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Scott Strohmeyer

University of Central Missouri

Taralyn Garner

State School for Severely Disabled

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February 29, 1980 the Missouri Association for Health, Physical Education, Recreation and Dance became incorporated as an association. April 2019 the Missouri Association for Health, Physical Education, Recreation and Dance became the Missouri Society of Health and Physical Educators.

Editorial Policy

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The *Journal* accepts submissions in three categories: editor-reviewed articles and materials, refereed articles, and student articles. See the contributor guidelines in the back of this issue.

All correspondence concerning the publication of the *Journal* should be addressed to Dr. Scott Strohmeyer, **strohmeyer@ucmo.edu**, or Taralyn Garner, **taralyngarner10@gmail.com**. Manuscripts must be submitted as **Word** documents.

NOTE: The *Missouri Journal of Health, Physical Education, Recreation and Dance* began using volume numbers with the 1991 issue, which was designated volume 1. Earlier issues do not bear a volume number.

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Clayton Ellis

Nancy Raso-Eklund

On August 31, 2019, SHAPE America - Central District lost one of our most dedicated and passionate physical educators and leaders. Originally from Austin, Minnesota, Nancy Raso-Eklund coached and taught health, physical education, special education, and wellness at all levels for more than 45 years in Green River, Wyoming. Nancy had been the Central District Executive Director for the past 4 years. She was also the Executive Director of the Wyoming Association for Health, Physical Education, Recreation and Dance for 23 years. In addition, Nancy was the Green River #2 district's Wellness Director, PEP Grant Coordinator and most recently the state of Wyoming's IHT Heart Rate Monitor Grant Coordinator.

In 1996, Nancy was recognized as the AAHPERD (SHAPE America) National Elementary Physical Educator of the Year and Disney Educator of the Year. In 2016, Nancy earned the President's Council on Sports, Fitness and Nutrition's Community Leadership Award. In 2017, I had the honor of presenting Nancy with the SHAPE America - Central District Mark Harvey Legacy Award, which acknowledges individuals who, by performance, style, humility and wisdom have personified the personal and professional attributes of the late great Dr.

Mark L. Harvey of Colorado. In September 2019, Nancy was inducted into the Green River High School Hall of Fame where she coached swimming, basketball, and volleyball.

I first met Nancy as a member of SHAPE Colorado's Executive Committee. Since then, Nancy and I have been recruited to participate in numerous local, regional, and national committees and initiatives. Nancy and I also engaged with many affiliated non-profit organizations boards and special events together. Some of these include; the President's Youth Fitness Program Task Force, Let's Move Active Schools Physical Activity Leadership Program, The Cooper Institute's Fitnessgram Professional Development Task Force, and one of her absolute favorites, Physical Best Specialist Program. We attended many Gen-Youth, Fuel Up to Play 60 and Jump Rope for Heart events. We shared many ideas between the Colorado Governor's Council for Active and Healthy Lifestyles and the Wyoming Governor's Council for Physical Fitness and Sports. Her dedicated engagement with all of these activities provided her with a very broad perspective and valuable voice towards the advocacy and promotion of quality health and physical education programs locally, regionally and nationwide.

Nancy would greet everyone with a huge, bright, and caring smile. She considered everyone she would meet to be family and was a compassionate, trustworthy listener, and mentor to so many teachers nationwide. As an innovative planner and organizer, Central District and Wyoming health and physical educators benefited greatly from Nancy's open door policy and networking abilities. She would bring in the nation's very best speakers and presenters to their state and regional conventions as the convention manager.

Nancy had an "old school" work ethic and a "just get it done" attitude. She was "ALL IN" on every SHAPE America initiative placed in front of her by the national office. Every summer, Nancy would pack up her car to drive to attend

nearly all of the Sally Scherrer Leadership Summits whether they were in Sioux Falls, SD or Mahoney State Park outside Omaha, NE. We would spend hours on the phone brainstorming ideas for the implementation of a variety of initiatives. Nancy would often drive six hours to Morrison, CO to babysit and spend time with her grandchildren. While in the Denver area, she would often call me to get together for an impromptu Central District meeting. These meetings would usually begin with her sharing all the activities that her family and grandchildren were participating in at the time. We would then review and visit the next steps for our strategic plan and/or future effort implementations. We would brainstorm ideas and when we thought of a good one, Nancy would light up and say, "I love that, let's do it!" She believed as a professional educator, engagement in our professional organizations and conventions were something that should be expected of everyone and the sky was the limit for new ideas. Nancy would often revisit and remind me of past ideas and ask, "can we do it now?" During many of these meetings with Nancy two words would usually come up in our conversations, "moving forward". As a result, #MovingForward became the theme for my SHAPE America - Central District Presidency and the 14th Annual Sally Scherrer Leadership Summit.

As such a strong advocate for quality health and physical education programs, Nancy was a regular attendee at SHAPE America's Speak-Out day, most of the time as the sole representative from Wyoming. Gay Hughes of Wyoming has stated, "Nancy is the face of Wyoming AHPERD. She is devoted to the cause of advocating for physical education like no one else in the state of Wyoming." Nancy and Gay were Co-Convention Managers for the 2013 Central District Convention. Nancy often carried with her bookmarks and cards from the keynote speaker James P. Owens, who is the author of the bestselling books The Code of the West-Cowboy Ethics, Cowboy Values and The Try, Reclaiming the American Dream. Nancy would often hand out the bookmarks to the many new friends she would make at SHAPE America events because she lived and believed in the values they included so strongly. #MovingForward we should keep these values in mind in honor of Nancy for

our professions future efforts!

The Code of the West - Cowboy Ethics:

1. Live Each Day with Courage
2. Take Pride in Your Work
3. Always Finish What You Start
4. Do What Has To Be Done
5. Be Tough, But Fair
6. When You Make A Promise, Keep It
7. Ride For The Brand
8. Talk Less And Say More
9. Remember That Some Things Aren't For Sale
10. Know Where To Draw The Line

The Try, Reclaiming the American Dream - Steps to Success:

1. Start with a Dream
2. Turn Your Dream Into A Measurable Goal
3. Create A Game Plan and Timetable
4. Make a Commitment
5. Take Full Responsibility
6. Expect Adversity
7. Give It 110%

The Joy of Effort Award honors individuals who, by performance and style, have personified the concept that the effort made to enrich the goals and

objectives of health and physical education, physical activity, dance, and sport is a labor of love, inspired by commitment and dedication. I am in AWE of every SHAPE America Joy of Effort Award winner that I have had the honor to meet. I am not on the awards committee, but I don't believe there is any other individual that exemplifies the characteristics of "Joy of Effort" as does Nancy Raso-Eklund. Nancy will be sorely missed by our entire national health and physical education community.

Clayton Ellis *(ceellis@aps.k12.co.us) is a member of SHAPE America's Board of Governors and Past-President of SHAPE America's Central District.*

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Refereed Article

Lesser Known Lifetime Physical Activities

Rick Hardy

Abstract

Outdoor recreation provides an array of opportunities for individuals, groups, and families to enjoy as they experience nature. Participating in an activity through outdoor recreation may facilitate a new awareness of an ecosystem, a new skill, a health benefit, an emotional release, or a deep connection with nature. Disc Golf, Geocaching and Pump Tracks are activities that are still relatively unknown to the general public. As an activity, they each can be relaxing, like a walk or bicycle ride in the park or neighborhood. Or they can challenge one physically, mentally, and emotionally. This introduction is to help educators and recreational professionals gain a better understanding of these three activities and their potential impact on the physical activity level of participants. Especially older adults experiencing low physical activity levels and/or suffering from the negative health effects of obesity.

Inactivity has been linked to prolonged health problems over one's lifespan (Lewis & Newhouse, 2014). Obesity is a fast-growing pandemic around the world (Donatelle, 2005 & Seidell, 2005). Engaging regularly in physical activity has been linked positively with a wide range of health benefits (Dressing, Pierik, Sterkenburg, Dommelen, Maas, & de Vries 2013). Emerging evidence substantiates that regular physical activity is among the most important lifestyle factors for maintenance of good health at older ages

(Hamer, Lavoie & Bacon, 2013).

Regular exercise helps to improve physical and mental functions as well as reverse some effects of chronic disease to help keep older people more mobile and independent (McPhee, French, Jackson, Nazroo, Pendletoon & Degens, 2016). A Harvard Medical School professor, John Ratey, M.D., is quoted as stating, "*A bout of exercise is like taking a little bit of Prozac and a little bit of Ritalin*" (Barcott, 2010). James Blumenthal, PhD, a Duke University professor in behavioral medicine is quoted as saying, "*Exercise works as well as psychotherapy and antidepressants in the treatment of depression, maybe better*" (Yeager, 2014). Hillman (2006) affirmed exercise increases brainpower and helps hold off Alzheimer's in mature adults. "*Healthy ageing*" has been defined as an ability to lead a healthy, socially inclusive lifestyle relatively free from illness or disability and this outcome is more likely in those actively engaging in activities to improve their health and wellbeing (age UK 2011).

