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A Message from the KAHPERD President

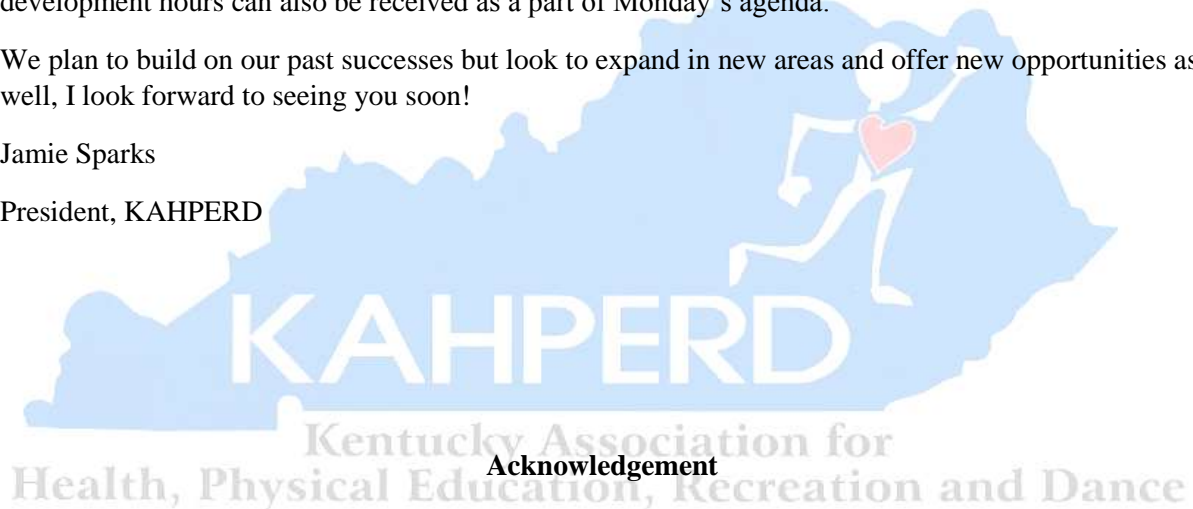
Greetings as your 2016 KAHPERD President, I want to thank Dr. Steve Chen, Journal editor and for all those writers who have contributed to this edition.

Our Fall Convention's theme is "Show Kentucky the Money", which is about our messaging about the FISCAL benefits of health and wellness for students and staff. The theme is our call to action about Speaking Out as advocacy is at the heart of our work this year. This year's convention will highlight those efforts as well help to further build our momentum. With the implementation of the Every Student Succeeds Act, KAHPERD will work with Kentucky education leaders as we continue on the path of deciding school accountability measures that will hopefully elevate student wellness measures within the definition of school/student success. Conference planning is full speed ahead and we will continue to provide a great professional experience this November. Convention plans include the following: Sunday once again will feature professional development hours via a pre-convention workshop along with an awards celebration and student showcase; Monday this year will feature an administrators' track for building level administrators and supervisors. There will be an application process so tuned for details! Monday will also plan to host a workshop after 3 PM so that professional development hours can also be received as a part of Monday's agenda.

We plan to build on our past successes but look to expand in new areas and offer new opportunities as well, I look forward to seeing you soon!

Jamie Sparks

President, KAHPERD



Acknowledgement

As the Editor of the KAHPERD Journal, I would like to show my appreciation to the following guest reviewers for their assistance in reviewing this current issue.

Dr. Paula Upright, Western Kentucky University; Dr. Dayna Seelig, Morehead State University; Dr. James Larkin, Eastern Kentucky University; Dr. A. J. Mortara, Berea College; Dr. Raymond Poff, Western Kentucky University, and Dr. Manuel Probst, Morehead State University.

Sincerely,
Steve Chen, KAHPERD Journal Editor

KAHPERD Journal Submission Guideline

SUBMISSION OF A PAPER

The KAHPERD Journal is published twice yearly (spring and fall) by the Kentucky Association for Health, Physical Education, Recreation, and Dance. The journal welcomes the submission of empirical research papers, articles/commentaries, best practices/strategies, interviews, research abstracts (spring Issue only) and book reviews from academics and practitioners. Please read the information below about the aims and scope of the journal, the format and style for submitted material and the submissions protocol. Your work will more likely to be published, if you follow the following guidelines thoroughly.

Articles are accepted via an electronic attachment (must be in Microsoft Word format, doc or docx) through e-mail to the editor before the deadline dates. Submissions should be sent to editor, Steve Chen: s.chen@moreheadstate.edu

Deadlines: Spring issue—March 1 & fall issue—September 1

AIMS AND SCOPE

The main mission is to bring together academics and practitioners to further the knowledge and understanding of issues and topics related to health, physical education, sport administration and marketing, exercise science, sport coaching, dance, and recreation, etc. We encourage submissions relating to these topics from a variety of perspectives.

CONTENT

All articles should be written primarily to inform senior practitioners and academics involved in areas of health, physical education, recreation and dance.

Research articles should be well grounded conceptually and theoretically, and be methodologically sound. Qualitative and quantitative pieces of research are equally appropriate. A good format to follow would be: Introduction, Literature Review, Methodology, Results, & Discussion, Conclusion, and Implication. Articles may include an abstract of approximately 150 words including the rationale for the study, methods used, key findings and conclusions. Article should not exceed 10 single-spaced pages (not including references, tables, and figures).

Reviews of books and/or reports are welcome (around 1000-2000 words). Information concerning the book/report must be sent to the editor.

Interviews (it would be nice to discuss with the editor beforehand) and best practice/strategy papers of 1,500-3,000 words should be objective and informative rather than promotional and should follow the following format: Objective/Background/Discussion and Practical Implication.

Research abstracts (300 words or less) are welcome and limited to the spring issue only. The submitted abstracts should have been presented (either an oral or a poster presentation) in the KAHPERD annual conference in the previous year.

*The editor is keen to discuss and advise on proposed research projects, but this is no guarantee of publication.

FORMAT AND STYLE

Manuscripts should follow the form of the guidelines for publications outlined in the 6th edition of the Publication Manual of the American Psychological Association.

Tables, charts, pictures, diagrams, drawings and figures should be in black and white, placed on separate pages at the end of the manuscript. They must be submitted photo ready and reproduced to

fit into a standard print column of 3.5 inches. Only one copy of each illustration is required, and captions and proper citations should be typed on the bottom of the table and diagrams. Jargon should be reduced to a minimum, with technical language and acronyms clearly defined. The accuracy of any citations is the responsibility of the author(s).

For more specific style questions, please consult a recent edition of the journal.

SUBMISSIONS PROTOCOL

Submission of a paper to the publication implies agreement of the author(s) that copyright rests with KAHPERD Journal when the paper is published.

KAHPERD Journal will not accept any submissions that are under review with other publications. All manuscripts submitted will be peer reviewed by 3 members of the editorial board. To be accepted for publication in the journal, the article must be approved by no less than 2 of the 3 reviewers. Authors will normally receive a decision regarding publication within six to 12 weeks. Rejected manuscripts will not be returned.



(Peer Reviewed Article)**Evaluating the Difference: Shod Versus Barefoot Running**

Jarrett Blankenship, Western Kentucky University

Introduction

As competitive running has increased in popularity the desire for new technology in order to gain a competitive and training advantage has grown. This increase in popularity has led to an amplified number of runners suffering from overuse injuries stemming from impact forces during foot strike, with knee and ankle joints being the two most affected regions (De Clerq & De Wit, 2009). Alongside the increased popularity in running, sports medicine, podiatry, and orthopedic fields have grown (Curry, Matzkin, & Murphy, 2013). Throughout history runners either ran barefoot or have worn minimal footwear, with the modern running shoe being invented in the 1970's (Andrea et al., 2010). Within past fifteen years, shoe manufacturers have attempted to decrease injury and enhance running performance by altering shoes by adding air pockets, gels, arch supports and cushions, however no reduction of running related injury has been associated with modifying footwear (Callister, Magin, & Richards, 2009). Due to no correlation being found in injury reduction wearing modern running shoes, scientists and running enthusiasts have transitioned to running barefoot. Furthermore, many athletes have also taken up bar barefoot running as result of the popular book, *Born to Run: A Hidden Tribe, Superathletes and the Greatest Race in the World*, authored by Christopher McDougall. Footwear choice among runners consists of barefoot, shod and minimalist shod. Minimalist shoes have gained popularity as of recent, designed to mimic barefoot running while also protecting feet and providing additional traction. The purpose of this literature review is to draw comparison between shod and barefoot running, emphasizing the impact that footwear choice has on performance, training and injury rates due to the bodily changes in bio-mechanics, kinematics and kinetics.

Literature Review*Benefits of Barefoot Running*

Modern running shoes were first developed in the 1970's as more people took up running in an attempt to prevent and manage chronic diseases associated with lifestyle choices. Early adaptations used technology focused on a smoother ride, protection to feet and prevention of injury. Findings of how shod running is beneficial is limited, basically consisting of improved traction and protection to the feet from elements.

Many scholars and bio-mechanists believe that barefoot running is the best choice when it comes to footwear. According to a study by Paulson and Braun (2014) running barefoot correlates to a 4-5% lower oxygen requirement when compared to shod running. A 5% increase in running economy translates to a 3.8% improvement in distance running (Braun & Paulson, 2013). This difference in running economy would allow a barefoot runner to conserve considerably more amounts of energy over a period of time in comparison to a shod

runner running the same distance. Additionally, stride length and ground contact time have been shown to be shorter along with knee velocity during swing- through being greater in barefoot running when compared to shod running. (Braun & Paulson, 2013). It has been suggested that shod running decreases running economy by altering the natural mechanics of running barefoot and adding mass to the foot (Berg, Deka, Hanson, Meendering, & Ryan, 2011). As reported by Paulson and Braun (2013), running economy may also be affected by shod running due to the behavioral property changes of plantar flexor muscles. It has been suggested that barefoot running causes greater leg stiffness which allows improved elastic energy storage (Braun & Paulson, 2013). Improvement in elastic energy storage may contribute to lower metabolic cost, which, in turn would increase running economy while running barefoot. Vibram FiveFingers™, a popular minimalist shoe that imitates barefoot running also exhibited an increase of running economy in comparison with shod running (Daoud, Lieberman, & Perl, 2012). Given that running economy is an important determinant of endurance running performance, familiarization to barefoot running is recommended (Warne & Warrington, 2012).

VALR (vertical average from ground to peak of shoes) and VILR (instantaneous loading rates) were also observed between habitually shod and barefoot runners. Higher VALR and VILR values are commonly associated with a higher risk of running related injury (Cheung, 2013). Shod running displayed significantly higher VALR and VILR values than that of barefoot running (Cheung, 2013). VALR and VILR values are presumably higher in shod running due to the heelstrike that primarily takes place. As a result, subjects that altered from a heelstrike pattern (shod) to a non-heelstrike pattern (barefoot) produced significantly lower VALR (Cheung, 2013). Those that converted into a non-heelstrike pattern achieved through transitioning to barefoot running potentially have a lower risk of injury due to the decreased VALR and VILR rates (Cheung, 2013).

According to a study by Gutman, McGowan, Seegmiller, & Thompson (2014), kinetic measurements (ankle dorsi-flexion, ankle adduction, internal rotation of the ankle, knee flexion, knee varus (bow leggedness), internal rotation of the knee, hip flexion, hip adduction and internal rotation of the hip) were tested and indicated no significant differences in kinematic parameters between shod and barefoot conditions (Gutman et al., 2014). Results of this study, support previous findings, demonstrating that peak ground reaction force and movement near the joints do not differ between shod and running conditions when sharing the same stride length (Gutman et al., 2014).

Miles, Schutte, Van Niekerk, & Venter (2013) tested 12 male subjects that ran 12 meters with sensors attached, used to determined angle and changes of speed. Knee flexion data was found to be significantly higher running barefoot in comparison to shod running though dorsi-flexion of the ankle was higher when running shoes were worn (Miles et al., 2013). Limited evidence related barefoot running to decreasing power absorption at the knee and increasing at the ankle (Barton, Hall, Jones, & Morrissey, 2013).

Benefits of Shod Running

Modern running shoes were first developed in an effort to reduce injury and to protect the foot while running. Early adaptations used technology focused on a smoother ride, protection to feet and prevention of injury. Despite the large amounts of money poured into shoe science, current research evidences that the benefits of shod running over running barefoot is limited. Notable benefits include improved traction, protection to the feet from elements and convenience.

Footwear Choice and Rate of Injury

Bone stress fractures have long been associated with higher ground reaction forces. In an attempt to reduce ground reaction forces shoe manufacturers introduced technologies such as an increased heel bevel, thicker and softer sole cushioning and dual density medial midsole support (Nigg, 2000). These technologies were expected, due to the kinematic and kinetic changes that take place, to reduce stress levels to allow more injury free training to take place (Nigg, 2000). Several studies currently display a lack of scientific evidence that concludes that shoes with an elevated heel and pronation control correlate to a decreased rate of injury. As a result of modern shoe technologies being ineffective, it has been proposed that barefoot running be a viable and effective alternative of to reduce injury. However, risk factors such as training volume, intensity and injury history are known risk factors that affect running injury rates (Noakes, Tam, Tucker, & Wilson, 2013).

