanted my children to be active and I knew that I was the one who had to do it. So, as a result, I began exercising and became active for myself and my children as well. I was also pushing 250 lbs and had extremely bad eating habits. I began to lose weight and was able to participate in activities I had never been able to participate in before.
What were some reasons in wanting to continue to be active over the summer after participating in the work-site wellness program?	Our summers are so busy, so the one thing that always sacrifices is my exercising. I wanted to continue to maintain my strength and weight over the summer. If I lost weight, I considered that to be a bonus. I was looking to maintain what gains I had made throughout the school year, so that when school started back up, I wasn't starting from square one.
Do you have a spouse or significant other that is physically active? Explain how this may or may not play a role in why you are physically active.	Yes,,my roommate is my main source of motivation. On the days that I don't feel like exercising, she pushes me. I always feel better when we are finished. There are very few days when I am motivated alone. I also do not like to exercise alone, therefore, this is the biggest component to my success in sticking with an exercise program.

Do you have children, if so how many? Explain how children may help or inhibit your physical activity.

I have two young children (ages 5 and 6). They are very well-behaved and the gym I belong to allows them to come with me (no daycare provided at that facility). However, I prefer to workout outside, especially on nice days. I have a very difficult time being motivated to go to the gym when the weather is nice outside. I can run/walk 5+ miles very easily and enjoyably everyday when I am outside. I struggle to get 2 miles on the treadmill. That being said, the only time I can get an "enjoyable" workout is when I have someone to watch my girls. Also, my workouts are a minimum of 1 hour. That is a long time for 2 young children to entertain themselves.

Explain any significant event in your life that has influenced your desire to become physically active.

My divorce is the most significant event that influenced me, kind of indirectly. My original intent was to get "healthy enough" to be able to do what my children wanted to try and participate in. As a result, I then began to lose weight rather quickly. I was able to do things that I had never done before. I also felt better than I had ever felt before, therefore motivated to continue.

How long have you participated in exercise? Explain why you started exercising?

I had NEVER exercised (other than walking) until I was 31 years old. Due to the fact that I had NO idea what I was doing, I hired a trainer and trained with him for 6-9 months. I learned how to exercise correctly and lost the majority of my weight during this time. During this time I also met my roommate who is very active. We began working out together, which is how I workout today (with her and a small group of ladies I work with). Well....my PE experience at the elementary level simply involved playing games like crab-ball and kickball (I recall nothing else from elementary PE class). High school PE, you earned your grade by how many times you changed your clothes (participation and learning concepts that were taught played no part in the grading process). I was also very involved in art class during my high school years, therefore, my art teacher would write me a pass and I would be excused from PE to complete projects that I was working on. I do not blame my PE experience for my inactive lifestyle that I lead, but it certainly didn't help to inspire me

Briefly explain your physical education experience? Has it played a part in you being physically active or in-active, explain?

or motivate me to be active.