Regardless of publicized benefits of physical activity, the overwhelming majority of older adults do not meet the bare minimum physical activity levels needed to sustain a healthy lifestyle (McPhee et al, 2016). In this paper the authors suggest three lesser known individual lifetime physical activities to assist participants, especially older ones, to get outside and walk or bike. These individual lifetime physical activities include Disc Golf, Geocaching and riding a Bicycle Pump Track.

Background for Disc Golf

Disc golf is considered an individual lifetime sport because people often play well into their seventies (Menickelli & Pickens, 2016). The Frisbie Pie Company began baking in the late nineteenth century. The business became successful and expanded from its base in Connecticut into New York and Rhode Island (World Flying Disc Federation n.d.). Students from universities in the area of the bakeries started a recreational activity by throwing the pie tins and lids to each other and called the game Frisbie (World Flying Disc Federation n.d.). In the early 1950s Fred Morrison, an inventor from the United States' West Coast, first started using cake tins to toss around before developing the first plastic discs in 1951. The Wham-O toy company came across Morrison selling his discs and brought him into the company. By 1957 Wham-O was producing the discs on its production lines (World Flying Disc Federation n.d.). In 1975, Ed Headrick a Wham-O

employee, obtained the U.S. Patent #4039189. This was the patent for the first disc Golf Pole Hole (Professional Disc Golf Association n.d.) Disc golf is played on a course similar in structure to a traditional golf course. Players start in Tee Boxes and strategically throw the disc, making several throws along a fairway until they toss the disc into the fairway's pole hole. Unlike the famous attributed quote from Mark Twain, "Golf is a good walk spoiled," (Michie, 1948) disc golf is both relaxing and enjoyable. There are currently over 174 disc golf courses in Missouri and nearly 6000 disc golf courses within the United States (The Disc Golf Scene n.d.). There is even a Professional Disc Golf Association, similar to the Professional Golf Association where players compete for prize money. The low cost to both purchase equipment and to participate attracts people from all ages and social strata. This creates an easy entry point for participants and growth for the sport.

Disc Golf Hole Pole at Schlanger Park, Pittsburg, KS Parks and Recreation Department used by permission from Kat Mercer

Background for Exergames and Geocaching

"Exergames (video games that require physical activity or moving one's body to play) and global positioning system (GPS) exergames (electronic, location-based games that are played outdoors with the help of GPS in mobile devices carried by players) are rapidly gaining acceptance, and may have the potential to increase physical activity levels among people" (Boulos & Yang, 2013). The recent notoriety of the Pokemon Go game played through "an application (APP) which is a computer program downloaded to a mobile phone" (Cambridge, n.d.) is a prime example of an exergame. Batista, R. et al, (2016) states that "geocaching, which entails walking, hiking, or running from cache to cache may help to maintain or increase sufficient leisure-time physical activity" (LTPA).

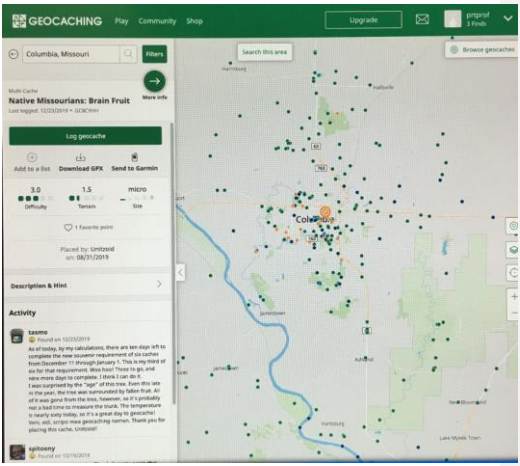
Geocaching is a modern scavenger or treasure hunt (Shoyleva & Johnson, 2011). It usually takes place outdoors, and there are more than two million caches placed all over the world (Groundspeak, 2020). According to Groundspeak, (2020) once a player registers a free account on the Geocaching.com website, the outdoor adventures can begin. The object of geocaching is to find a cache, usually a waterproof container varying in size and shape such as a film roll container, a glass or plastic container, or a military ammunition box (Brost, 2011). Once found, the geocacher opens the container unseen by others and records their information on the notebook inside the container. If the geocaching container has an object inside the geocacher may retrieve the object but established protocol requires the geocacher to leave an object in its place (Groundspeak, 2020).

According to National Geographic (2014) Geocaching makes use of a handheld device (mobile phone with Geocaching App, a GPS handheld device, or a GPS watch) electronically linked with the U.S. GPS. The U.S. GPS was developed by the U.S. Department of Defense in 1973 (NASA, 2011) The system was created, maintained and made available worldwide to anyone with a GPS receiver free of charge by the United States Government (National Geographic, 2014). GPS.gov (2020) states there are currently 24 operating satellites orbiting the Earth, giving nearly complete coverage of the planet. Each satellite, operating on six different orbital planes (Christie, n.d.), completes an orbit every 12 hours (Patubo, 2010). The satellites orbit at a height of 20,180 km above the Earth's surface (Quora, n.d.). At midnight on

May 2, 2000 the U.S. Government reduced the selective availability on the 24 orbiting satellites utilized for GPS around the world, which basically improved the accuracy of civilian handheld units to within a few meters (Ihamaki, 2015). The next day Dave Ulmer placed the very first "stash" to test the accuracy of the system for civilians (Ihamaki, 2015). The cache/stash was found three days later on May 6, 2000 by two separate individuals (Ihamaki, 2015).

Geocaching as an activity, engaged by either individuals or groups, offers an opportunity to recreate in all types of spaces and places. Geocaching takes place in any weather, on any terrain, by individuals, pairs, small groups and families engaged in outdoor recreation (Battista, R., et al 2016). Geocaching groups have day long and weekend events all over the world. Geocaching is an activity that utilizes technology in an outdoor setting, therefore "participants must be comfortable with the technology and like being outdoors" (Battista, R., 2016). Ihamaki (2015) states that the user experience (UX) involved in participating in geocaching can be subjective based on an individual's level of physical fitness, life experiences, personal preferences, familiarization of the environment the cache is hidden, and sense of adventure.

The geocaching experience is broader than finding caches. Creating and hiding caches offers the participant the opportunity to ingeniously hide a cache, and depending on placement, the participant may create something of a shared experience with the geocacher through place attachment (location of the cache), items left in the cache, and puzzles the participant may have to solve in order to find the cache or other caches.



Screenshot photo of Geocaching.com geocaches around Columbia, MO used

by permission from Kat Mercer

Geocaching as an activity is almost twenty years old. Many recreation professionals and educators are still unaware of the existence of this activity and the "fun" it can offer participants. Geocacher's do not have large equipment needs seen in other recreational activities; cell phones and GPS units have become ubiquitous technology that most individuals have at their disposal, coupled with a desire to be outdoors engaged in walking around playing an international treasure hunt.

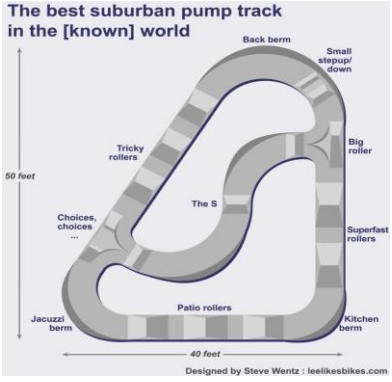
Background on Bicycle Pump Tracks

Bicycle Motocross (BMX) began in the U.S. in the late 1960s and early 1970s. Bruce Brown's motorcycle documentary "On Any Sunday" featuring Steve McQueen was probably an important inspiration for youth in southern California to start riding and customizing their bikes to emulate the

motorcycles in the movie and the bike riders in the opening credits. (MPORA, 2016).

A BMX race is similar to motocross racing. Riders start at a drop-down gate, similar to the gates seen in horse racing. Riders race around a dirt track filled with rollers (small hills and valleys), jumps and berms (wide banked turns) to the finish line (MPORA, 2016). BMX evolved over the years to add flatland BMX, Street BMX, park riding, and dirt riding. (MPORA, 2016).

Mountain biking can trace its roots back to the U.S. Army's 25th Infantry Bicycle Corps who rode customized bikes over rough terrain in 1896 (Marin Museum of Bicycling, n.d.). In the early 1950's on the outskirts of Paris, French riders from the Velo Cross Club Parisien customized their bikes for off road riding. Finally, in the late 1960s-early 1970s, a group of teenagers known as The Larkspur Canyon Gang, rode 1930s-1940s era bikes on Mount Tamalpais and in Baltimore Canyon in Northern California (Marin Museum of Bicycling, n.d.). Pump tracks emerged as mountain bikers sought places to work on their skills between races that were relatively close, in their town or even in their backyard. Australia can be credited with introducing the first pump tracks around 2002 (Lightcap in California's Adventure Sports Journal, n.d.). Steve Wentz, a professional downhill mountain bike racer, built the first U.S. pump track at The Fix Bike Shop in Boulder, Colorado in 2004 (Lightcap in California's Adventure Sports Journal, n.d.).