Barefoot runners tend to have a forefoot strike pattern which in turn creates smaller collision forces resulting in a lesser chance of injury (Curry et al., 2013). Furthermore, barefoot running also diminishes the stance phase therefore there is less contact time on the ground resulting in smaller peak forces (Curry et al., 2013). Average loading rate and leg stiffness are affected in barefoot running resulting in decreased leg stiffness running barefoot versus high-cost shod running (Curry et al., 2013). Moreover, excessive cushioning in modern running shoes can cause excessive pronation of the foot that can lead to injuries such as plantar fasciitis due to the overstretching of the fascia and deltoid ligaments of the foot (Curry et al., 2013).

Transitioning from Shod to Barefoot Running

Adaptation time needs to be considered when observing injury rates when transitioning from running shod to barefoot. A study conducted by Cheung & Rainbow (2014) analyzed the initial kinetic effects when transitioning from being habitually shod to barefoot. Former habitual shod runners were asked to run barefoot and also wear minimalist shoes (barefoot simulated); the participants had never attempted barefoot running nor used minimalist footwear. Due to the participants not having previous experience running barefoot, running technique and biomechanics better represent initial changes made when a transition from shod to running barefoot is done, a subject that had been a habitually shod runner. Most foot strikes examined were identified as heel strikes whenever footwear was used by the test subject (Cheung & Rainbow, 2014). Shod subjects foot strikes were primarily identified as heel strikes compared to a lower heel strike by barefoot subjects (Cheung & Rainbow, 2014). Based on the findings of this article, early barefoot running does not necessarily guarantee immediate and correct modification of landing pattern when transitioning from a shod to

barefoot condition. These findings partially explain the running injuries that can related to barefoot running in inexperienced barefoot runners whom transition to barefoot running to quickly from a previous habitual shod state. Despite all significant findings, Cheung and Rainbow (2014), stated that it cannot be assumed that switching from shod to barefoot running immediately changes the landing pattern of the foot. Furthermore, effects from barefoot running has on strike pattern appears to effect loading rate of the lower limbs (Barton et al., 2013). Forefoot striking patterns found primarily in barefoot runners reduces loading rate. Whereas, heel striking caused from a shod condition increased loading rate of the lower-limbs (Barton et al., 2013). A reduction in loading rate increases stride frequency, hence improving running speed.

Conclusions, Limitations, and Future Study

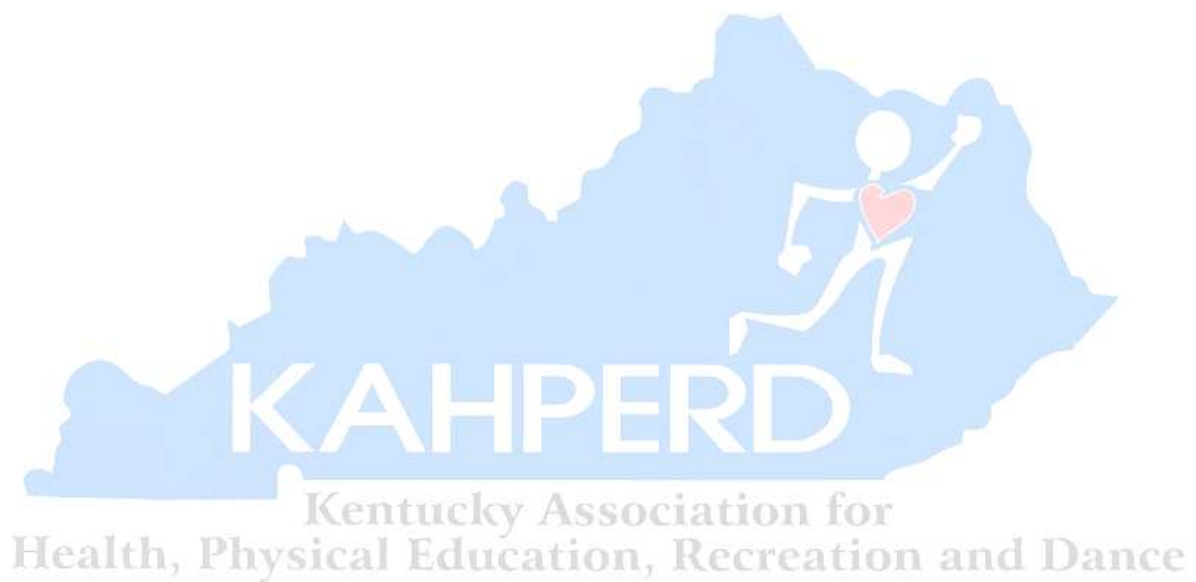
A pattern of limitations was found in the studies include the following: small sample size, previously injured runners not being recruited for examination and studies being too short. A systematic review of literature by Noakes, Tam, Tucker, & Wilson, (2013), found there is no conclusive evidence that neither proves nor disproves the advantages of running barefoot running. Conversely, the research reviewed says different. In majority, the research articles fashioned more findings to be beneficial and in favor of a barefoot condition than shod or minimalist running. A few aforementioned positives to running barefoot in comparison to shod include: lower oxygen uptake resulting in better running economy, lower VALR (vertical average from ground to peak of shoes) and VILR (instantaneous loading rates) values resulting in a lesser chance of injury, shorter lower leg loading rates leading to increased stride frequency, and lower ground reaction forces that greatly decrease risk. As stated above the benefits shod running are limited, consisting of improved traction and protection to the foot from elements. Additionally, “Born to Run: A Hidden Tribe, Superathletes, and the Greatest Race the World has Never Seen,” describes a study by Bernard Marti, a preventative–medicine specialist at University of Bern in Switzerland, where 4,358 runners completed a questionnaire concerning injury and shoe price. The findings of the study linked higher shoe price to greater risk of injury (McDougall, 2009).

Future studies should address issues such as small sample size, selection of subjects and length of study. Larger sample sizes allow for a better chance at finding significant differences. In all studies, subject characteristics can affect the relationship being investigated. To produce more accurate findings, previously injured runners should be considered as subjects to be tested to gather a wider range of data. According to Noakes et al., (2013), future findings will require long term studies that allow further understanding of barefoot running and its effects on performance, injury rate and training (Noakes et al., 2013).

Implication

Implications include altered training plans and workouts designed to enhance performance reduce injury rate through barefoot running. When used optimally barefoot running allows for clear advantage over that of shod running. However, caution should be used when transitioning into barefoot running to avoid overuse of muscles not engaged as often when wearing footwear. One must not abruptly transition from a shod running state to barefoot as it

will put them at a greater risk of becoming injured. Some studies have shown that training programs that incorporate barefoot running slowly have better success rates. It is advised to gain more knowledge and a better understanding of barefoot running before the transition from shod running is made.



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Non-Instructional Cell Phone Use In College Classrooms: Is Addiction to Blame?

Phyllis A. Bryden, Eastern Kentucky University

Molly McKinney, Eastern Kentucky University

Abstract

Cell phones are ubiquitous on college campuses. When college students enter classrooms, cell phones do too. Multi-tasking during class by using cell/smartphones for texting or other “silent” uses presents challenges for students and instructors. These practices may be from habit or dependency; dependency may have developed into addiction. The purpose of this study was to identify attitudes and practices associated with college students’ use of cell/smartphones and to compare their addiction to the general public. Students (n=127) enrolled in a regional university’s selected spring 2016 public health courses completed a 16 item cell phone use survey. Study participants ranked higher than the general public on an addiction scale. Most students (93.7%), reported using cell/smartphones when bored; almost 20% (19.7%) replied it was OK to use cell/smartphones during class sessions if they hide the phone from view. Study results can guide future research and help develop strategies to enhance classroom learning.

Introduction/Literature Review

Distractions in the school classroom are not a new phenomenon. However, gone are the days when an instructor’s only competition came from activity outside a classroom window. It has been reported that 96% of undergraduates and 99% of graduate students own a cell phone; this means that cell phones are ubiquitous on college campuses (Smith, Rainie, & Zickuhr, 2011). When college students enter the classroom, their cell phones do too. This presents a challenge for students and instructors. While making and receiving phone calls during class sessions has declined in recent years, use of cell phones for texting or other “silent” uses has remained problematic (Tindell & Bolander, 2012). More than two thirds of students 18 - 29 years of age own a smartphone, which gives them mobile access to the internet as well as texting and email capabilities (Smith, 2012). Students regularly use cellphones for a variety of communication needs and as a rapid source for information. This technology also offers them constant connectivity to others through social networking such as Facebook or Twitter. A 2013 study by Experian Marketing Services showed that 18- to 24-year-olds send and receive an average of 3,853 text messages per month (Experian, 2013). In a two university survey of approximately 300 marketing majors, Dr. M. Weimer reported that 98% of study participants responded that they texted during class and that they received about the same number of texts as they sent (Weimer, 2013). While opening up opportunities to stay connected, the technology has also lead to dependency in some cases. The use of cellphones is “inextricably woven into our daily lives” (Mick & Fournier, 1998). College student dependency on cell phones may carry over into the classroom.

Educators have recognized the need to channel technology use to benefit student learning. Some educators have embraced using smartphone technology in the classroom. Poll Everywhere and Learning Catalytics are among the most popular products to help do this.

Poll Everywhere allows instructors to get immediate feedback from students regarding understanding and perceptions of materials. Learning Catalytics allows instructors to monitor learning, increase critical thinking skills, and coordinate group activities. This has been shown to be beneficial to students (Graham, 2015). Although fulfilling their intended functions, smartphones can also be potentially disruptive to learning in the classroom. There remains an issue with students using cell phones during class sessions for non-instructional purposes. This use of technology for non-class related purposes has been shown to have a negative effect on student learning (Wei et al., 2012). Studies indicate that use of cell phones for non-instructional purposes during class sessions can lead to lower grade point averages (GPA) for the students involved (Tindell & Bohlander, 2012). Adverse academic consequences of texting have led many professors to discourage or prohibit cell phone use for non-instructional purposes in the classroom (Lepp, Barkley & Karpinski, 2014). Often, students ignore those restrictions and use cell phones in class even when knowing that there are rules against it. The reasons why students are reluctant to follow the “no cell phone” rules have been explored less extensively than other aspects of cell phone use (Pempek, 2009). Few previous studies have looked at why smartphone use is so hard to keep out of the classroom.

Multitasking

One explanation for why cell phones continue to be used during class sessions is that smartphones have introduced additional capabilities for multi-tasking. Students make assumptions about their ability to multitask; many have grown up believing they can multitask successfully (Willingham, 2012). The ability to multitask during lectures has been overrated by students (Willingham, 2012). Fox and colleagues found that students that attempted multitasking by concurrent Instant messaging (IM) and performing a reading task, took significantly longer to complete the reading task (Fox, Rosen, & Crawford, 2009). To comply with a “no cell phone” classroom policy, students have to overcome the temptation to multitask: to abstain from checking social media such as Facebook, or texting.

Addiction

Mick & Fournier (1998) reported on the “paradox of technology”. The idea that cell phone use is “both freeing and enslaving at the same time” (Roberts, 2014, p. 265), presents the conclusion that cellphones can lead to dependence because they are such an integral part of our daily lives (Mick & Fournier, 1998). This highlights that one explanation for the resistance to adhere to “no cell phone” rules is the possibility that students’ cell phone dependency has developed into an addiction. Historically, one aspect of addiction has been that the addicted individual repeatedly uses a substance in spite of any negative consequences they might incur. (Alivi et al. 2012; Roberts, 2014). Shambare and colleagues (2012) identified cell phone use as “possibly biggest non-drug addiction of the 21st century” (p. 573). Often purses and backpacks are left on desks to aide in covert cell phone use. Students also attempt to hide their cell phone use by keeping the phone under their desk or in their lap. The addictive behavior involved with cell phone use is considered a process addiction which is not necessarily a mental illness but may negatively impact a student’s learning. It is deemed addictive when its use interferes with day-to-day life (Atlantic Marketing, 2015). Rather than

focus on how much time students spend using cell phones, a better approach may be to examine student behaviors and beliefs, thus, “getting to the root of the problem may be the best solution to treating cell phone addiction” (Roberts, Yaya, & Manolis, 2014). In response to this question, James A. Roberts has developed a 12 question survey to categorize and assess the extent of cell phone addiction (Roberts, 2016).

Purpose of the study

The purpose of this study was to identify attitudes and practices associated with college students' use of cell phones and compare the proportion of students in each Addiction Score Category with that of Roberts' published national results for the general public.

Methodology

Students in eight (8) different public health courses completed the questionnaire as part of a class requirement to facilitate discussion on the expectations about cellphone use in the classroom. Students completed the short anonymous survey in less than 2 minutes before discussing the results as a class.

Participants

Participants were undergraduate and master's level graduate students at a regional university that were enrolled in various public health courses during the spring 2016 semester. Although information on age was not collected, the ages of students within these courses typically range from 18 to 50 years of age.