Steve Wentz pump track design used by permission from Lee McCormack

A pump track is essentially a bicycle motocross (BMX) track that loops back to the beginning or employs combinations of intersecting loops. The tracks can be built from dirt, man-made composite material, wood, concrete, tarmacadam, or asphalt. Pump tracks are usually narrower than BMX tracks, three to six feet wide, and are often contoured to the land on which they are built (Clark & Kent Contractors, n.d.). Like BMX tracks, pump tracks utilize a series of rollers and berms. The minimum area recommended Can thto build a pump track is 30' x 30'. A 50' x 50' area that is slightly sloped would be preferable (Lightcap in California's Adventure Sports Journal, n.d.). Michael Frank (2012) suggests that in pump track design "every square inch should tilt up, down or sideways" in order to keep the rider's momentum up. "The pump track is the best riding I have done," says Mark Weir, a professional racer and pump track ambassador (Lightcap in California's Adventure Sports Journal, n.d.). Dirt pump tracks are fairly easy to maintain, using just a flathead shovel, a dirt tamping tool, and some water. A dirt track should always receive some maintenance before riding.

The Kennedy family riding a dirt pump track in near Kansas City, MO. Used by permission from Harley Kennedy

Riders do not pedal on a pump track; riders pump. "Pumping is the

art of managing pressure to minimize impacts and generate propulsion," states Lee McCormack (2014). Pumping is the up and down (pull and push) force a rider exerts on the bike through their arms, abdomen and legs as they traverse a roller while keeping the body's center of gravity constant. The action resembles the up and down motion of a piston. Biking on a pump track will build "MMA-worthy core strength and balance skills" (Frank, 2012) and can produce a strenuous upper and lower body workout.
The Finger Lakes State Park near Columbia, Missouri has a concrete form(ed) pump track.
Cyclists are similar to skiers and snowboarders: they look for bike trails, parks and tracks/courses as a destination for their next vacation, states professional downhiller, Claudio Calouri. (Calouri, n.d.).

Finger Lakes State Park pump track used by permission from Harley Kennedy

Pump tracks may draw people to a community's park, school district, school and/or recreation area. Dirt pump tracks are fairly easy to build and, by using volunteer labor, can be built with little to no impact on budget. Pump tracks are relatively safe to use.

People of all ages enjoying the pump track in Leavenworth, WA pump track. Used by permission from Claudio Calouri/Velosolutions

Pump tracks are a way to increase muscle tone, balance, endurance, and skills while also being a social conduit for different ages, types and backgrounds of riders and/or non-riders/observers.

Discussion

The key for recreation professionals is to contemplate how to engage individuals and improve their physical activity level within the limitations of their own environment (Battista, R. et al, 2016). Recreation professionals can and should continue to develop games and activities utilizing all available resources at their disposal. All types of recreation have the opportunity to create social capital among and between the individuals participating. Social capital helps older adults stay involved through social interaction which can lead to an increase in physical interaction. Both formal and informal individual and group sports and outdoor recreation offer a greater opportunity for groups of individuals to "bind together who otherwise might fragment" as a result of facing adversity together through a rival team in sports or through difficult terrain, weather, temperatures, and/or different ecosystems for outdoor recreators (Putnam, 2000).

Recommendations

Further research in disc golf, geocaching, and pump tracks and their effects

on physical activity level across the lifespan should be pursued. All three of the above activities carry fairly low costs and low to moderate risks in order to participate. Participation in physical activities remains low amongst older adults, particularly older adults living in less affluent areas (McPhee, French, et al, 2016). Special consideration should be given to the Geocaching Interest/Ability Scale, the Psychosocial Scale on Physical Activity, (Battista, R., et al, 2016) and Ihamaki's (2014) GameFlow Experience Model.

References

Age UK Website. Healthy ageing evidence review. Retrieved (January 3, 2020) from https://www.ageuk.org.uk/our-impact/policy-research/publications/reports-and-briefings/

Barcott, B. (2010). Riding Is My Ritalin: How One Cyclist Gained Control Over His ADHD. Retrieved (August 18, 2019) from https://www.bicycling.com/culture/people/riding-my-ritalin-how-one-cyclist-gained-control-over-his-adhd/

Battista, R., West, S., Houge Mackenzie, S. & Son, J. (2016). Is this exercise? No, it's geocaching! Exploring factors related to aspects of geocaching participation. *Journal or Park and Recreation Administration*, 34 (2) pp.30. Retrieved (January, 23, 2017) from Academic One File https://go.galegroup.com/ps/advancedSearch.do?

Brost, J. T. (2011). Assessing effects of Geocaching as a Recreational Activity on Natural Resources Within Minnesota State Parks. Volume 13 Papers in Resource Analysis, 20 pp. Saint Mary's University of Minnesota. Minneapolis, MN Retrieved (September 20, 2019) from http://www.gis.smumn.edu

Boulos, M. & Yang, S. (2013). Exergames for health and fitness: the roles of GPS and Geosocial apps. *International Journal of Health Geographics*. (12) 18 p 1-7

Calouri, C. Bike parks and trails: a growing tourism industry. *Velosolutions*. Retrieved (January 20, 2020) from https://velosolutions.com/en/bike-parks/

Cambridge Dictionary Website. Retrieved (January 2, 2020). http://dictionary.cambridge.org/us/dictionary/english/app

Christie, A., Retrieved (October 20, 2019) from: http://alicechristie.org/geocaching/

Clark and Kent Contractors. Pump Track Designers and Builders. Retrieved (January 27, 2020) from http://www.clarkkentcontractors.com/pump-

tracks.html

Donatelle, R. (2005). Core Concepts of Health, 6th Edition. San Francisco: Benjamin Cummings.

Dressing, D., Pierik, F., Sterkenburg, R., van Dommelen, P., Maas, J. & de Vries, S. (2013). Schoolyard physical activity of 6-11-year-old children assessed by GPS and accelerometry. *International Journal of Behavioral Nutrition and Physical Activity,* 10:97. Retrieved from http://www.ijbnpa.org/content/10/1/97

Frank, M. (2012). How to Build a backyard Bike Track. *Popular Mechanics*. Retrieved (January 27, 2020) from http://www.popularmechanics.com/home/outdoor-projects/a7676/how-to-build-a-backyard-bike-track-8347632/

GPS.gov. Retrieved (January 17, 2020). http://www.gps.gov/systems/gps/space/

Groundspeak. Retrieved (January 15, 2020) from https://www.geocaching.com/blog/2013/03/the-two-millionth-active-geocache-overwatch-1-gc46n4e-geocache-of-the-week/

Groundspeak. Retrieved (January 15, 2020) from https://www.geocaching.com/guide/

Hamer M., Lavoie KL., & Bacon SL. (2014) Taking up physical activity in later life and healthy
ageing: the English longitudinal study of ageing. *British Journal of Sports Medicine*. 48:239–243

Hillman C., Motl R., Pontifex M., Posthuma D., Stubbe J., Boomsma D., de Geus E. (2006). Physical activity and cognitive function in a cross-section of younger and older community-dwelling individuals. *Health Psychology*, 25, pp. 678–687.

Ihamäki, P. (2014). GameFlow Experience Model: Understanding Player Enjoyment in Pervasive Adventure Games. *International Journal of Wireless and Mobile Computing*, 7 (6) 536-548

Ihamäki, P. (2015). *User Experience of Geocaching and its Applications to Tourism and Education*, Ph.D. Thesis, Annals of University of Turku. Retrieved from https://www.academia.edu/12770589/Ihamäki_P._2015_User_Experience_of_Geocaching_and_Its_Application_to_Tourism_and_Education_Phd_thesis_Annales_Universitatis_Turkuensis_B404_University_of_Turku_Juvenes_Ltd._Turku._https_www.doria.fi_handle_10024_105143

Lewis, S. T., & Newhouse, G. C. (2014). Obesity-stigma and the "why try" model: implications for outdoor recreation constraint negotiation. *Journal of Outdoor Recreation, Education and Leadership*, *6*(2), 147-160.

Lightcap, S. (n.d.) Pumpin': An Introduction to the World of Pump Tracks. *California's Adventure Journal*. Retrieved (December 30, 2019) from http://adventuresportsjournal.com/pumpin-an-introduction-to-the-world-of-pump-tracks/.

Marin Museum of Bicycling. Mountain Bike History. Retrieved (August 29, 2017) from https://mmbhof.org/mtn-bike-hall-of-fame/history/.

McCormack, L. (2014). How to Ride a Pump Track. *TRAININGPEAKS*. Retrieved (August 27, 2017) from https://www.trainingpeaks.com/blog/how-to-ride-a-pump-track/

McPhee, J., French, D., Jackson, D., Nazroo, J., Pendleton, N. & Degens, H. (2016). Physical activity in older age: perspectives for healthy ageing and frailty. *Biogerontology*. 17, p 567-580

Menickelli, J., & Pickens, R. (2016). The Definitive Guide to Disk Golf. Triumph Books, LLC. Chicago, IL. 191 pgs.