Instrumentation

The survey consisted of 16 dichotomous (Yes, No) questions about student attitudes and practices of cell phone use. Twelve items were from a validated Cell Phone Addiction Scale published in *Too Much of a Good Thing: Are You Addicted To Your Smartphone?* (Roberts, 2016). Permission to use the published questions and Addiction Scale was obtained from the author, Dr. James A. Roberts. An Addiction Score was obtained from the tally of the “Yes” answers from the questions comprising the Addiction Scale, with eight or more yes answers indicating Addiction. The scale measures six characteristics of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Guidelines for scoring the Addiction Scale are published in *Too Much of a Good Thing: Are You Addicted to Your Smartphone?* (Roberts, 2016). An additional 4 questions asked about attitudes/behaviors pertaining specifically to use of cell phones in the classroom.

Statistical Analysis

The statistical software Statistical Package for the Social Sciences (SPSS, version23) was used for the organization, management, and analysis of data (IBM Corp., 2015).

Descriptive statistics including frequencies and percentages were determined for each survey question answer option. The Chi-square statistic was used for comparisons between answer option frequencies.

Results

A total of 129 surveys were received. Two surveys were excluded for incomplete data, leaving 127 surveys for study analysis.

Demographics

No information on demographics was collected. However, students in these courses typically have a wide range of adult ages. Participants were undergraduate ($n = 92$, 72.4%) and masters level graduate students ($n = 35$, 27.6%).

Frequencies

Frequencies with associated percentages of answers for each question are shown in Table 1. Chi square tests of independence were used to compare proportions between groups. There was a statistically significant difference between proportions for “Yes” and “No” answers for twelve (12) questions: Seven (7) questions showed more students answered “Yes” and five (5) questions revealed more students answered “No”.

A statistically significant proportion of students reported “Yes” that they:

- Reach for their cell phone/smartphone first after waking in the morning
- Sleep with their smartphone next to their bed
- Use their cell phone/smartphone when they are bored
- Pretend to take calls to avoid awkward social situations
- Spend more time than they should on the cell phone
- Have gone into a panic when they thought they lost their cell phone
- Feel they could do without their cell phone during class time if they choose to

A statistically significant proportion of students reported “No”, that they:

- Are spending more and more time on their cell phone
- Become agitated or irritable when their cell phone is out of sight
- Have argued with spouse, friends, or family about their cell phone use
- Tried but failed to cut back on their cell phone use
- Need to cut back on cell phone use but afraid they can’t do it
- Are irritated when others use their cell phones in class
- Think that it is OK if others use their cell phones in class
- Think it’s OK to use their cell phone in class if they hide it from view

Addiction Scale

The total Addiction Score was based on the number of “Yes” answers reported for the 12 items comprising the Addiction scale ($N=127$, Mean = 6.57, Median = 7, Mode = 8, standard deviation = 2.09).

Addiction scores were grouped into 4 categories as a means of consolidating and analyzing the total Addiction scores. Scores of 8 or more were considered to indicate Addiction. Chi square Goodness of Fit test showed a statistically significant difference between national percentages reported and study percentages observed for the grouped Addiction Scores, $\chi^2(3, N = 127) = 49.889, p < .001$.

Associations

Addiction scores

Addiction scores were significantly associated with the results given for 12 of the Addiction Scale questions. Individual t tests results are reported in Table 3 for each significant association.

Grouped Addiction score

A statistically significant association was seen between the Grouped Addiction Scores and using the cell/smartphone while driving, $\chi^2(3, N = 127) = 14.909, p = .002$.

A statistically significant association was seen between the Grouped Addiction Scores and reporting using the cell/smartphone when bored $\chi^2(3, N = 127) = 58.508, p < .001$.

Approval of covert cell/smartphone use

A statistically significant association was seen between students reporting it was OK to use a cell/smartphone in the classroom as long as it was concealed and 1) student status, $\chi^2(1, N = 127) = 4.215, p = 0.004$; 2) the declaration that the student could do without the cellphone if they choose, $\chi^2(1, N = 127) = 6.575, p = 0.010$; and 3) they are irritated if others use cell/smartphones during class, $\chi^2(1, N = 127) = 7.122, p = 0.008$.

Discussion & Conclusions

College students comprise a unique population when addressing cell phone use. This study suggests that cell/smartphone addiction may be more common among college students than it is in the general public. Study participants ranked higher than the general public on a validated addiction scale. This higher ranking indicates cell phones have the potential to lead to distractions which can have a large impact on class instruction. Reasons students gave for using cell phones for non-instruction purposes are consistent with other studies involving smartphone use. Understanding why students attempt to multitask by using cell/smartphones during class sessions is important.

Results from this study can be used to ensure a successful classroom exchange of information. Most students (93.7%), reported using cell/smartphones when they are bored. This indicates that strategies to fully engage students in classroom instruction is essential. One possible strategy to increase student engagement is to incorporate cell phone use into classroom instruction. Instead of seeing cell phones as tools of distraction, many instructors embrace cellphones as a means for pedagogical enhancement and a deterrent to student boredom (Engel 2011, McConatha 2008, Steer 2009, Tremblay (2012). Smartphones have been successfully used as Audience Response Systems (ARS) to create interactive exchanges between students and instructors which increases effective learning (Steer 2009, Tremblay

2012). Services such as Poll Everywhere can be used to let students anonymously “vote” for the correct answer to a multiple choice question. This gives immediate feedback to the instructor and students. Discussion on why each answer option was correct or incorrect can clarify the concept tested while keeping the students interested (Steer 2009). Classroom-management systems such as Learning Catalytics, can go beyond multiple choice questions to elicit open ended responses; they support peer instruction and have capabilities to organize student discussion groups for maximum learning while also providing an assessment tool that allows real-time feedback (Demske 2013; Parry 2011). Dr. Eric Mazur, the Harvard physics professor who developed Learning Catalytics, uses the technology to let students work on conceptual problems. “They pair off with peers who have different answers and try to convince each other that they’re correct” (Parry 2011). Incorporating cell phone use into classroom activities has the potential to encourage student engagement which increases student concentration and participation (Engel 2011). More studies are needed to determine if students still multitask while using cell/smartphones to complete educational classroom activities.

The fact that almost twenty percent (19.7%) replied it was OK to use cell/smartphones during class sessions if they hide the phone from view gives a glimpse into reasons students ignore the “no cell phone” rules. Classroom expectations for cell phone use must address this student perception. Surprisingly there was a statistically significant association between the idea that covert use of cell phones was OK and student status; more graduate students approved of the practice than undergraduates. More research needs to be done on this issue to find out why this phenomenon occurred.

Limitations

Limitations exist to this study. Survey questions made no differentiation between students using cell phones or smartphones. Student use of phones during class sessions for non-instruction uses was not quantified. The sample was not randomly selected so the results may not be generalizable to all college students.

Implications and Future Research

Smartphone use does not seem to be diminishing, either during class or afterward. This phenomenon leads one to ask the question, what strategies would be successful in postponing student use of smartphones until class breaks or between classes? Or, what can faculty members do to incorporate more positive uses of smartphones into classroom activities? Future studies need to focus on several areas: 1) The effect of non-instructional cellphone use in the classroom on learning; 2) The susceptibility to cell phone addiction; 3) Strategies to delay cell phone use until out of the classroom 4) Strategies to incorporate instructional cell phone use in to the classroom.

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Table 1. Frequencies and percentages of Survey Answers (n=127)

Question		Yes	No	χ^2	p =
1.	Is the first thing you reach for after waking in the morning your smart phone?	109 (86.5%)	17 (13.5%)	160	< .001 *
2.	So you sleep with your smartphone next to your bed?	118 (92.9%)	9 (7.1%)	93.551	< .001 *
3.	I often use my cell phone when I am bored.	119 (93.7%)	8 (6.3%)	97.016	< .001 *
4.	I have pretended to take calls to avoid awkward social situations.	88 (69.3%)	39 (30.7%)	18.906	< .001 *
5.	I find myself spending more and more time on my cell phone.	60 (47.2%)	67 (52.8%)	.386	.535
6.	I spend more time than I should on my cell phone.	97 (76.4%)	30 (23.6%)	35.346	< .001 *
7.	I become agitated or irritable when my cell phone is out of sight.	36 (28.3%)	91 (71.7%)	23.819	< .001 *
8.	I have gone into a panic when I thought I had lost my cell phone.	104 (81.9%)	23 (18.1%)	51.661	< .001 *
9.	I have argued with my spouse, friends, or family about my cell phone use.	29 (22.8%)	98 (77.2%)	37.488	< .001 *
10.	I used my cell phone while driving my car.	73 (57.5%)	54 (42.5%)	2.843	.092
11.	I have tried to cut-back on my cell phone use but it didn't last very long.	30 (23.6%)	97 (76.4%)	35.346	< .001 *
12.	I need to reduce my cell phone use but am afraid I can't do it.	13 (10.2%)	114 (89.8%)	80.323	< .001 *
13.	I am irritated when others use their cell phones in class	50 (39.4%)	77 (60.6%)	5.740	.017
14.	It is alright if others use their cell phones in class.	52 (40.9%)	75 (59.1%)	4.165	.041
15.	I could do without my cell phone during class time if I choose.	120 (94.5%)	7 (5.5%)	100.543	< .001 *
16.	It's OK to use my cellphone in class if I hide it from view.	25 (19.7%)	102 (80.3%)	46.685	< .001 *

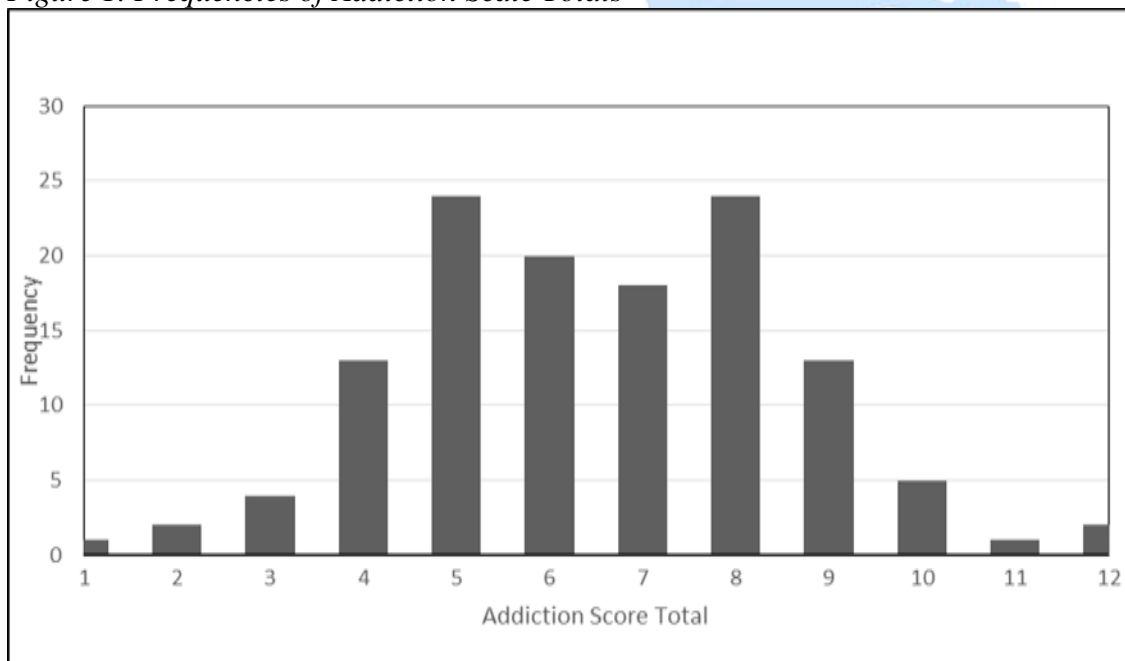
* A statistically significant difference in proportions at the p = .001 level of significance

Table 2. Grouped Addiction Scores: Frequencies and Percentages

Score	Frequency	%	National %
0-2	3	2.4%	21%
3-4	17	13.4%	25%
5-7	62	48.8%	29%
8+	45	35.4%	26%

Table 3. Significant Associations between Addiction Scores and Question Results

variable	t	p
reaching for the cell/smartphone first thing after waking in the morning	-4.161	.001
Use their cellphone/smartphone when they are bored	-5.282	.001
Pretend to take calls to avoid awkward social situations	-6.029	.001
Spending more and more time on their cell phone	-8.349	.001
Report that they spend more time than they should on the cell phone	-6.952	.001
Become agitated or irritable when their cell phone is out of sight	-6.155	.001
Have gone into a panic when they thought they lost their cell phone	-5.585	.001
Argued with spouse, friends, or family about their cell phone use	-5.375	.001
Used Cellphone while driving	-4.284	.001
Have Tried but failed to cut back on their cell phone use	-4.959	.001
Need to cut back on cell phone use but afraid they can't do it	-5.127	.001
Are irritated if others use cell phone in class	2.167	.032

Figure 1. Frequencies of Addiction Scale Totals

Exploring Leadership Characteristics of High School Football Coaches

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Introduction

As coaches, individuals must know who they are before they can help their athletes know who they are (Martens, 2012). As sports become more prevalent and further ingrained in American society, so too is the interest in the leaders of athletics. Leadership in sports is a popular topic for research (Gillies, 2002; Halpern, 2011; Westre & Weiss, 1991). At the high school level, the role of athletics is institutionalized and governed within the scope of state organized associations. ; These state organized associations traditionally comprised of 9- to 12-grade public and private schools (Gaddis, 2013). Generally, the leaders of these respected school teams must be faculty at the school, possessing educational attainment of at least a bachelor's degree.