Michie, A. (1948). Golf's Own Home Town. *Saturday Evening Post*. (221) 9 Quote on page 32 Saturday Evening Post Society, Indianapolis, Indiana.

(Ebsco) Retrieved (January 30, 2020) from http://listserv.linguistlist.org/pipermail/ads-l/2012-June/119799.html

Mountain Warehouse. Retrieved (October 3, 2019) from: http://www.mountainwarehouse.com/expert-advice/geocaching-kit-list

Mpora. A Short History of BMX: How the sport got started. Retrieved (December 30, 2019) from https://mpora.com/bmx/short-history-bmx-sport-got-started.

NASA. Retrieved (December 16, 2019) from https://www.nasa.gov/directorates/heo/scan/communications/policy/GPS_History.html

National Geographic. Retrieved (October 14, 2019) from: http://voices.nationalgeographic.com/2014/06/23/geography-in-the-news-geocaching/

Patubo, B. (2010). Environmental Impacts of Human Activity Associated with Geocaching. Retrieved (January 1, 2020) http://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1011&context=erscsp

Professional Disc Golf Association website. Retrieved (January 15, 2020.) from https://www.pdga.com/history

Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.

Quora. Retrieved (October 22, 2020) from: https://www.quora.com/Do-airplanes-fly-above-or-below-GPS-satellites

Seidell, J.C. (2005). Epidemiology of obesity. Seminars in Vascular Medicine, 5, 3-14.

Shoyleva, K. & Johnson, D. (2011). Cache Me If You Can: Rational Addiction to the Leisure Activity of Geocaching. *International Journal of Humanities and*

Social Science. 1 (11), p 270-273

The Disc Golf Scene website. Retrieved (January 16, 2020) from: https://www.discgolfscene.com/courses/Missouri

World Flying Disc Federation website. Retrieved (January 15, 2020) from http://www.wfdf.org/history-stats/history-of-flying-disc/4-history-of-the-frisbee

Yeager, S. (2014). How Cycling Makes You Smarter and Happier. Retrieved (August 21, 2019) from https://www.bicycling.com/training/fitness/your-brain-bicycling

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Rick Hardy *(rhardy@pittstate.edu) is an Assistant Professor at Pittsburg State University in Pittsburg, KS. Dr Hardy teaches classes in Introduction to Recreation, Sport & Hospitality Management, Design of Recreation, Sport & Hospitality Facilities, Sport Operations, Tourism Planning & Development, Commercial Recreation and others at the undergraduate and the graduate levels.*

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Editor Review

Promoting a gender-balanced participation in physical activity and education in urban high schools

Alena Armstrong and Timothy Makubuya

Introduction

Physical Education (PE), is often regarded as a special subject, insinuating that it is extra or an add-on to the curriculum, but PE can play a significant role in the overall health and wellness of adolescents (Kohl & Cook, 2013). Many physical educators understand the potential that the subject holds in the overall health of an individual and strive to individualize their teachings for each student and their needs (Fairclough & Stratton, 2005; Kohl & Cook, 2013). For many students, who don't engage in post secondary education, high school, is a defining moment where they have to make an important decision of engaging in an elective course where one has the ability to develop various aspects of health and wellness. Although it is clear that students understand the benefits of physical activity (Hohepa, Schofield & Kolt, 2006; Gairns, Whipp & Jackson, 2015), there is clearly a gender disparity for adolescent female students, as they mostly opt out of elective physical education (Dwyer et al., 2006; Pate, Ward, O'Neill, & Dowda, 2007).

Motivation, peer and teacher relatedness (Gairns, Whipp & Jackson, 2015) are paramount in enhancing the participation in physical activity and optional physical education. The question lies in whether we can change the current trends, dynamics and norms in the field of urban physical education and explore strategies to positively impact female participation and overall enjoyment in urban education environments.

Conceptual Framework

Our perspective is grounded in three theories: attachment theory, constructivist learning theory, and social determination theory. While each theory offers a different contribution to the study, they are compatible theory because they each encourage participation, interaction and socialization of learners.

Attachment Theory

Guided by Ainsworth and Bowlby's original work (Ainsworth & Bowlby, 1991), we communicate the value of attachment in describing the importance of close bonds between adolescents. Research has shown that attachment is particularly important in regards to adolescents' peer relationships (Seidman et al., 1999; Smith, Ullrich-French, Walker & Hurley, 2006). Ryan, Stiller and Lynch (1994) highlighted the role of teachers, parents and peers in motivating and promoting self-esteem among early adolescents. Attachment Theory (AT) allows us to communicate how peers and teachers could potentially improve the chances that the participants would be motivated to continue with physical activity participation (Carr, 2009).

Constructivist Learning Theory

A plethora of literature on social constructivism in relation to learning provides evidence that physical and social interactions are necessary in a student's learning experience (Piaget, 1954, 1970; Davis & Sumara, 2003; Vygotsky, 1978). Constructivist Learning Theory (CLT) can facilitate our understanding that learning, cognition and social interaction are inseparable. Applying this theory to PE offers a holistic view of socio-cognitive development tied to physical and social interactions (Munafo, 2016). With attention to the specific challenges that manifest during adolescence (Stanton et al., 1994), female participants could potentially benefit from intentional socialization. Dyson, Griffin and Hastie (2004) argue that using a concept of teaching games for understanding through a student-centered approach, allows for authentic engagement of students in their own learning. A challenge for physical educators might stem from a misunderstanding of the teacher and student expectations (Muller, Katz & Dance, 1999) in student-led

or student-centered environments, especially since such approach is a more participatory.

Social Determination Theory

Peer interaction in any form of learning requires some form of intrinsic motivation (Ryan & Deci, 2000, 2017). Social Determination Theory (SDT) postulates that autonomy, competence and relatedness are vital in the promotion of psychological wellbeing (Ryan & Deci, 2000, 2017). Of particular relevance to understanding female participants' interaction through SDT, is the role of teacher and peer during physical activity. We relate students' autonomy to the ability of the teacher to foster choice, and student-led physical activities. In fact, a middle school peer leader intervention strategy for increasing physical activity among low-income, racially diverse female participants, revealed promising results, and a possibility for this being a national model (Barr-Anderson, et al, 2011). Previous studies, utilizing SDT and Vallerand's model in physical education (Grasten, et al, 2015, Vallerand, et. al, 1997), have argued that the combination of motivational climate, adolescent perceived competence and enjoyment of physical education activities, might be useful for both girls and boys.

In this paper, our basic understanding of why female participation in PE is continuously declining is born from the deep-rooted societal stigmas and norms that have resonated in the culture of athletics and sports from the beginning of time (Messner, Duncan, & Jensen,1993; Deaner, et al, 2012; Mullins, 2015). Murphy and colleagues (2014) point out that there are many socio-cultural, psychological, and contextual factors that affect female students' participation in PE. However, this appears to be much more complex of an issue involving lack of self-confidence, perceived value of physical activity, peers and possible problems (Ryan & Poirier, 2012). Factors such as low socio-economic status, society's competitive and exclusive nature, embarrassment, body image issues, and social isolation play important roles when understanding the effects of female participation in PE. Elsewhere, such as in Turkey, it was discovered that the teacher's predetermined assumptions of gender stereotypes continued the constructs of gender inequality, with teachers assigning "sharp" roles for male students in PE (Temel & Güllü, 2016). These so called "sharp" roles reinforce the male dominance in such activities. Even though society, especially when it comes to international sports (such as

the Olympics and World Cup) has progressively done better at negating the ramifications of dominance and stereotypes, this is still not the universal case for scholastic sport and physical activities. Many physical education teachers, in general, could still be unintentionally influenced by the societal norms that are deeply rooted in male dominance of sports.

In order to create real change for our students in urban settings, teachers, administrators, and policy makers have the responsibility of adapting curriculum within the realms of attachment, social constructivism and social determination theories to fit the needs of urban schools. In terms of PE, adjusting to recent trends in activities common to students is necessary. For example, hip pop dance has been incorporated in areas where gym equipment is scarce, and could be used more effectively as substitutes or choice activities. Other decisions for quitting physical education have pointed towards activities that are more masculine in nature and an embarrassment of body image for female participants (Murphy, Dionigi & Litchfield, 2014). This is a potential route for bullying and victimization of female students. In this case, the interaction of learners should be carefully facilitated by teachers or coaches (Puhl, Peterson & Luedicke, 2013). However, peer exclusion has also been highlighted as a plausible deterrent to continual participation (Sotosek, 2016). It is also possible that the remembrance of floundering experience of embarrassment beyond K-12 physical education, might manifest in negative attitudes among parents (Sidewell & Walls, 2014), leading to learner discouragements at school yet stemming from home. In any case, teacher leadership and motivation is necessary. Teachers have a definitive responsibility in orchestrating the change that is necessary to foster the decline of these stereotypes. By doing so, they create an environment that is suitable for increasing participation and engagement in PE for each student, regardless of gender. Therefore, the deconstruction of these gender stereotypes in PE is paramount. Other scholars have pointed to limited teacher praises, among females, more likely to have a low expectancy value and thus approach physical education with limited positive framing (Grasten, et al, 2015).

The stigma associated with female 'absence' in athletics is often associated with their experience in the early days of their physical education classes. Heavy expectation of certain gender roles, for example expecting females to be involved in the 'lighter' activities whereas males dominate the "classic" and 'stronger' activities in sports is part of the problem. In small

schools, another potential barrier in female participation in PE can be seen in the size of the school. School size and thus class sizes play an important role in how well a teacher and student relate, connect, and gather positive feedback and praise. All of which are essential for female engagement and motivation in sports and physical activity (Gairns, Whipp & Jackson, 2015).

Conversely, it is possible too that some female students, just don't care much about physical exertion. Ryan and Poirier (2012) revealed in their study that some of the females were more concerned with prioritizing academics and academic excellence over sports or fitness, especially when their motivation in sports is affected by competition and other negative social connotations. Eime and colleagues (2016) noted that the decline is related to the rigor that academics poses on one's overall success in secondary education. However, evidence suggests that physical activity and sport participation in schools, foster success (Fox, Barr-Anderson, Neumark-Sztainer & Wall, 2010; Trudeau, & Shephard, 2008).

Strategies for Consideration

Educators need to reinforce their presence and apply existing frameworks to improve the participation rates of female participants by applying a multi-layered approach. Building on previous work on urban physical activity and education (Murgia & McCullick, 2008; Sliwa et al, 2017), a multi-dimensional framework that assesses comprehensive strategies would create reflective and responsive educational reform in the urban setting. The Urban Wellness for Culture, Engagement and Values (UWCEV) framework contains five elements: 1) Urban Context, 2) Wellness Context, 3) Cultural Relevance, 4) Student Engagement and 5) Education Values, that we weave into the various tenets of the theoretical underpinnings of SDT, CLT and AT, that we have highlighted. Teachers could best improve the chances of their female learners to choose elective physical education and engage in physical activity, if they; understand the urban context, consider other aspects of wellness in urban communities, promote cultural relevance among fellow teacher and students, enhance their student engagement in all aspects of physical activity, and promote student education values.

Consider Other Aspects of Wellness and Community

The responsibilities of a teacher in today's educational climate, involve juggling more duties than they can handle (Sliwa et al., 2017). For teachers employed in an urban setting without the necessary budget, supplies, support, or understanding, the daunting task of getting through to their students is compounded. It became increasingly clear that physical education teachers in urban school districts face these same dilemmas but without the necessary tools to create the practical lessons needed to engage students. Furthermore, social and cultural challenges such as; insufficient parks, playgrounds, various drugs, high crime and violence rates, mental health issues, and poverty run rampant among urban communities (USDHHS, 2000, 2002). In addition, essential life skills such as the ability to have autonomy, self-efficacy, and self-esteem are not heavily taught among the African American, minority, and urban communities (Moore et al., 2010). There is need for self- efficacy among girls in a physical activity environment, particularly those with depressive symptoms (Neissaar & Raudsepp, 2011). Thus, physical education teachers face an inevitably difficult process when trying to close the gap between quality physical education and a student's basic needs particularly in poorly funded programs.

Promote Cultural Relevance Among Teachers and Students

Flory and McCaughtry (2011) illustrate the increasingly essential need for cultural relevancy in educational settings and that most of the time these reforms are short-term and include just a surface level integration. Furthermore, Lackman and Chepyator-Thomas (2017) noted that, "cultural dissimilarities are rampant in the urban educational settings and proved to be a significant barrier in the teacher's ability to influence student involvement in PE, and fuel notions of unresponsive educational policies and curriculum" (p. 673). Understanding cultural relevancy, teacher/student relationship, attachment, trust, socio-economic backgrounds and influences is paramount in eliminating barriers in educational implementation and successful academic results. This work is however limited to voices of former physical education students, who cite socio-cultural differences between majority of teachers and their students. According to Flory and McCaughtry (2011), the cultural gap that divides teachers and students is existent in many urban communities and schools. In addition, a culturally- aware framework for increasing student's engagement in physical education in the urban setting was constructed by

establishing three foundational pillars; understanding and knowing community dynamics, understanding how community dynamics influence educational processes, and how implementing various strategies that reflect the culture help to engage students in the physical education classrooms (Lackman & Chepyator-Thomas, 2017). Since interactions among female peers in any form of physical activity is determined by socio-cultural factors (Caperchione, Kolt, Tennent, & Mummery, 2011), it is imperative that teachers in urban settings learn about the cultures and cultural influences of students they are teaching. Culturally relevant pedagogy and instructional practices allow teachers to engage on a deeper level with each student and create a safe and understanding environment for students to thrive in (Ladson-Billings, 2006, 2009). This approach allows teachers the opportunity to learn from their students and create an applicable and relatable learning environment. In their reference to the framework, Flory and McCaughtry (2011) use "cultural relevance cycle", to emphasize the need for teachers to know the community dynamics, how those dynamics influence educational practices, as well as implement strategies that reflect their communal cultural knowledge.

Teachers' ability to be considerate of various cultural influences and integrate specific cultural elements help to strengthen their relationships with their students and consequently, garner a higher degree of intrinsically motivated students in the physical education setting (Hein, et al, 2012). Villegas and Lucas (2002) pointed out a fundamental element of successful teaching and highlighted the importance of bridging the gap between educational material and understanding one's students (relatedness). In addition, they reflectively echo the necessity of knowing physical education curriculum and pedagogy, in addition to knowing your own students. This necessitates a sense of relatedness and attachment for both teacher and learners. Getting to know your students narrows the cultural gap and eventually culminates into an opportunity for effective classroom management and engagement.

By applying a reformative model of social and cultural engagement with students, teachers are able to further apply this instructional strategy when bridging the ever-growing rural and urban socio-cultural gap (Schmidlein, Vickers, Chepyator-Thomson, 2014). Flory and McCaughtry (2011) further examine cultural barriers when looking at outdated traditional teaching methods and the inability to connect with students and engage them in the content. In addition, such as the challenge of outdated curricula, could be

compared to outdated cultural norms and thus calling for a revolutionary approach to impact both education, society and culture. Constructivism of this form, allows for engagement and social interaction (Chen, Martin & Sun, 2007; Barker, Quennerstedt, & Annerstedt, 2015), which is vital for increase female student participation in physical education activities. It is therefore possible for social interactions to occur within appropriate boundaries (Aultman, Williams, & Schutz, 2009). Furthermore, Sliwa and colleagues (2017) illustrate the fundamental premise that outdated teaching practices do not engage students nor help create any real connectivity between the teacher and student. In order for teachers to be fully prepared to teach in urban settings and find success, they must receive further training (specifically culturally relevant training) that will better prepare them for the challenges that lie ahead of them in the classroom.

Teachers who build strong relationships with students through promoting and supporting student's personal and social responsibility garner more successful results from students in the urban physical education classes (Sliwa et al., 2017). Teachers must be given the tools necessary in terms of additional training, to create culturally relevant lessons so that students are engaged and supported in physical education. A gendered approach to this cultural training is also necessary, and could combine learner and teacher centered approaches, particularly to address the negative and positive effects of peer influence in girls (Ryan et al, 1994; Smith et al, 2006; Barr-Anderson, Laska, Veblen-Mortenson, Farbakhsh, Dudovitz, & Story, 2011; Ryan & Poirier, 2012; Puhl et al, 2013; Sotosek, 2016). To increase cultural relevancy and promote teaching of students' choice physical activities, teachers must expand their options for students to be active. With this, for example hip hop and dance are becoming an increasingly popular choice to engage students and incorporate exercise with music. This effective for students in urban learning environments (McDaniel, 2017).

Enhance Student Engagement in All aspects of Physical Activity

Student engagement in an urban setting is a necessary component of a quality physical education program and its ability to reach all students, regardless of gender. Students do not retain quality information unless they are engaged and intrigued in the learning that is occurring (Sliwa et al, 2017). Students need to feel that they can relate to what is being taught in order to

fully engage in the classroom and this comes from the teacher using a variety of innovative lessons. Sometimes, challenges to engagement depend on how well teachers and students choose to interact in the urban physical education classrooms, especially when students consider trusting relationships and curriculum to be essential. (Ennis, 1999). For example, teachers have the responsibility to implement a variety of fitness activities and experiences for students due to the ever-changing social interests of adolescents. Pill, Penney and Swabey (2012) argue that an innovate program is vital for initiating curriculum reform in physical education, that could provide potential for engagement to flourish.

Students in the urban settings however, struggle with engaging in traditional PE activities because they don't feel that their interests are being taken into consideration (Sliwa et al., 2017). Learning for students in urban high school settings can be improvement through listening to their and adapting (Lackman & Chepyator-Thomas, 2017). One of the foundational elements that can create the ideal landscape for productive change and quality physical education engagement – is through student-led activities and reflection on activities and impact. Providing a positive and safe learning space, with informed teacher strategies, coupled with a unique understanding of female students, is key in urban physical education (Woodson-Smith, Dorwart & Linder, 2015).