Many students in the United States participate in high school athletics. According to the annual High School Athletics Participation Survey conducted by the National Federation of State High School Associations (NFHS) in 2012-2013, participation in high school sports increased for the 24th consecutive year, with a total of 7.7 million participants (NFHS.org). Ewing (2007) suggested that participation in high school sports can influence an individual's future economic outcomes, since this participation experience can define a person as an early success in life.

High school head football coaches must possess people skills and generate positive influence, as their roles produce different outcomes than collegiate and professional coaches (Bredemeier & Shields, 2006). Coaches create an environment in which athletes practice, perform, and socially interact; therefore, the philosophy by which they operate is extremely important. According to research by Camiré and Trudel (2013), participation in high school sports positively impact the outcomes of the athletes.

Coaching Leadership Styles

A truly successful coach uses sports as a way to develop an athlete's desire for both knowledge and growth beyond sports (Grace, 1988). According to Weinberg and Gould (2003), leaders typically serve two functions: (1) to ensure the demands of the organization (club) are achieved and meet its targets, and (2) to ensure the group members' needs are satisfied. Many teens and younger children participate in recreational or competitive sporting activities, in which they are supervised and instructed by a coach (Crust & Lawrence, 2006). Coaches possess many different qualifications and personality traits, leadership styles, and coaching strategies. Furthermore, they create an enormous impact on the lives of their athletes, both on the field and in the athletes' progression in life (Chelladurai & Saleh, 1990). Youth sports and high school sports are important in the life of adolescents, as they are learning morals, values, and developing necessary skills to succeed in life (Trottier & Robitaille, 2014; McCallister, Blinde, & Weiss, 2000).

High School sports is believed to positively impact the outcomes of the athletes, (Camiré & Trudel, 2013). That positive impact would mainly rely on how coaches carry out his coaching and leadership styles to shape and influence their players. Westre and Weiss (1991) examined coaching leadership behaviors and group cohesion of high school football teams. Coaching leadership behaviors were analyzed using the Leadership Scale for Sports (LSS), and group cohesion was analyzed using the Group Environment Questionnaire. Results revealed a significant relationship between coaching behaviors and group cohesion using multivariate multiple regression and canonical analyses.

Coaches who operate under a cooperative, or democratic style, work with their athletes to help make appropriate decisions and set their own goals, which follows that athletes are first, and winning is second (Martens, 2012). Turman (2003) pointed out that athletes who have positive interactions with their coach, in turn, have positive experiences in their athletic sport. He also stressed the importance of research on the instruction and communication of coaches because, in many ways, this also reflects the same values of teacher-student instruction and communication. As coaches create the environment in which the athletes practice, perform, and socially interact, the philosophy by which they operate is extremely important (Camire et al., 2012). The coach-athlete relationship may be the most important sport interaction (Mageau & Vallerand, 2003), and the relationship is most effective when a dynamic process exists in which the coach and athlete share interrelated thoughts, feelings, and behaviors (Jowett, Paull, & Pensgaard, Hoegmo, & Riise, 2005).

Leadership under an autocratic leader can be unpleasant (Cangemi, 2011). Many times, subordinates accomplish only the minimum. They fear being noticed. In these types of organizations, the morale is low and disconnections frequently occur between the leadership and the workers. In athletics, this concept would reflect the head coach and players. This disconnect would cause coaches to make decisions based on their personal satisfaction, rather than on the overall satisfaction of the players or organization. However, situations exist in which the environment welcomes or creates an opportunity that favors an autocratic leader. When individuals possess feelings of self-uncertainty, they may lean in favor of an autocratic leader. This occurs because autocratic leaders are confident, decisive, and firm, and are thought have a plan (Rast, Hogg, & Giessner, 2013). Research has shown that an autocratic style of leadership is not a long-term answer for social problems in organizations. An autocratic leader will face difficulties in leading the organization. A lack of regard for the other members of the organization will eventually disrupt the continuity of the organization (Van Vugt, Jepson, Hart, & De Cremer, 2003).

Methods

Participants

This study utilized a convenience sample method to solicit 48 high school football coaches' responses on their self-reported coaching style. The participants were high school head football coaches from the state of Kentucky. The average coaching experience was about 10 years ($M = 10.39$, $SD = 9.93$), and range of differences in coaching experience was 36. The

descriptive analysis also revealed that average age of the respondents ($N = 40$) was 43 years ($M = 43.27$, $SD = 0.68$). The range for the age differences was 42.

Instrumentation and Procedure

The instrument utilized was the Leadership Scale for Sports (LSS). The LSS is a questionnaire consisting of 40 items that are divided into the five subscales of social support, feedback, democratic behavior, autocratic behavior, and training and instruction. Within the subscales, 13 items relate to training and instruction, 9 relate to democratic behavior, 5 relate to autocratic behavior, 8 relate to social support, and 5 relate to positive feedback. This instrument was chosen to examine the leadership characteristics of high school football coaches, because it has been proven to be a valid instrument with a strong reliability quotient (Bennett & Maneval, 1998; Brooks, Ziatz, Johnson, & Hollander, 2000; Dwyer & Fischer, 1988; Horne & Carron, 1985; Salminen & Luikkonen, 1994). The online survey was delivered through Qualtrics (an online self-administered survey software) via email and coaches were asked to complete the survey within two weeks (January 1st-January 15th). All participants were given the same questionnaire, and the participants must select one of the possible responses provided in all items.

Results

The results revealed that the highest coaching leadership characteristic was positive feedback ($M = 4.61$, $SD = 0.40$). The next highest leadership characteristic was training and instruction ($M = 4.48$, $SD = 0.36$). The third highest was social support ($M = 3.92$, $SD = 0.54$). The final two characteristics, as self-reported by the coaches, were democratic ($M = 2.96$, $SD = 0.64$) and autocratic behavior ($M = 2.74$, $SD = 0.49$). Therefore, based on the data, the most valued self-reported coaching leadership characteristic was positive feedback, and the least valued was autocratic behavior.

The one-way ANOVA revealed a significant difference on autocratic leadership between two groups in years of experience $F(2, 38) = 3.61$, $p < .05$. In order to determine the significant differences between autocratic leadership and coaching experience, Tukey's post hoc analysis was conducted. Tukey's post hoc analysis revealed significant differences between Group 1 (1-4 years of coaching experience; $M = 2.50$, $SD = 0.38$) and Group 3 (10 or more years; $M = 3.00$, $SD = 0.38$) in the autocratic leadership behavior component of the LSS. However, Group 2 (5-9 years of coaching experience; $M = 2.77$, $SD = 0.61$) did not significantly differ from Groups 1 and 3 on autocratic leadership responses. For Part II, the one-way Anova revealed no significant difference among age and leadership characteristics.

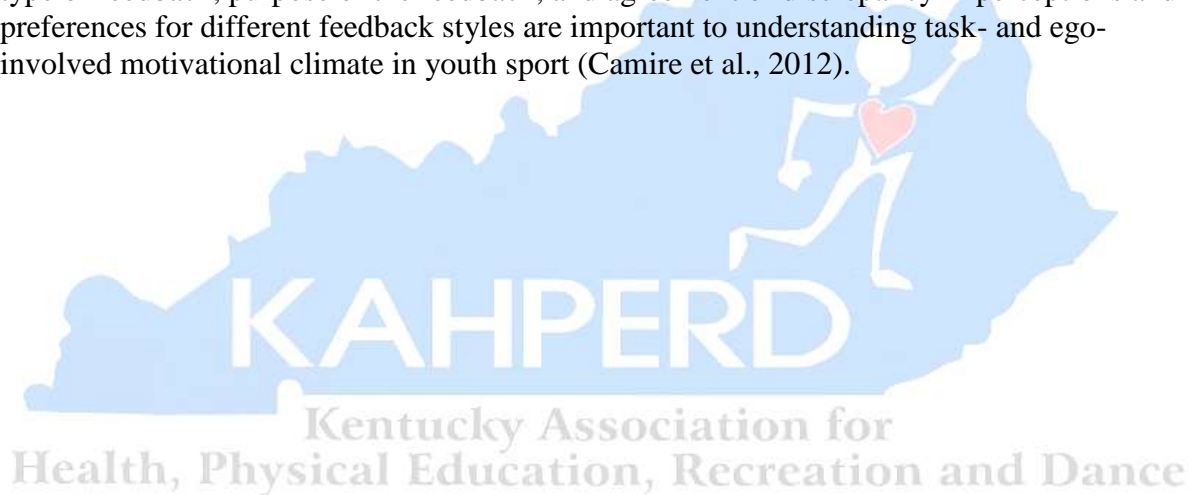
Conclusion/Discussion

Results from this study revealed that the most valued self-reported coaching leadership characteristic was positive feedback and the least valued was autocratic behavior. However, results indicated a significant difference in the leadership characteristic of autocratic behavior between coaches with little experience, in comparison to coaches with many years of

experience. Therefore, the coaches with many years of experience may gain a different perspective as their experience increases.

The results suggest that beginner head coaches (less than five years of experience) tend to exhibit less autocratic behavior than those who are more established and have much more experience (10 years or more). Although the analysis shows that coaches between least experience and most experience did not significantly differ, it should be noted that the overall mean of the intermediate group was $M = 2.77$, $SD = 0.61$ on autocratic behavior. This could suggest that autocratic behavioral characteristics develop as coaching experience increases. However, autocratic behavior was the least valued leadership characteristic by the coaching respondents ($M = 2.74$, $SD = 0.49$).

The results agree with prior research suggesting that coaches can be an important source of feedback, instruction, and support for youth participants. In turn, coaches influence numerous youth development outcomes, including self-perceptions, affect, and motivation (Weiss, 2013). Additionally, these findings coincided with prior research that suggested the type of feedback, purpose of the feedback, and agreement or discrepancy in perceptions and preferences for different feedback styles are important to understanding task- and ego-involved motivational climate in youth sport (Camire et al., 2012).



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Place Attachment in Kentucky State Parks: An Opportunity to Increase Park Visitation and Advocacy

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Abstract

Place attachment, the emotional and functional bond a person has to a place, has shown to predict environmentally sound behavior and stewardship, and increase the investment a person has related to the place. Many stewards of natural areas are interested in knowing, and possibly increasing utilizing, place attachment to take advantage of these advantageous visitor attributes. This study sought to identify underlying variables that may predict place attachment likeliness for Kentucky State Park visitors using onsite surveying. Several variables were significant in predicting place attachment likeliness (i.e. education, distance from park, barriers to visitation). Management personnel can use such information to target marketing and information distribution to increase place attachment and incur the benefits of increased visitor place attachment.

Key Words: place attachment, state parks, environmental stewardship

Introduction

Today, more tourists seek to escape their everyday lives pursuing adventure and outdoor recreation (Ramkissoon, Smith, & Kneebone, 2014). With limited budgets and fast-paced work schedules, state parks appear to provide the perfect location for people looking to vacation for a brief period. Kentucky offers a wide variety of state parks, including resort parks, recreation parks, and historical parks. In Kentucky, most residents live within a 50-mile radius of a state park, providing greater opportunities for visitation and visitor-place relationship growth.

Place attachment is a term that relates to an individual's bond to a particular area (Loureiro, 2015). This sense of attachment can lead visitors to return to a site multiple times, recommend friends and relatives to visit it, and even take action to help the site through donating time, resources, and more. These personal interactions between parks and visitors can be crucial in park maintenance and visitation, especially on the state park level. Understanding the levels of place attachment possessed by state park visitors can provide valuable information for increasing park advocacy and information. Park managers can use place attachment knowledge to encourage visitors to continue these actions, and enhance the visitors' park experience. To add to the current state of knowledge related to place attachment and site visitation, researchers facilitated a research study at 10 Kentucky State Resort Parks, collecting information related to demographics, park barriers, environmental ethics, and place attachment data. The data collected may provide important information to Kentucky State

Parks as they continue to manage the resources to increase sustainable use of the resources and advocacy for the park.

Review of the Literature

Today, more tourists seek to escape their everyday lives pursuing adventure and outdoor recreation (Ramkissoon, Smith, & Kneebone, 2014). With limited budgets and fast-paced work schedules, state parks appear to provide the perfect location for people looking to vacation for a brief period. Kentucky offers a wide variety of state parks, including resort parks, recreation parks, and historical parks. In that most Kentucky residents live within a 50-mile radius of a state park, providing greater opportunities for visitation and visitor-place relationship growth.

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Review of the Literature

Over the past several decades, research on place attachment has continued to grow, and has recently been used to study visitors' feelings in tourist destinations. Tuan (1974), one of the first researchers to focus on place as an object of study, set the first parameters of place. Place, according to Tuan (1974), is a space or structure that one becomes connected to. Places are made as people have experiences in a particular space, and people begin to create a sense of meaning for that space (Tuan, 1974). The study of place attachment, or sense of place, was used to study people's perceptions of built environments. Taylor and Townsend (1974) used sense of place to examine a community in northeast England in terms of community planning related to the feelings of residents.