Another potential opportunity for student engagement in the urban physical education, is promoting the teacher's fitness level thus providing a great role model for fitness. High school physical education students perceive teacher's level of fitness in relationship to fitness knowledge and thus more engagement (Lackman & Chepyator-Thomas, 2017). If teachers are not modeling a healthy lifestyle (Hunt et al, 2017) and active hobbies, then students may become increasingly disengaged in physical education classes and less enthused about fitness in general. Engaging students through an active demonstration of each activity, exercise, or sport skill, gives students a realistic version of that particular lesson being taught. Students also become more engaged when they respect their teacher and that is more common if the teacher exemplifies fitness and health. Female students particularly are more motivated when they have a favorable perception of their teachers (Gairns, Whipp & Jackson, 2015), thus creating an opportunity for relatedness and attachment.

Promote Student Educational Values

To understand the way educational values, play a significant role in the development of successful educational practices in the urban setting, this paper highlights the potential for educational reform success in urban settings through intentional collaborations with various resources in the community (Center for Disease Control and Prevention, 2018). Teachers have the opportunity to promote education values for urban high school physical education (Chen & Ennis, 2004), and thus promoting stronger autonomy (Gairns, Whipp & Jackson, 2015). As teachers, we have a lot of impact on what students will value and what will become noteworthy for them to take later on in their life. We know that physical education is more than just learning games, sports, and activities. It's about creating an internal desire to be fit and healthy for the rest of one's life. Yet, many students in the urban setting are not taught this fundamental lesson at home (Gorgut & Tutkun, 2018). We hope that students come to school already being taught that being healthy is key to overall happiness in one's life. Therefore, it is up to us as teachers while engaging families, to make sure that the appropriate value be put onto education and specifically fitness and overall health for life so that our students embody the necessary values to lead successful lives.

Summary

Our paper provides strategies to develop and implement quality physical activity and education experiences for high school participants in urban educational settings. By applying the various tenets of SDT, CLT and AT, we formulate a multi-dimensional framework to address female student and teacher challenges. By incorporating changes in an educational context in which both students and teachers contribute to their general wellbeing through knowledge construction and interaction. By referencing the key principles of the three theories, we undertook a modest look at the potential educational ramifications that lie in the midst of urban renewal and the challenging climate that surrounds physical education and activity in urban schools and communities. The basis for a sound physical education program that reaches the needs of all students has to be rooted in the fundamental

components that create real change in students; relevant activities, applicable curriculum, autonomous, engaging, inclusive and thoroughly safe and supportive classrooms (Flory & McCaughtry, 2011).

The fate of today's urban physical education lies in the hands of those that have the power and responsibility to change the course. Within these constructs, teachers have numerous challenges that are laid upon them that create barriers to teaching fully and uninhibited. With enough efforts aimed at breaking these barriers, it is possible to make the necessary changes to teaching that will increase female student participation in physical education, engagement, and excitement. But for teachers that face the everyday challenges in the urban setting, it can be much more complicated than just teaching. We must adapt to the current culture and situation that we find ourselves in. It is our responsibility to change with the times and to "keep up" so that we don't lose our audience – our students and their constantly ever-changing needs and motivations.

References

Ainsworth, M. D. S., & Bowlby, J. (1991), An ethological approach to personality development. *American Psychologist, 46,* 331-341.

Aspasia, D., Chrysoula, N., Panagiotis, S., & Georgios, L. (2017). Physical

Education Teachers' Action Research on Teaching Games for Understanding, *Mediterranean Journal of Social Sciences*, *8*(2), 105-111. doi: https://doi.org/10.5901/mjss.2017.v8n2p105

Aultman, L. P., Williams, M. R., & Schutz, P. A. (2009). Boundary dilemmas in teacher-student relationships: struggling with "the line". Teaching and Teacher Education, 25, 636-646.

Barker, D., Quennerstedt, M., & Annerstedt, C. (2015). Learning through group work in physical education: A symbolic interactionist approach. Sport, Education and Society, *20*(5), 604-623.

Barr-Anderson, D. J., Laska, M. N., Veblen-Mortenson, S., Farbakhsh, K., Dudovitz, B., & Story, M. (2011). A school-based, peer leadership physical activity intervention for 6th graders: feasibility and results of a pilot study. *Journal of physical activity & health*, *9*(4), 492-9.

Caperchione, C. M., Kolt, G. S., Tennent, R., & Mummery, W. K. (2011). Physical activity behaviours of Culturally and Linguistically Diverse (CALD) women living in Australia: a qualitative study of socio-cultural influences. *BMC public health*, *11*, 26. doi:10.1186/1471-2458-11-26.

Carr, S. (2009) Implications of attachment theory for sport and physical activity research: conceptual links with achievement goal and peer-relationship models, International Review of Sport and Exercise Psychology, *2*(1), 95-115,DOI: 10.1080/17509840902759173

Chen, A., & Ennis, C. D. (2004). The role of achievement based interest in curricular effectiveness. *Journal of Educational Research, 97*, 329–338.

Chen, A., Martin., R, & Sun, H (2007) Is in-class physical activity at risk in constructivist physical education? Research Quarterly for Exercise and Sport 78(5): 500–509.

Ching, C. P. (2014). Linking theory to practice: a case-based approach in teacher education. *Procedia - Social and Behavioral Sciences*, 123, 280-288.

Davis, B & Sumara D. (2003). Why aren't they getting this? Working through the regressive myths of constructivist pedagogy. *Teaching Education*, 14:123-140.

Deaner, R.O., Geary, D.C., Puts, D.A., Ham, S.A., Kruger, J., Winegard, B., & Grandis, T. (2012). A sex difference in the predisposition for physical competition: Males play sports much more than females even in the contemporary U.S. *PLoS ONE*, 7(11): e49168. doi:10.1371/journal.pone.0049168

Dewey, J. (1990). The school and society and the child and the curriculum. Chicago and London: The University of Chicago Press

Dwyer, J. J. M., Allison, K. R., LeMoine, K. N., Adlaf, E. M., Goodman, J., Falkner, G. E. J., & Lysy, D.C. (2006). A provincial study of opportunities for school-based physical activity in secondary schools. *Journal of Adolescent Health, 39*, 80-86.

Dyson, B., Griffin, L. L., & Hastie, P. (2004). Sport education, tactical games, and cooperative learning: Theoretical and pedagogical considerations (p. 227). Auckland: University of Auckland.

Eime, R. M., Harvey, J. T., Sawyer, N. A., Craike, M. J., Symons, C. M., & Payne, W. R. (2016). Changes in sports and physical participation for adolescent females: a longitudinal study. *BMC Public Health, 16*(1). doi:10.1186/s12889-016-3203-x

Ennis, C. D. (1999) Communicating the Value of Active, Healthy Lifestyles to Urban Students, Quest, 51:2,164-169, DOI: 10.1080/00336297.1999.10491676

Fairclough, S., G. Stratton. (2005) "Physical education makes you fit and healthy." Physical education's contribution to young people's physical activity levels. *Health Educ. Res. 20*, 14-23.

Flory, S., McCaughtry, N. (2011). Culturally relevant physical education in urban schools: Reflecting cultural knowledge. *Research Quarterly for Exercise and*

Sport, *82* (1), 49-60.

Fox, C.K, Barr-Anderson, D., Neumark-Sztainer, D., & Wall, M. (2010). Physical activity and sports team participation: Associations with academic outcomes in middle school and high school students. *Journal of School Health*. *80*(1), 31-37.

Gairns, F., Whipp, P. R., & Jackson, B. (2015). Relational perceptions in high school physical education: teacher- and peer-related predictors of female students' motivation, behavioral engagement, and social anxiety. *Frontiers in psychology*, *6*, 850. doi:10.3389/fpsyg.2015.00850

Gorgut, I., Tutkun, E. (2018). Views of physical education teachers on values education. *Universal Journal of Educational Research*, *6*(2), 317-332.

Gråsten A., Watt, A., Hagger, M., Jaakkola, T., & Liukkonen, J. (2015). Secondary school students' physical activity participation across physical education classes: The expectancy-value approach. *Physical Educator, 72*(2), 340.

Hein, V., Ries, F., Pires, F., Caune, A., Emeljanovas, A., Ekler, J. H., et al. (2012). The relationship between teaching styles and motivation to teach among physical education teachers. *Journal of Sports Science and Medicine*, 11, 123-130. Retrieved from http://www.jssm.org/vol11/n1/18/v11n1-18text.php.

Hohepa M., Schofield G., Kolt G.S. (2006). Physical Activity: What Do High School Students Think? *Journal of Adolescent Health*, *39*(3), 328-336.

Hunt, K., Griffin, L., Maina, M., Clifford, T., Martin, S., Sparks, M. (2017). Unfit to teach. *The Physical Educator*, *74*(4), 701-714.

Keskin, O. (2014). Effects of Physical Education and Participation in Sports on Social Development in Children. *Journal of International Multidisciplinary Academic Researches, 1*(1), 1-6.

Kohl, H. W., & Cook, H. D. (2013). Approaches to Physical Education in Schools. US: National Academies Press.