In 1996, Childress suggested that all place attachment had one common theme, which was the notion that it dealt with an experience that a person had at a particular site. Research on place attachment had begun taking place on different subjects, other than planning initiatives. Vaske and Kobrin (2001) used place attachment to study environmentally responsible behavior. The research team used two dimensions of place attachment to study their hypothesis, which built on past research (Vaske & Kobrin, 2001). Place identity and place

dependence were factors used to determine a visitor's attachment level to the resource (Vaske and Kobrin, 2001).

In 2003, Kyle, Absher, and Grafe began studying place attachment in relation to usage fees and spending habits of site visitors. The researchers found that the place identity component of place attachment would be a moderating factor when it came to supporting the notion of charging park usage fees (Kyle, Absher, and Grafe, 2003). Though many individuals supported charging fees in many areas, it was found that individuals did not support fees when they believed that fees were going to be used to improve facilities (Kyle, Absher, and Grafe, 2003). Kyle, Absher and Grafe (2003) predicted that individuals were supportive of fees that protected the environment, rather than built infrastructure in the park. This showed that place attachment was still related to environmentally ethical behavior.

In 2014, the research on place attachment began to focus more on national parks, as parks looked to increase visitation and most likely revenue. Ramkissoon, Smith, and Kneebone (2014) conducted a study on national parks in Canada. This study found that place attachment was directly related to positive visitor experiences in the park (Ramkissoon, et al. 2014). The group then went on to suggest that park improvements could enhance place attachment among visitors (Ramkissoon, et al. 2014). This finding was contrary to some earlier research, and opened the field of study to include possible upgrades, which could enhance visitors' place attachment.

Although there is quite a bit of research on place attachment on different sites, place attachment has much more to offer for natural area managers and researchers at the local level. For example, little research has been conducted regarding visitors to Kentucky State Parks in general, and virtually none has been completed regarding place attachment. Therefore, an initial research project to begin understanding place attachment in Kentucky is important in that it provides foundational information for enhancing user experiences and provides valuable insight about visitor perceptions of these parks.

Methodology

This study was conducted at 10 Kentucky State Parks: Cumberland Falls, Carter Caves, Kentucky Dam Village, Rough River Dam, Lake Barkley, Natural Bridge, Barren River, Jenny Wiley, Lake Cumberland, and General Butler. At each of these locations, the sample population was selected using stratified random sampling. Unless involved in a specific activity, every third adult visitor (over 18 years old) was asked to participate in the survey. Research assistants from Eastern Kentucky University conducted this study from March 2014 to October 2014 on weekdays and weekends. The researchers also went during peak holidays (Labor Day, Fourth of July, and Memorial Day) in addition to regular seasonal days of operation. Finally, surveys were distributed to day users, lodge guests, tent/car campers, and RV campers. The surveys included questions measuring place attachment, place identity, place dependence, and demographic information. This survey method was chosen in order to replicate previous studies on place attachment.

The researchers chose to use a slightly altered version of the 12 statement instrument Kyle, Absher, & Graefe (2003) and Bradley, Liu, Chalkidou, & Caneday (2015), and many more, used in numerous place attachment studies. The twelve statements (Table 4) are evenly divided into two subtypes of place attachment, place identity and place dependence, and measured on a typical 5-point Likert-style scale.

Analysis

A total of 1,387 surveys were distributed across the 10 Kentucky State Parks, with 977 being completed, yielding a 70.44% response rate (Table 1). The respondents were 54% male and 46% female, with an average age of 42. On average, 91% of the respondents identified as Caucasian, 2% as Black or African American, 3% as Asian, Indian or Native American, and 5% as mixed race and other and visitors made around \$62,000 per year. Of the respondents, 87% identified themselves as visitors to the park, 12% identified as park employees, and 2% stated that they had never been to a state park until now. Visitors to the park were asked to identify their type of visiting among the listed categories; 45% identified as day users, 21% as lodge guests, 12% as RV users, 12% as tent campers, and 9% as cabin guests (Table 2).

Researchers ran a regression analysis on the independent variables of age, education (less than college or college and above), barriers to visitation, environmental ethics (EE mean), years since first visit, one-way miles traveled, and number of visits per year. These were compared with the dependent variables of mean place attachment (PAm_{mean}), place identity (PA_{identity}), and place dependence (PA_{dependence}).

Table 3 shows the regression for predicting place attachment ($F=21$, $p=0.000$), with age ($p=.438$), sex ($p=.101$), and years since first visit ($p=.682$) showing to be insignificant in relation to visitor feelings of place attachment. Education ($p=.000$), barriers ($p=.000$), environmental ethics ($p=.000$), one-way miles traveled ($p=.000$), and visits per year ($p=.000$) all proved to be significant when predicting place attachment. Less education, high environmental ethics, and higher visits per year all yielded a positive relationship with place attachment, with positive standardized coefficient values. Greater barriers and longer travel distance yielded an inverse relationship with place attachment with negative standardized coefficient values.

Discussion of Results

This research focused on visitor place attachment in Kentucky State Parks. More specifically, it focused on demographic variables and environmental ethics in relation to place attachment, place identity and place dependence. A total of 977 visitors to 10 Kentucky State Parks participated in the survey. The gathered data were aggregated and analyzed to determine how age, education, sex, barriers to visitation, environmental ethics, years since first visit, once way travel distance and visits per year influenced a visitors feeling of attachment toward the park.

The researchers ran a backwards regression analysis to determine which factors significantly influenced a visitor's sense of place attachment toward a Kentucky state park. Researchers

found that education, barriers to visitation, environmental ethics, one-way travel distance and visits per year were significant predictors of place attachment. Lower education, higher environmental ethics, and higher number of visits per year all had a positive, direct relationship to place attachment. Past demographic research has shown people with higher levels of education living further away from home, thus leaving individuals with lower education staying closer to home and perhaps developing a longer, more intimate relationship with a park. This coincides with the finding that decreasing distance from residence to park might increase attachment. Individuals with have higher levels of environmental ethics tend to treat natural resources with more respect, a cornerstone of environmental ethics. Additionally, many of the state resort parks in Kentucky are located in rural areas, in counties where US Census data notes lower than average education and income. The visitors to the park did not achieve higher overall levels of education, and were likely visit the park close to their home several times in one year, rather than traveling to parks further away. Higher environmental ethics can also fit in here, as people are more than likely prone to protect the areas around their home, which often includes these parks.

Older age was also found to have a positive correlation to place identity among visitors. The older an individual is, the more they visit the park close to their home. This is likely because residents stay in their communities throughout their lifespan due to a variety of reason, including low income and education.

Barriers to visitation, on the other hand, resulted in a direct, inverse relationships to place attachment. Barriers restrict individuals from recreating in or at a park, thus inhibiting a person developing positive feelings during their interaction with the park resources, or perhaps restricting visitation totally. Thus, an individual never gets the chances to develop a positive relationship with a place, or the feelings associated with the park are perhaps negative.

This information may help improve place attachment feelings of visitors to Kentucky State Parks. The lower education and lower economic status of those living closest the parks can attest for some of the place attachment feelings respondents expressed in the survey, consistent with the demographics of most state park see in their visiting population. This also highlights opportunities for parks to reach out to new audiences for participation.

Kentucky State Park managers can use the knowledge gained through this study to maintain and/or increase the level of place attachment among visitors to their park. This leads to increased visitation and higher advocacy for the park (Debenedetti, Oppewal, and Arsel, 2014). First, managers should address the factors resulting in lower place attachment feelings: barriers to visitation and one-way travel distance. The park managers should conduct studies to determine what barriers visitors have to visiting parks, since more independent variables are needed to address them. This could include such actions as providing more information about the park to the public or offering reduced pricing during certain seasons to increase seasonal visitation. Additional recommendations may include programming specialized to specific visitor groups (ex: Young Rangers in Training, senior weekday events) and special events (ex: Valentine's Day Getaway, Thanksgiving Buffet).

Removing barriers to visitation makes it possible to grow a visitor's sense of attachment to the park. Though one-way travel distance cannot be altered for the visitor, their knowledge of other parks near their home could be increased. With knowledge of closer parks, visitors can begin to develop a sense of attachment for parks closer to their home, and potentially the entire park system. By improving marketing, perhaps with better web and social media presence as Rickard and Stedman (2015) suggested. Improving upon these factors can increase feelings of place attachment among visitors to Kentucky State Parks, and therefore help visitation and advocacy. This increased visitation can help the park and surrounding areas financially, with more visitors spending more money.

Next, managers should address the factors that positively relate to place attachment. Continued promotion of environmental ethics, and even increased education on the subject, can also help levels of place attachment among visitors remain the same or increase. One recommendation might be to include specific curricula for youth, which may lead to increased attachment, environmental ethics, and long term visitation. In addition, promoting repeat visitation among all park visitor types may help maintain levels of attachment. Managers need to create an atmosphere that prompts a visitor to return several times over the course of their life in order to continue building a sense of attachment as the visitor ages.

In all, managers of natural areas open for visitation can benefit from this attachment research, as place attachment could lead to more advocacy and visitation to the park. This research was only conducted at 10 parks, and more research would allow for more specific changes at each park. However, the data presented here can begin to help park managers make adjustments to improve place attachment among visitors and increase visitation and advocacy in the parks. Better advertising, reduction of barriers, and increased programming (especially programming surrounding environmental ethics) to draw in return visitors would likely improve place attachment among visitors.

Although the results of this study can be used to make changes to management of natural areas and state parks, more research should be done. Due to limited sites selected for surveying, this information is not enough to improve place attachment at individual parks. In addition to this, this research was only conducted in three of the four seasons: spring, summer and fall. Research is needed in the winter in order to truly understand year round attachment levels. Finally, special events, such as weddings, at some parks may have led to abnormal survey results. In all, more research is needed to make specific changes at each park and to fully understand of place attachment.

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Health, Physical Education, Recreation and Dance

Table 1: Site Response Rates (N=977)

Name of the Park	% Total Surveys	Responses	Response Rate (%)
Cumberland Falls	13%	124	80.52
Carter Caves	12%	118	67.42
Kentucky Dam Village	8%	77	83.70
Rough River Dam	10%	101	72.66
Lake Barkley	13%	128	70.72
Natural Bridge	6%	62	60.78
Barren River	10%	99	72.26
Jenny Wiley	10%	94	55.95
Lake Cumberland	7%	68	74.73
General Butler	11%	106	71.62
Total	100%	977	Avg. 70.44

Table 2: Visitors' Demographic Information (N=977)

Sex	Percentage	Race	Percentage
Male	46%	Caucasian	91%
Female	54%	African American	2%
Guest Type	Percentage	Asian, Indian or Native American	3%
Day Use Guests	45	Mixed/Other	5%
Lodge Guests	21	Visitor Type	Percentage
RV Users	12	Park Visitor	87%
Tent Camper	12%	Park Employee	12%
Cabin Guests	9%	Neither	2%

Table 3: Regression Analysis Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p)
	B	Std. Error	Beta		
(Constant)	2.637	.189		13.941	.000
Age	.001	.001	.026	.776	.438
Education_2G	-.138	.038	-.117	-3.606	.000
Sex	-.061	.037	-.052	-1.640	.101
Barriers	-.102	.028	-.121	-3.697	.000
EEmean	.407	.052	.252	7.836	.000
Years since first visit	.000	.001	-.014	-.410	.682
Oneway miles	-.001	.000	-.155	-4.407	.000
Visit per year	.006	.001	.152	4.379	.000

a. Dependent Variable: PAmean Regression formula: $F=21$ $p=0.000$

Table 4: Place Attachment Results

Question	Strongly Disagree	Strongly Agree	Mean
1. This park means a lot to me.	11	384	4.15
2. I am very attached to this park.	14	289	3.90
3. I identify strongly with this park.	19	262	3.82
4. I feel no commitment to this park.	300	42	2.31
5. I enjoy visiting this park more than any other state park.	31	163	3.44
6. I get more satisfaction out of visiting this park than from visiting any other state parks.	26	138	3.42
7. Visiting this park is more important than visiting any other state park.	36	129	3.26
8. I wouldn't substitute any other state park for the type of recreation I do at this park.	35	132	3.26
9. I have a lot of fond memories about this park.	28	338	3.92
10. I have a special connection to this park and the people who visit and work there.	32	228	3.59
11. I don't tell many people about this park.	304	42	2.19
12. I bring my children or plan on bringing my children to this park.	33	408	4.11



Relationship between Performance Tests and Yards per Carry Average in Collegiate Running Backs

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Introduction

Football is the most popular sport in the United States (Gallup.com, 2015) with over 1 million student athletes playing at various levels (CNSnews.com, 2014; NCAA.org, 2013) generating over \$3.4 billion from college programs alone (BusinessInsider.com, 2014). This can put coaches under a tremendous amount of pressure to succeed and with these huge numbers of athletes vying to make the “cut”, the ability to predict a successful player is of major concern. Football is a sport of power, speed, agility and skill as well as other psychological factors. With teams that consist of up to 85 players at 22 positions, finding valid and reliable tests to determine if a player will perform well at any position can be very difficult task.