Lackman, J., Chepyator-Thomas, J. (2017). Reflective voices: Understanding university students' experiences of urban high school physical education. *The Physical Educator*, *74*(4), 627-700.

Ladson-Billings, G. (2006). From the achievement gap to the education debt: Understanding achievement in U.S. schools. *Educational Researcher*, *35*(7), 3–12.

Ladson-Billings, G. (2009). *The dream-keepers: Successful teachers of African American children*. San Francisco, CA: Jossey-Bass.

McDaniel, E. (2017). Using elements of hip-hop to promote student engagement. *Learning to Teach*, *6*(1), 1-3.

Messner, M., Duncan, M.C., & Jensen, K. (1993). Separating the men from the girls: The gendered language of televised sports. *Gender & Society*, 7, 121-137.

Moore, J., Jilcott, S., Shores, K., Evenson, K., Brownson, R., Novick, L. (2010). A qualitative examination of perceived barriers and facilitators of physical activity for urban and rural youth. *Health Education Research*, *25*(2), 355-367.

Muller, C., Katz, S. R., & Dance, L. J. (1999). Investing in teaching and learning dynamics of the teacher-student relationship from each actor's perspective. *Urban Education*, *34*(3), 292-337.

Mullins, N. M. (2015). Insidious influence of gender socialization on females' physical activity: Rethink pink. Physical Educator, *72*(1), 20-43.

Munafo, C. (2016). The role of Social Constructivism in Physical Education. *IntJSCS*, 2016; *4*(4), 489-497.

Murgia, C & McCullick, B. (2008). Engaging urban youths in physical education and physical activity [Special symposium]. *Journal of Physical*

Education, Recreation & Dance.; 80(8) Retrieved from http://www.tandfonline.com/toc/ujrd20/80/8.

Murphy, B., Dionigi, R. A., & Litchfield, C. (2014). Physical education and female participation: A case study of teachers' perspectives and strategies. *Issues in Educational Research, 24(*3), 241-259.

Neissaar, I & Raudsepp, L. (2011): Changes in Physical Activity, Self-Efficacy and Depressive Symptoms in Adolescent Girls. *Pediatric Exercise Science*. 23 (3), 331-343.

Pate, R. R., O'Neill, J. R., Dowda, M., & Ward, D. S. (2007). Enrollment in physical education is associated with overall physical activity in adolescent girls. *Research Quarterly for Exercise and Sport*, *78*(4), 265-270. https://doi.org/10.1080/02701367.2007.10599424.

Piaget, J. (1954). Intelligence and affectivity. Palo Alto, Ca: Annual Reviews.
Piaget, J. (1970). Main trends in psychology. London: Allen e Unwin.

Pill, S., Penney, D., Swabey, K. (2012). Rethinking sport teaching in physical education: A case study of research based innovation in teacher education. *Australian Journal of Teacher Education*, *37*(8), 118-138.

Puhl, R. M., Peterson, J. L., & Luedicke, J. (2013). Strategies to address weight-based victimization: Youths' preferred support interventions from classmates, teachers, and parents. *Journal of Youth and Adolescence, 42*(3), 315-327.
Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *The Journal of Early Adolescence*, *14*(2), 226-249.

Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

Ryan, R. M. & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. New York: Guilford Publishing.

Ryan, T. and Poirier, Y. (2012). "Secondary Physical Education avoidance and gender: problems and antidotes." *International Journal of Instruction*, *5*(2), p.182.

Salmon, J., Booth, M.L, Phongsavan, P., Murphy, N., Timperio, A (2007). Promoting physical activity participation among children and adolescents. Epidemiology Review, 29, 144 -59.

Schmidlein, R., Vickers, B., Chepyator-Thomson, R. (2014). Curricular issues in urban high school physical education. *The Physical Educator*, *71*(2), 273-302.

Seidman, E., Chesir-Teran, D., Friedman, J. L., Yoshikawa, H., Allen, L., & Roberts, A. (1999). The risk and protective functions of perceived family and peer micro- systems among urban adolescents in poverty. *American Journal of Community Psychology*, 27, 211-237.

Siegel, H. (2012). Education as initiation into the space of reasons. *School Field*, *10*(2), 191–202. https://doi.org/10.1177/1477878512446542.

Sidewell, A. M., & Walls, R. T. (2014). Memories of physical education. *Physical Educator, 71*(4), 682-697.

Shen, B. (2015). Physical education and academic performance in urban African American girls. *Urban Education*. Advance online publication. doi:10.1177/0042085914566095.

Shulman, J.H. (1992). *Case methods in teacher education*. NY: Teachers College Press.

Sliwa, S., Nihiser, A., Lee, S., McCaughtry, N., Culp, B., Michael, S. (2017). Engaging students in physical education: Key challenges and opportunities for physical educators in urban settings. *Journal of Physical Education, Recreation, and Dance*, *88*(3), 43-48.

Smith, A. L., Ullrich-French, S., Walker, E., & Hurley, K. (2006). Peer relationship profiles and motivation in youth sport. *Journal of Sport & Exercise Psychology*, 28, 362-382.

Sotosek, G. (2016). Peer exclusion at physical education. *Bulgarian Comparative Education Society*.

Stanton B, Li X, Black M, Ricardo I, Galbraith J, Kaljee L, Feigelman S. (1994). Sexual practices and intentions among preadolescent and early adolescent low-income urban African-Americans. *Pediatrics*. 93, 966–973.

Temel, C., & Güllü, M. (2016). Social gender in the pictures drawn by students about physical education class. *Educational Research and Reviews*, *11*(8), 530-536. https://doi.org/10.5897/ERR2015.2603 .

Trudeau, F., & Shephard, R. J. (2008). Physical education, school physical activity, school sports and academic performance. *The international journal of behavioral nutrition and physical activity*, *5*, 10. doi:10.1186/1479-5868-5-10.

U.S. Department of Health and Human Services. (USDHHS). (2000). *Healthy People 2010* Washington, D.C: U.S. Department of Health and Human Services.

U.S. Department of Health and Human Services. (USDHHS). (2002). *Youth Violence: A Report of the Surgeon General*. Washington, D.C: U.S. Department of Health and Human Services.

Usher, W., Edwards, A., & de Meyrick, B. (2015). Utilizing educational theoretical models to support effective physical education pedagogy. *Cogent Education*, *2*(1), 1094847.

Vallerand, R.J. (1997) Towards a hierarchical model of intrinsic and extrinsic motivation. In: Advances in Experimental Social Psychology. Ed: Zanna, M.P. New York: Academic Press. 271- 359.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. MA: Harvard University Press.

Woodson-Smith, A., Dorwart, C. E., & Linder, A. (2015). Attitudes towards physical education of female high school students. *Physical Educator, 72*(3), 460-479.

Alena Armstrong *(alena.armstrong@slps.org) is Physical Education Teacher at Metro Classical and Academic High School in St. Louis.*
Timothy Makubuya *(makubuyat@umsl.edu) is an Assistant Professor in the Department of Educator Preparation and Leadership at the University of St. Louis.*

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Abstracts of Student Presentations 2019 MOSHAPE Annual Conference Lake Ozark, MO - November, 2019

2019 Dr. Patricia McSwegin Research Award Winner

The Effects of Delayed Onset Muscle Soreness Using the Firefly T-1 Device in College Athletes

Grace Pepple and Ashley Rose
Michelle Boyd, Faculty Sponsor
Truman State University, Kirksville, MO

Delayed Onset Muscle Soreness (DOMS) affects many athletes throughout the year. Athletes use many different remedies, like electrical stimulation and pain-relieving lotions. One of the newest trends in the athletic field is a Firefly device, a new technology that stimulates the fibular nerve and claims to decrease DOMS. **PURPOSE:** The purpose of this study was to determine whether wearing a Firefly device decreases DOMS as measured by torque values, values using a visual analog scale, and values using the pressure algometer. **METHODS:** Thirty healthy, injury-free college athletes (>18 years of age) will be recruited from a fall conditioning program. Using a within-subject design, each participant will serve as their own control. One leg will receive the Firefly T-1 treatment and the other, a placebo "pain cream." Following manufacturer directions, the Firefly will be randomly applied to either leg. Participants will wear the device for 12 hours and receive verbal and written instructions on using the device. A placebo "pain cream" will be applied to the other leg. After 24 hours, researchers measured pain and function in each leg. Participants rated the muscle soreness on a visual analog scale. The pressure-pain threshold at three locations was measured with a pressure algometer. Peak Isometric Strength was measured using the HUMAC Norm isokinetic device. **RESULTS:** A treatment by condition ANOVA with repeated measures over the first factor indicated there were no significant differences in pain sensation between

the placebo (0.91 ± 0.33) and the Firefly (1.21 ± 0.25). Likewise, there was no significant strength differences between placebo and the Firefly for inversion (21.5 ± 5.8 vs 20.9 ± 5.8 Nm), plantar flexion (86.9 ± 63.6 vs 80.7 ± 63.6 Nm), and dorsiflexion (53.0 ± 23.7 vs 35.6 ± 23.7 Nm). **IMPLICATIONS:** The results from this study indicate that the Firefly device was not effective in decreasing DOMS. More studies should be performed to further the body of literature surrounding this device.

2019 MOSHAPE Accepted Student Research Abstracts

An Examination of Differences in Sport Motivations between Male and Female Collegiate Athletes

Alex Danner and Deionna Mendez
William Russell, Faculty Sponsor
Missouri Western State University, St. Joseph, MO

Introduction: College athletes are unique in that they must balance their athletic endeavors within their sport with their academic responsibilities as a student athlete working towards a college degree. For some college student-athletes, their priority is to their education in the true sense of the term "student-athlete" whereas for other student-athletes, their primary motivation for their college education is to continue competing in that sport. Those athletes who prioritize sport may rely on different types of motivation to keep them going, and dysfunctional motivations may contribute to lower matriculation rates of college athletes. **Purpose:** The purpose of this study was to examine gender differences in sport and academic motivations in college student-athletes. **Methods:** Participants were 40 NCAA Division II collegiate athletes (M age=20.0, SD=1.53) and were comprised of 20 male athletes (football, men's basketball, and baseball) and 20 female athletes (softball, soccer, women's basketball, and cross country/track and field). Participants completed a measure of academic motivation and sports motivation. **Results:** A t-test comparing male and female athletes on various forms of sport motivations was not significant ($p>.05$), although differences on identified regulation approached significance ($t=-2.01$, $p=.051$). A second t-test comparing academic motivation across gender was significant ($t=-4.44$, $p<.001$), indicating that female athletes were significantly more academically motivated (M=74.55, SD=2.79) compared to male athletes (M=64.70, SD=6.71). **Conclusion:** While not different on sport motivations, result support that female college athletes are more academically motivated than males. **Implications:** By gaining a better understanding of athletes' motivations in the classroom and

the field, college officials and coaching staff may ultimately be better able to help college student-athletes succeed.

2019 MOSHAPE Accepted Student Research Abstracts

Retention and Knowledge of CPR Skills in a University ROTC Program

Jordan E. Dorsey, Hannah R. Higbie, Haley D. Mills, and Chad R. Verdier
Dr. Brandy Schneider, Jana L. Arabas, and Lisa Archer, Faculty Sponsors
Truman State University, Kirksville, MO

Introduction: Academic ROTC courses take students into simulation training fields either on or off a university campus and perform training drills. This study examined the execution of the life-saving CPR skills of students and staff within a university ROTC program. Each subject participated in a short survey consisting of ten questions about past experiences with CPR and other life-saving skills. The subject then was instructed to complete a CPR test without any additional education given beforehand. Five ROTC cadre and twenty-nine ROTC cadets participated in the study. **Purpose:** This study examined ROTC student life-saving CPR skills compared to the CPR skills of the ROTC staff. **Methods:** When the subjects arrived they were fully informed that participation is voluntary. The subjects were given a consent form to sign. The CPR test took two minutes to complete. One investigator checked for errors. A second investigator checked for the completion of each cycle. **Results:** n=34. There was a statistical difference between non-students and their confidence level (t=0.00). Students and their confidence level showed a statistical difference (t=0.00). There was a statistical difference between students and the number of skill errors (t=0.01) and between non-students

and the number of skill errors (t=0.01). **Conclusion:** Even though students rated themselves more confident (average of 2.98 out of 5) compared to the non-students (average of 2.00 out of 5), they students had more overall light errors than the non-students. There was a statistical difference between the confidence rating the student rated themselves and compared to their actual performance of CPR. The students were overly confident in their CPR skills. When the skill errors were compared between the students and non-students, the non-students has less skill errors, but only by a value of 0.03. The confidence rating the non-students gave themselves is more accurate than the rating the students gave themselves in reference to their actual performance. **Implications:** More sanctioned trainings should be incorporated with university ROTC program officials who are in supervisory role of students to ensure the safety of participants.

2019 MOSHAPE Accepted Student Research Abstracts

Differences between Traditional and Nontraditional College Students in their Perceived Stress and Stress Management

Connie Copeland and Tyler Jones
William Russell, Faculty Sponsor
Missouri Western State University, St. Joseph, MO

Introduction: Mental health issues among college students are on the rise and more than one in 10 students meet criteria for depression or anxiety (Cairo, Bettis, & Compas, 2017), leading to poor performance and dropout. With ever-increasing numbers of nontraditional students in college, there is a need to understand how they perceive and manage their stress compared to traditional college students. **Purpose:** The purpose of this study was to examine how traditional and nontraditional college students differed in their perceived stress and their stress management effectiveness. **Methods:** Participants were 38 college students that included 21 traditional students (M age=21.05 yrs, SD=1.43) and 17 nontraditional students (M age=32.18, SD=9.17). All participants completed a measure of

perceived stress (Perceived Stress Scale) and a measure of stress management habits. **Results:** An independent t-test comparing traditional and nontraditional students on perceived stress was not significant (p>.05). While groups did not differ on perceived stress, scores across groups indicated low levels of perceived stress in both groups. A second independent t-test comparing these groups on their stress management effectiveness was also non-significant (p>.05), yet scores indicated that both groups were low in their stress management effectiveness. **Conclusion:** Results indicated that both traditional and nontraditional students were similar in the perceived stress and that they often managed their stress in similar (ineffective) ways. Students who reported coping involving cognitive reappraisal or problem solving appeared more effective in their stress management. **Implications:** Teaching college students effective stress management techniques should be a primary goal of university officials, and as more nontraditional students enter higher education, they will need special attention. Programming aimed at nontraditional students (exercise, stress management techniques) will be benefit this population.

2019 MOSHAPE Accepted Student Research Abstracts

Retention of Life Saving Skills in Health Care Professionals and Students

Natalie Moore, Alex Arabas, Kate Steiger, Ashley Garlock
Dr. Brandy Schneider and Jana Arabas, Faculty Sponsors
Truman State University, Kirksville, MO

Purpose: The purpose of this study was to identify any differences in number of performance errors and confidence level of health care students and professionals. **Subjects**: The subjects in this study were fifteen physicians (eight licensed and seven non-licensed) and one athletic training student. **Methods**: Participants completed an originally designed survey. Each participant performed a 2 minute CPR cycle on a Prestan Feedback manikin. Skill and performance errors were recorded and analyzed. **Results**: One hundred percent of participant reported high confidence in their abilities to perform CPR. Professionals demonstrated more performance errors compared to

students (t=.02). Non-instructors performed more errors than instructors (t=.02). Participants who had greater than six months certification demonstrated more performance errors (t=.02). **Conclusion**: Individuals who practice the skill on a regular basis appear to perform the skill with more accuracy. **Implications:** CPR skill retention decreases after six months of non-practice. Health care professionals and students should practice the skill every six months to maintain accuracy.

2019 MOSHAPE Accepted Student Research Abstracts

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Relationship between Ankle Flexibility and Kicking Speed in Youth Swimmers

Kate Stauffer
Dr. Carla Smith and Dr. Sheri Beeler, Faculty Sponsors
Missouri Southern State University, Joplin, MO

When competing in a swim meet, the winner can be determined by hundredths of seconds. In a freestyle stroke swimmers wants to create maximum propulsion while minimizing drag. The flutter kick can increase a swimmers speed by aiding in forward propulsion and maintaining a streamline body position. **PURPOSE:** The purpose of this study was to determine if sixteen weeks of ankle exercises would improve ankle mobility in young swimmers to affect twenty-five yard kicking times. Swimmers with more ankle mobility will have faster kick times than swimmers who have limited ankle mobility. **METHODS:** This study used stratified random sampling. Thirty competitive swimmers were randomly divided into experimental and control groups. Fifteen children were placed in the experimental group, and the other fifteen in the control group. A sixteen-

week structured exercise program was implemented for the experimental group, while all participated in regular swim practices. There were a total of sixty-four exercise sessions targeting ankle mobility, and range of motion. Ankle mobility was measured by plantar flexion (pointing toes toward the ground) with a goniometer. Kicking speed was measured by the time to complete a twenty-five yard maximum flutter kick. Ankle mobility and kicking times were measured at the beginning of the sixteen weeks and then re-measured after the sixteen weeks. **RESULTS:** Four different correlations were calculated. The control group in the pre and post-test, showed there was a weak negative relationship between ankle mobility and kicking speed. The experimental group in the pre-test showed there was a weak negative relationship ($r = -0.11$). The post-test, showed there was a strong negative ($r = -0.73$) relationship between ankle mobility and kicking speed. These correlations show that the experimental group improved in ankle mobility by having more ankle range of motion (ROM). I took average kicking times within the experimental group for both the pre and post-test. The pre-test average kicking speed was 38.42 seconds and post-test average kicking speed was 35.50 seconds. This shows that the experimental group improved on kicking speed time by implementing the weekly ankle exercises. **CONCLUSION:** These results indicate that ankle mobility affects swimmers kicking times. These results will be shared with swim teams. Implementing daily ankle exercises into workouts will help increase a swimmer's performance.

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Editors, 2020

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