If performance test results can allow coaches to more accurately predict on-the-field outcomes, then testing should lead to better overall team success. In addition, predicting performance may impact recruiting, player salaries, predictions of team success and off-season training programs. Successful and accurate recruiting is one of the most important aspects to a successful college football program (Daus, Wilson, & Freeman, 1989). Accurate recruiting can greatly assist the coach regarding a player’s position and rank as well as enhance the player’s performance (Daus, Wilson, & Freeman, 1989; Ghigiarelli, 2011). Recruiting top players is typically associated with better seasons (Langlett, 2003). However, if the performance tests do not predict performance on the field coaches may be wasting valuable time and money by playing athletes simply because they perform well on tests rather than perform well in the game.

The typical performance tests are the 40-yard sprint, vertical jump, the 20-yard agility shuttle, bench press, squat, 20-yard sprint, power clean, power snatch, height, weight, body composition, 1.5 mile run and 300-yard shuttle. Although correlations of performance tests to on-the-field success have shown mixed results (Burke, Winslow & Strube, 1980; Barker, Wyatt, Johnson, Stone, O’Bryant, et al., 1993), the most consistent variable that has shown a moderate correlation has been the vertical jump (Sawyer, Ostarello, Suess & Dempsey, 2002). However, these are general tests given to all players at all positions. There is little data on the ability to predict on-the-field- success in terms of yards-per-carry average for running back by using performance tests.

Therefore, the purpose of this study was to determine the relationship between three very common performance tests: the forty-yard sprint test, twenty-yard shuttle, and the vertical jump test and their individual and combined relationships to yards-per-carry average in collegiate running backs.

Methods

Subjects

Archival data for height and weight, 40-yard sprint times, twenty-yard shuttle times, vertical jump measurements and yards-per-carry average on 25 male football running backs between the ages of 18-24 for the 2010 season from 4 universities (1 NCAA-1, 1 NCAA division 1-AA and 2 NCAA division 2) was requested from the respective strength and conditioning coaches. The average height of the subjects was 69 inches and the average weight was 193.1 lbs.

Procedures

40-yard sprint times, twenty-yard shuttle times and vertical jump data were collected at the end of summer prior to the 2010 season during 1 day by the respective teams' strength coaches. Sprint times were recorded using hand-held stopwatches and recorded in seconds. Vertical jump was measured using a Vertec® jump measurement system. Yards-per-carry were taken from the official statistics reported by the respective teams and averaged over the entire 2010 season. In order to prevent any way of identifying a subject, all personal information other than age, weight, performance test results and yards-per-carry was removed prior to data access.

Statistical Analysis

Because of the relatively small number of subjects from each school (avg. = 6.25), a Kruskal-Wallis nonparametric ANOVA was initially used to determine differences in the performance test results across the different schools to determine if it could be possible to aggregate the data. No significant differences were found among the data from the four schools and the data was subsequently aggregated for average yards per carry, 40-yard sprint times, 20-yard shuttle times and vertical leap ($p > 0.05$). Descriptive data for the performance tests is presented as means \pm SD (Table 1). Aggregate data for each independent variable (40-yard sprint times, 20-yard shuttle and vertical leap), and the dependent variable, yards-per-carry average, were entered into a step-wise regression to determine significant relationships. An alpha-level of 0.05 was used to determine significance.

Table 1. Descriptive data of the performance variables (N = 25)

Variables	Means	SD
Average yards per carry	4.83	1.35
40-yard sprint (sec)	4.67	0.16
20-yard shuttle (sec)	4.58	0.16
Vertical leap (inches)	32.08	3.33

Results

The results of the Pearson product-moment correlation analysis between the independent variables 40-yard sprint time, vertical jump and twenty-yard shuttle run and the dependent variable yards-per-carry average produced mixed results. The correlation between average

yards per carry and the 40-yard sprint times was very low and not significant ($r = -.11$, $p \geq 0.05$) and only moderate correlations with agility shuttle and vertical jump (-0.43 and 0.49 , $p < 0.05$); with vertical jump showing the strongest correlation.

Table 2. Correlation and significance of independent variables and dependent Variable (N = 25)

	Category	Yards per Carry	p value
Pearson Correlation	40 yards	- 0.11	0.31
	Agility Shuttle	- 0.43	0.02*
	Vertical Jump	0.49	0.01**

A stepwise multiple-correlation of yards-per-carry average and all three independent variables showed a significant, strong positive correlation ($r = 0.72$, $p < 0.05$) with a significant coefficient of determination of 0.52 ($R^2 = 0.52$, $F(3, 21) = 7.59$, $p < .05$). An equation was developed from the data to predict yards-per-carry average from the independent variables: $Y = -8.058 + .192 (X1) + 8.748 (X2) - 7.464 (X3)$, where X1 is the vertical leap in inches, X2 is the 40-yard sprint times in seconds and X3 is the agility shuttle in seconds.

Conclusion

The results of the data showed that, individually, none of the performance measures could be used as an effective tool for predicting yards-per-carry average in the running backs that were tested. Vertical jump was the best single predictor of yards-per-carry average followed by the 20-yard shuttle times, however, both were only moderately strong at 0.49 and -0.43, respectively. The weakest correlation was with the 40-yard sprint times at only -0.11, results that were similarly found by Sawyer, Ostarello, Suess and Dempsey (2002). The results could indicate the most important physical attributes of those evaluated in this study for running backs would be lower body power and it would seem to show that straight-line speed is not as important as the other two variables. The combination of all three variables produced the highest correlation of 0.72 with a coefficient of determination of 0.52 (R^2), therefore, 52% of the change in yards-per-carry average was predicted by the three variables combined. The stronger relationship combining the tests could explain why the NFL scouting combine uses multiple tests for every position to predict on the field performance (Robbins, 2012). As variables are added, the level of prediction should be more consistent. However, the three most common performance tests only could predict roughly half of the yards-per-carry average. Other variables that might help explain the other half include psychological traits such as mental toughness (Rijoni, 2013), and intelligence and understanding of the game (Barker et al., 1993).

The ability to predict performance based on test performance may also be altered at the various levels of play, for instance college versus professional. We analyzed archival data of 10-yard split times, 20-yard split times, and forty-yard sprint times, 20-yard shuttle, vertical jump test and average yards per carry from two NFL draft classes (24 players) from the official NFL website (<http://www.nfl.com/stats/player?2012>). Analysis of the data showed all

of the independent variables were weakly correlated with the dependent variable, performance on the field (Table 3)

Table 3. Correlations for Yards-per-Carry Average and Performance Measures

Pearson Correlation	Yards per Carry	Significance
10 yard split (sec)	- 0.19	0.19
20 yard split (sec)	- 0.10	0.32
40 yard sprint (sec)	- 0.11	0.30
Vertical jump (inches)	0.03	0.44
20 yard shuttle	- 0.17	0.22

A stepwise multiple correlation found after all of the variables were entered into the model, the combined R was 0.26, with an adjusted R² of -0.19. This means that only 19% of the change in average yards carried can be explained by these performance factors, therefore the largest amount of variability in average yards carried by a running back during this sample year must be explained by other factors than what were collected during the combines.

It seems even at the professional level, the results of performance tests have little to do with on-field performance. The fact that the relationship between, the tests and the actual on the field performance measure highlights the need for coaches to evaluate how we train and evaluate athletes.

What This Means for Coaches

The relationship between performance tests and actual on the field measures of success must be further explored in order to justify using those performance tests to set depth charts and making recruiting decisions. It is only through research that coaches can verify the specificity of these tests. Verifying the test's validity will ensure a coach is accurately assessing a player's ability in the preseason as well as improving a football player's ability in the off-season. Until these tests are validated to transfer to on-the-field success, coaches are merely assuming these tests lead to success. In fact, if these performance tests do not transfer to measurable on-the-field performance, then coaches may be playing and recruiting athletes that are good at tests, but not the best football players. Further research is needed to identify ways of measuring intelligence and understanding of the game of football and its relationship between test results and on the field performance. This highlights the need for further research into alternative ways predict on the field success. For instance: does a 40-yard sprint time lead to more tackles for defensive players or more catches for receivers, does a vertical jump translate to better blocking by an offensive line men? Does a 20-yard shuttle relate to sacks for a defensive end? Research verifying or disputing these performance tests transfers to on-the-field success will change everything from evaluating recruits, off-season strength and conditioning programs and depth chart decisions. Coaches have been taught that performance tests indicate on-the-field success. Whether this is actually true or not has not been questioned thoroughly, because coaches do what was done in the past, assuming it is the most effective way. Research has shown a positive correlation between performance tests and players' ranking on particular teams. Theoretically, performing well on these tests should transfer onto the field. In other words, it is assumed a player who performs well on the field

should also demonstrate high levels of performance on the various performance tests, something that is frequently done by coaches (Sawyer, Ostarello, Suess, & Dempsey, 2002).

Further research into other variables that might be contributing factors such as the ability to read a defense, intelligence, aggression, as well as using more specific positional factors should help to better predict performance in players.



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Trends in Funding Renovations and New Facilities for National Football League Team Venues

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The trend and financial aspects of today's professional sports venues

Among the sports facilities of major professional sports in America, the trend has always been that “bigger and newer” is better. This trend continues to be the case as advancements are made in technology and equipment to enhance overall fan experience. A perfect example of this notion is the new Dallas Cowboys Stadium built in 2009 (Kuriloff, 2012). The stadium holds over 80,000 seats and houses the world's largest television display in a 2,100in video board. This brand new facility cost owner Jerry Jones over \$1 billion (Kuriloff, 2012). In order to keep up with Dallas Cowboys' fancy facility, many other NFL organizations look to either renovate the existing facility or build a new facility when the opportunity arises. Unfortunately, the average cost of building a new sport facility can go into the several hundred-millions to billions of dollars. Therefore, the primary concern becomes how these expensive projects will be funded. According to the literature, most of the stadia of professional sport franchises were privately owned and financed before 1950s (Fort, 2005; Leeds & von Allmen, 2014). The rise of public subsidy for stadium increased drastically after the former Major League Baseball (MLB) Commissioner, Ford Frick stated that cities should financially support the construction and maintenance of local team's stadium (Miller, 1990). Commissioner Frick's rationale was that MLB teams were making private businesses near the stadium thrived, and improving the economy of the community. The total cost of 25 professional sports facilities between 2000 and 2006 was around \$8.8 billion (Fort, 2005). In general, a large portion of the funds is received through public funding (about 63%) (Fort, 2005). This means there is still a significant amount of cost left for each organization itself to fund (\$3 billion total). In 2004, a research study was performed to determine if a significant change in net revenue could be found following a NFL team moving into a new facility (Brown, 2004). This study showed that newly built stadiums can and will significantly increase the unshared revenue of a NFL franchise. This finding helps explain why NFL organizations desire for new facilities. Also, it justifies why these organizations are looking for ways to not only initially fund the building projects, but keep the revenue coming in to maintain the integrity of the building for years to come (Brown, 2004).

Over the last 50 plus years, owners of stadiums in all four of the major professional sports (MLB, NFL, NBA, NHL aka the Big 4) in North America have come up with ways to quickly gain large amounts of money to fund their stadium. Billions of dollars is spent on the construction, renovation and upkeep of professional sports team facilities per year, especially in the NFL. The big question is where does the money come from? Most stakeholders of these types of projects prefer to use private-sector investments. Examples of private-sector investments include luxury suites, naming rights, personal seat licenses, donations, sponsorships, advertising rights, parking fees, club seating, advertising rights, etc. (Sawyer, 2005; Sawyer,

2012). The most commonly utilized strategies among those well-known aforementioned methods are luxury suites, naming rights, and personal seating licenses (PSL). In this article, the author will specifically address the practice and intricacies of each method. All three methods will be examined in the sense of how much revenue they would contribute to the needed construction cost. The authors' hypothesis is that the lucrative incomes that can be brought in by these methods should discourage team owners to keep request a large amount of public subsidy for building the stadium.

Popular methods for subsidizing construction costs

Luxury Suites

Luxury suites or skyboxes, as they were originally called are small, private rooms built around the upper levels of venues. They provide tenants with a large view of the playing surface and the luxury of furnishing it to their liking. Most suites comfortably accommodate 10-12 people and are leased most commonly to large businesses or corporations. Corporations lease them from stadium owners on multiyear contracts that can range anywhere from \$55,000- \$200,000 depending on the venue and number of years the contract is for (Sawyer, 2013). The use of luxury suites as a source of revenue has been introduced for more than 20 years (beginning in 1990s) (Sawyer, 2012). Since then, newer facilities continue to implement larger numbers of suites to entertain their wealth clientele and sponsors. For example, the Dallas Cowboys have 300 suites, which is the most in the NFL and in comparison, the Minnesota Vikings have only 80 suites, which is among the fewest in the league. The luxury boxes at Cowboys Stadium make up 10% percent of the total available seating capacity (about 80,000 seats). Meanwhile, the home of the San Francisco 49ers, has the lowest percentage of luxury seats at 1.9% of the total 70,000 seats. That would help to explain why both the Minnesota Vikings and San Francisco 49ers have new stadium designs in place for the future.

As far as affordability is concerned the Buffalo Bills, Ralph Wilson Stadium, leads the way at \$28,400 per season. While, the Miami Dolphins have a suite offering that brings in \$750,000 annually. According to Badenhansen (2013), the luxury suites have generated at least \$75M or more for both Dallas Cowboys and NY Giants and Jets to subsidize their stadium construction cost. San Francisco 49ers even projected to receive a total of more than \$150M with its luxury boxes (Koba, 2012). The price of luxury suites are extremely expensive for those big market (city) teams. Within the entire NFL, the average low end cost of a suite sells for \$64,597, whereas the average high end cost is \$246,712. The amount of income from luxury suites also varies between two NFL conferences, the NFC and AFC. According to the ALDS (Association of Luxury Suite Directors) reference manual, the average cost of a low end suite is \$57,213 versus \$71,982 in the NFC. In addition, the average cost of a high end suite in the AFC is \$228,819 versus \$264,605 in the NFC. Some researchers may wonder why a large difference between the costs for these suites exist. One rationale is that more recently built stadia are located in more populated NFC-affiliated cities (i.e., Chicago, New York, Washington D.C., Dallas, and San Francisco) as compared to those in the AFC. Regardless of the reasons, evidently no matter where the stadium is situated, luxury suites are definitely a relevant revenue source for owners of most sporting venues.

Naming rights

According to Parkhouse, Turner, and Miloch (2011), venue naming right agreement and sponsorship deals are considered two hottest topics in a contract sense in sport marketing. The enormous amount of the naming right agreements will help the sport franchises or collegiate institutions to gain additional revenues to subsidize the cost of constructing or renovating facilities. The use of naming rights is illustrated when stadium owners partner with a large corporation, and allow the corporation to pay for its name associated with the stadium for a specific time period. Corporations and companies often view that investing in naming right agreement is a form of advertisement and goodwill in supporting the community. According to Sawyer's text (2013), the first naming rights agreement occurred between the New England Patriots and Schaefer Brewing Company in 1971. However, upon more research, it was showed that William Wrigley, who named the Cubs Wrigley Field in 1926, was actually the first person to have a naming rights contract in professional sports (Sawyer, 2013). Nowadays, naming rights provide owners with a quick way to make a large income annually and sometimes even before construction of a new facility. The spike in naming rights deal began in 1995 and has continued to pick up as we head into 2015. As of 1997, 41 of the 113 professional sport teams in the "Big 4" had a stadium sponsor and by 2002 that number had nearly doubled to 80. Finally as of 2013, 83 of 121 teams have their home stadium named after a corporate sponsor. The breakdown of the "Big 4" according to Sawyer, is as follows NHL with 90% of their teams having naming rights deals, NBA with 79%, MLB with 57%, and the NFL 59% (Sawyer, 2013). These deals are often locked in for 20 plus years with the hope that the corporation will then be able to renew if willing. However, there have been cases where corporations who sponsored stadiums have gone bankrupt during their deal such as WorldCom, and Enron (Sawyer, 2013). Some examples of NFL Stadiums with naming rights contracts include: Bank of America Stadium, home of the Carolina Panthers at \$750,000 per year; Federal Field, home of the Washington Redskins at \$7.6 million; Ford Field, home of the Detroit Lions at \$1 million; Heinz Field, home of the Pittsburgh Steelers at \$2.9 million; and Invesco Mile High Field, home of the Denver Broncos at \$6 million just to name a few. According to ESPN Sports Business of the 32 NFL teams, currently 15 have naming rights contracts in place with a specific company or business. Although naming rights deals have been shown to be the most popular in professional sports, currently the trend is beginning to trickle down in college athletics as well.

Personal seat licenses

This practice allows spectators to buy a specific seat within a stadium, before the completion of a new facility (Sawyer, 2013). This trend is similar to the other two previously mentioned trends in that it allows owners to rack in large amounts of money quickly, and easily. However, it is different in the sense that it has had its' fair share of downsides (Whitehair, 2010). Personal Seating Licenses are most commonly associated with new facility construction in that they help in financial planning. This is true because they are purchased before the completion of a new stadium (Sawyer, 2013). They provide sport organizations with the ability to presell seats and make money, so they can borrow less to pay for the overall project. PSLs basically give fans the

chance to buy specific seats within a stadium in special seating areas such as Club Seats. Club seats are normally larger and more comfortable and often come with other amenities such as food and drinks (Whitehair, 2010). This is the equivalent to a corporation purchasing a luxury suite just for one spectator instead. The first team to show great success with this was the Carolina Panthers prior to their start in the NFL. Through the use of PSLs their organizations was able to raise \$125 million even before their first game was ever played in the facility (Sawyer, 2013). Since then many other organizations have included this tactic in funding their facilities.

Many have spoken out strongly against the use of Personal Seat Licenses by saying that it is forcing fans to pay large amounts of money simply to get seats in the stadium of their choice for a game (Sawyer, 2013). However, some teams are coming up with clever ways to counter that argument. The Pittsburgh Steelers elected to do so by changing the name of their PSLs to SBLs or Stadium Building Licenses. This helps the fans to better understand that the money they are paying for their seats is going specifically to the building of their teams' stadium (Sawyer, 2013). This simple name-change makes the idea of paying much money even more appealing to fans, because fans feel like they are a part of the building process. They also know exactly what that money is going towards. Research has shown that the idea of PSLs is only good if it allows owners to secure revenues before the construction is over. This upfront income in turn gives them the chance to borrow less money for construction (Whitehair, 2010). It also provides fans the opportunity to pick their own seat within an arena, and know that it is specifically theirs. Since the introduction of Personal Seating Licenses, this trend has continued to grow in professional sports due to the popularity of sports and the high demand for tickets by the fans. Owners will continue to sell them as the costs of facilities continue to increase (Sawyer, 2013).

The financial contributions of selected revenue generating methods

The calculation of the exact financial contribution of each of the three methods (luxury suites, naming rights, and PSLs) is quite challenging, because an individual team's actual revenue figure generated through each method is difficult to obtain. The majority of information found in this paper was obtained from textbooks, scholarly articles, and new in business magazine or online database dating back less than 11 years. Table 4 list the actual or projected construction cost of NFL stadiums that are built, will be built, and renovated since 1995. In general, the average construction cost for the NFL stadiums that were built after 2000 was around \$473 million. This average value does not factor in the figures that are projected for a few new stadiums, such as Levi Stadium (\$1,270M) and U.S. Bank Stadium (\$977M) (Hamilton, 2015; Kuriloff & Preston, 2012). According to the data collected by the authors (see Table 1), each NFL team may generate an average of \$144.1M for its naming right deal. The sales of PSLs can contribute about \$40M-\$160M for each team. Although the revenue data of luxury suites were relatively more difficult to obtain, some reports indicated that teams with large amount of expensive suites can easily produce more than \$75M annually in revenue (Badenhausen, 2013). Assuming the obtained information was accurate, it is estimated that each NFL team can generate nearly \$300M by its own through the use of those three revenue generating methods. This means that these three lucrative methods can cover more than 60% of the construction cost

of current existing building within a year. According to the found financial data, it would seem skeptical for the private sectors (the team owners) to ask for so much amount of public funds (estimated an average of 60% of the total construction cost) to construct or renovate the football stadium.

Conclusions

The most important part of the planning of any new facility project is determining where the building fund will come from. This becomes an even more important aspect in today's society as new sports facility project costs are skyrocketing into the billions of dollars. Thus, owners have turned to the use of luxury suites, naming rights and Personal Seating Licenses to quickly and easily secure large amounts of money to subsidize these new stadium builds after the completion of construction. These trends that began back in the 1980's or 90's respectfully, have continued to grow and expand due the need for bigger, better facilities has taken hold. No recent research has shown any evidence that the owners are able to generate enough money to fund these large construction projects with the aforementioned three methods. Therefore, the authors still believe more up-to-date research should be done on this topic. In addition, there is no research that discusses what new strategies could be used for generating more building funds. The authors believe that this topic is the one that may open many more avenues of research regarding to funding stadium projects. Here are some of the possible future concepts that authors proposed that may be feasible and worthy for investment: (1) soliciting endowment from wealthy individuals to purchase certainly practice rooms, office, or suites within the stadium permanently; (2) accepting co- or joint-sponsors for naming rights; (3) creating PSLs for multiple sections, partial-season, or mini-series. Readers can refer to the study of Lawrence, Kahler, & Contorno (2009) to learn about great examples of how sport franchises may target and attract suitable corporate industries for purchasing luxury suites sales.

Overall, the authors have gathered enough information to show what the trends are in funding any types of sports facilities across the country today. Almost all the National Football League teams use or have used at least one, if not all three of these methods to increase revenue to subsidize the upkeep of a newly build facility. As technology continues to grow and evolve in both professional and collegiate athletic facilities, there will continue to be a need for raising more and more money to fund these large projects. Therefore, the current trends of using these three methods will probably continue to sustain and increase their financial impact. The authors believe that owners will soon come up with new clever ways increase necessary building funds, so they can keep renovate or build facilities in order to compete with all the others and satisfy the fans.

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Table 1. Selected Naming Right Deals of NFL Stadiums

Stadium	Deal and Term	Estimated Value
Pittsburgh Heinz Field	\$2.9M*20 years	\$58M
Denver Sport Authority Stadium	\$6M*20 years	\$120M
Detroit Ford Field	\$1M*40 years	\$40M
Philadelphia Lincoln Field	\$6.7M*20 years	\$134M
Phoenix University of Phoenix Stadium	\$7.7M*20 years	\$154M
Indianapolis Lucas Oil Field	\$6.1M*20 years	\$122M
Dallas AT&T Stadium	Not sure	About \$500M
NY/NJ MetLife Stadium	\$17M-\$20M*20 years	About \$360M
Nashville LP Field	\$4M*20 years	\$80M
New England Gillette	\$8M*15 years	\$120M
Baltimore M&T bank	\$5M*20 years	\$100M
Washington FedEx Field	\$7.6M*20 years	\$142M
St. Louis Edward Jones Stadium	\$2.65M*20 years	\$53M
Charlotte BOA Stadium	\$7M*20 years	\$140M
Jacksonville	\$0.6M*10 years	\$6M
San Diego Qualcomm Stadium	\$0.9M*20 years	\$18M
Tampa Bay Raymond James Field	\$3.1M*20 years	\$62M
San Francisco Levi's Stadium	\$2M*11 years	\$220M
Houston Reliant Stadium	\$10M*31 years	\$310M

Table 2. Prices of Selected NFL Teams' Personal Seat Licenses

Team	Price
Average cost at the early initiated stage	\$600-\$3350
Green Bay Packers	\$2000
Carolina Panthers	\$600-\$5400
Baltimore Ravens	\$8,000
Pittsburg Steelers	\$10,400
NY Giants	\$20,000-\$26,000
Minnesota Vikings	Jump from \$2500 to \$30000
San Francisco 49ers	\$80,000
Dallas Cowboys	\$150,000

Information based on the following studies: (Cohen, 2009; Kaszuba, 2012; Tuttle, 2013)

Table 3. Price of Luxury Suites/Boxes of Selected NFL Teams

Team/Conference (Individual Team)	Price	Suite Number	Estimated Revenues
Miami Dolphins		195	\$0.75M annually
Buffalo Bills	\$28,400	164	
San Francisco 49ers			\$138M annually
Indianapolis Colts	\$80,000	137	
Washington Redskins		280	Over \$75M annually
New York Giants		200	Over \$75M annually
Dallas Cowboys	\$224,000-\$900,000	300	Over \$75M annually
(Conference)			
AFC average (low end)	\$57,213 (low end)		
	\$228,819 (high end)		
NFC average (low end)	\$71,982 (low end)		
	\$264,605 (high end)		
League average	\$112,000	147	

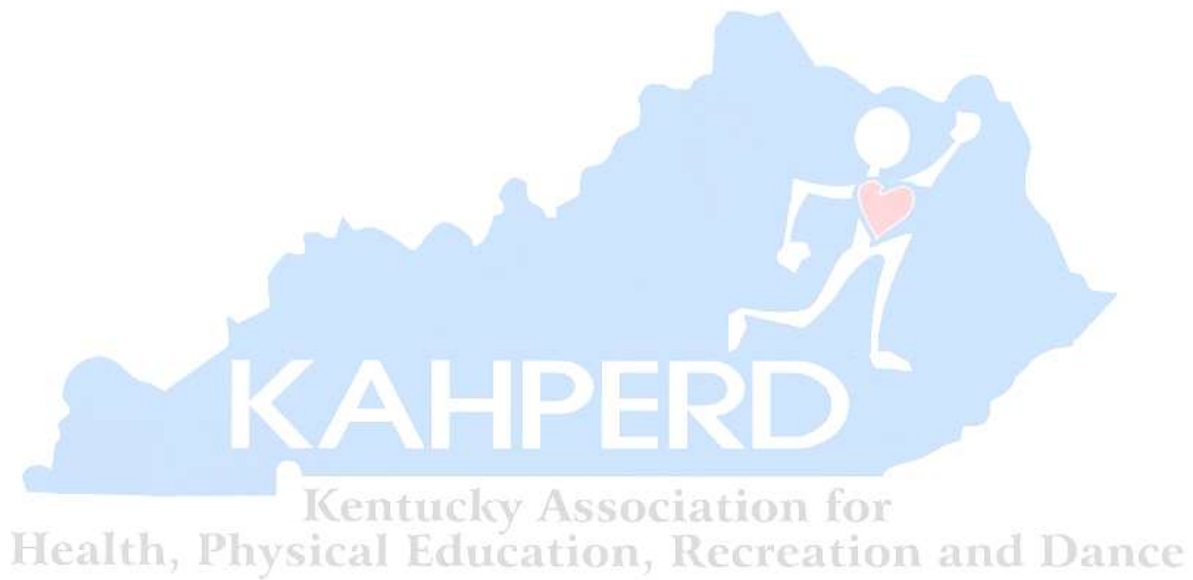
Information based on the following studies: (Ahlgren, 2012; Association of Luxury Suite Directors, n.d.; Badenhausen, 2013; Koba, 2012; Sawyer, 2012)

Table 4. Construction Cost of Recently Built or Renovated NFL Stadiums

Team and Stadium	Actual Cost	Public Funds (total amount & % of total cost)
Cincinnati Paul Brown Stadium	\$617M	Over \$424M (94.2%)
Pittsburgh Heinz Field	\$281M	Over \$164.85M (60.9%)
Denver Sport Authority Field	\$528M	Over \$273.15M (75%)
Detroit Ford Field	\$430M	Over \$209.2M (51.0%)
Philadelphia Lincoln Financial Field	\$735M	Over \$174.65M (36.3%)
Phoenix University of Phoenix Stadium	\$527M	Over \$246.20M (62.6%)
Indianapolis Lucas Oil Stadium	\$735M	Over \$486.12M (85%)
Dallas AT&T Stadium	\$1300M	Over \$258.17M (29%)
New York MetLife Stadium	\$1600M	Over \$1300M (81%)
Nashville LP Field	\$298M	Over \$225.51 (75.7%)
New England Gillette Stadium	\$325M	0 (0%)
Baltimore M&T Bank Stadium	\$220M	Over \$206.82M (90%)
Washington FedEx Field	\$265.77M	
St. Louis Edward Jones Dome	\$314.46M	Over \$301.89M (96%)
Charlotte Bank of America Stadium	\$278.53M	Over \$56.15M (20.12%)
Jacksonville Municipal Stadium	\$135.89M	Over \$114.55M (83%)
San Diego Qualcomm Stadium	\$138.53M	
Tampa Bay Raymond James Stadium	\$176.01M	Over \$176.01M (100%)
San Francisco Levi Stadium (new)		
Houston Reliant Stadium	\$427M-720M	Over \$184.91M (43.2%)
Seattle Qwest Field	\$430M/\$558M	Over \$239.24M (69.7%)
Chicago Soldier Field	\$802M	
Minneapolis US. Bank Stadium (new)	\$977M	Over \$500M (51%)
Kansas City Arrowhead Stadium	\$176.60M	176.60M (100%)
Miami Land Shark Stadium	\$174.57M	

New Orleans Mercedes-Benz Dome	\$434.15M	\$434.15M (100%)
Atlanta Georgia Dome	\$261.57M	\$261.57M (100%)
Cleveland Browns Stadium	\$297.94M	Over 215.75M (72.4%)
Green Bay Lambeau Field	\$295M	

Information based on the following studies: (Hamilton, 2015; Kuriloff & Preston, 2012; Sawyer, 2012; Tuttle, 2013)



Intergenerational Service-Learning to Combat Ageism in Exercise Science Students

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Abstract

As the population grows older, there will be a greater need for health professionals to help older adults maintain function and remain independent. Undergraduate Exercise Science student's ageism may hinder interactions with older adults. Intergenerational service-learning (ISL) may improve knowledge and attitudes. Service-learning gives students the opportunity to apply course concepts and skills outside of the classroom, while providing service to the community. Participants were enrolled in ISL or controls. ISL students implemented an exercise program at older adult facilities. Pre and post attitudes towards and knowledge of older adults were compared ($p < .05$). No differences were found in knowledge, while ageism increased in both groups. Although quantitatively, improvements were not found, qualitatively, ISL students were positively affected based on student reflections.

Keywords: Service-Learning, Older Adults, Exercise Science, Higher Education, Aging

Introduction

The Administration on Aging (U.S. Department of Health & Human Services, 2012) projects that by 2040, older adults (persons 65 and older) will represent 21% of the population. With an aging population comes a concomitant increase in chronic disease among Americans, as 133 million older adults live with one or more chronic diseases, such as heart disease, diabetes, or cancer (Anderson, 2004). Chronic diseases frequently cause older adults to lose function and independence, putting a large burden on the U.S. healthcare system. As the population grows older, there will be a greater need for health professionals to help older adults maintain function and remain independent. However, in today's healthcare culture, many health professionals are less willing to work with older adults, communicate with them differently than younger adults, and much like the rest of society, hold preconceived notions of older adults (Hultgren, 2012).

Ageism has been defined as, "the discrimination against an individual based on their age and is prevalent throughout the healthcare system (Agnus & Reeve, 2006; Currey, 2008). For example, older adults are often systematically excluded from clinical trials, even though some trials are investigating therapies and medications targeted to the older adult community. Older adults are often turned down for procedures because they are deemed too high risk, or not able to gain enough useful function from the procedure because of old age. In health-care situations, older adults are faced with longer hospital stays, complex health issues, difficult pain management, and less external support than younger adults (Sorrell, 2010). This unique set of issues brings about a need for increased empathy, compassion, and quality interpersonal relations between health-care providers and older adult consumers (Sorrell, 2010). Effective

communication skills can convey a sense of empathy and understanding to older adult patients (Sorrell, 2010). Specifically, ageism may negatively affect undergraduate students' ability to learn the skills needed to effectively communicate with the older adult community.

Negative attitudes towards older adults have been found in undergraduate students across a wide range of disciplines, with men having more negative attitudes compared to women (Allan & Johnson, 2009). It is possible age discrimination begins early in the health professional's training, as most medical and health students lack opportunities to interact with older adults. A lack of contact, or contact that is of poor quality, can result in negative attitudes toward a certain group of people, based largely on unfair stereotypes (Pettigrew, 1998; Allport, 1954). Fortunately, previous research has shown participation in a course or workshop that focuses mainly on issues affecting the older population can positively influence (aging) knowledge and attitudes of the older adult (Grefe, 2011).

Caspi (1984) proposed that intergenerational contact could foster positive attitudes, and subsequent studies have supported this theory (Jarrott & Smith, 2011; Gaggioli, et al., 2014). Undergraduates display attitudes that are more positive when engaging with older adults compared to their peers who do not-- even when the contact is as sparse as once a month (Van Dussen & Weaver, 2009).

Studies have shown that aging knowledge is an influential factor in health students' and health professionals' attitudes, as with accurate knowledge engendering positive attitudes and inaccurate knowledge engendering negative attitudes (Boswell, 2012). To begin to change the healthcare culture, and reduce the costs and effects of ageism, there is a need to include opportunities for medical and allied health students to recognize ageist attitudes during their undergraduate and graduate careers.

Many Exercise Science students are preparing for careers in clinical or physical/occupational therapy programs. For example, clinical exercise physiologists most often work to help patients with cardiovascular disease in rehabilitation settings. Over half of the 83.6 million individuals with one or more forms of cardiovascular disease are 60 years or older (Heart & Stroke Association, 2013). Exercise Science students frequently enter physical or occupational therapy programs, where the majority of their clientele will be older adults. Therapies are now standard in the healthcare plan for older adults both in and out of institutions to help maintain independence and achieve optimal quality of life (Castaldini, 2014). It is imperative for the health and wellness of older adults that Exercise Science curriculums prepare students to design exercise programs specific to the changing needs of the older adult.

Existing curriculums successfully provide "hard skills" such as technical knowledge, but often neglect the "soft skills" needed to be successful in today's job market. Soft skills, such as relationship building and empathy for older adult clients/patients, are difficult to teach using traditional pedagogical methods. Yu and Kirk (2008) stated that soft skills are not something that can be instructed as a lesson, but rather a skill learned and developed through experience and practice.

Intergenerational service-learning (ISL) may be an effective pedagogy to teach soft skills by linking students with older people in the community (Underwood & Dorfman, 2006). ISL gives students the opportunity to apply course concepts and skills outside of the classroom, while providing service to the community (Underwood & Dorfman, 2006). This experiential pedagogy also allows for students to reflect, turning their experiences into meaningful learning.

Similar to ISL, a study was conducted using inter-professional service-learning opportunities for nursing, pharmacy, and dietetic students. The students worked with other disciplines in tandem to provide primary health care services to older adults residing in public housing. Lee, Hayes, McConnell & Henry (2013) found that the community experiences impacted students' cultural competence beyond traditional clinical experience.

ISL has been implemented with Exercise Science practicum students and resulted in positive experiences for both the students and older adults (Crandall & Zachary, 2013). The practicum experience developed students' critical thinking and communication skills, assets essential to allied health and medical students. Crandall and Zachary (2013) required sophomore level practicum students to spend at least 6 hours per week (90 hours total) in the community working with older adults. Groups of students were assigned to an older adult facility where they researched, planned, and implemented exercise programming for older adult participants. These students had not previously worked with older adults and through initial reflections, expressed their anxiety and apprehension. But at the end of the semester, the students found the ISL experience to be beneficial for themselves, the older adult participants, and for their future careers in Exercise Science (Crandall & Zachary, 2013).

Although ISL has been successfully used in allied health and medical students, there is no research examining how ISL affects attitudes and knowledge of students in a classroom based Exercise Science course (Baumbusch, Dahlke, & Phinney, 2012). Therefore, the purpose of this study was to examine the effects of an ISL course on undergraduate Exercise Science students' ageism and knowledge of aging and older adults. It was hypothesized that positive contact with older adults would result in more positive student attitudes and greater knowledge of older adults.

Methods

Participants

This study was a two-group pre/posttest design. The experimental group (ISL; n=10) was recruited from an undergraduate senior-level Exercise Science course called *Exercise and Aging*. A control group was recruited from two additional undergraduate Junior and Senior-level Exercise Science courses (n =17). The control group courses did not include a service-learning component. See Table 1 for participant characteristics. One student was a graduate student because they already possessed one bachelor's degree. The study was approved by the Institutional Review Board.

Outcome Measures

The participants completed the following: 1) informed consent, 2) demographic questionnaire, 3) Palmore's Facts on Aging Quiz (PAQ), and 4) the Fraboni Scale of Ageism (FSA). Paper and pencil questionnaire packets were distributed to each class on the first and last meeting day of the 16-week semester. Informed consent was obtained from each participant and non-participants were not penalized in any way. To ensure the internal validity of the study, the participants were told the purpose of the study was to collect data for Southern Association of Colleges and Schools (SACS) accreditation. After post testing, the participants were debriefed as a group regarding the true nature of the study.

The FSA was used to measure the participants' attitudes toward older adults, specifically in the realm of ageism (Fraboni, Saltstone, & Hughes, 1990). The participants were asked to respond how strongly they agreed or disagreed with the given statement on a 4-point Likert scale (1= strongly disagree to 4= strongly agree), resulting in a range of scores between 29 and 116, with higher scores indicating stronger ageist attitudes. A score of 72.5 is considered neutral. An alpha coefficient of .86 was reported for the scale, showing high internal consistency for the FSA. The PAQ was used to assess participants' knowledge of aging (Palmore, 1977). The questionnaire format was true or false. The 25 items were designed to cover a wide range of physical, mental, and social facts most commonly misperceived about older adults. When scoring the questionnaire, each correct answer was given a point. Scores can range from 0-25.

Intervention

ISL was integrated into a senior-level Exercise Science course called *Exercise and Aging*. The course was designed for students to gain a better understanding of the acute and chronic physiological and psychosocial responses and adaptations associated with exercise in older adults.

A combination exercise routine and Bingo game (Bingocize®) were used as the service-learning model. Bingocize® is a low-cost health promotion program created to train undergraduate students to conduct exercise programs for older adults (Crandall, Fairman, Anderson, 2015). Each semester, the students partner with seven independent and assisted living and public housing authority older adult facilities in the area. The instructors chose this model because it required a small amount of equipment (resistance bands, balance pads, and a standard Bingo game), was low-risk for participants, and served the need for increased student involvement in the older adult community. At the beginning of the session, the older adult participants sat at a table with Bingo cards and exercise equipment. The session involved alternating between cardiovascular and strength exercises (walking in place, leg extension, and hip abduction) and rolls of traditional letter and number Bingo. The intervals were repeated until someone won the Bingo game. A cool down, similar to the warm up, ended the session. In total, Bingocize® lasted 45-60 minutes.

During the first two weeks of the course, students were given an overview of service-learning, as well as training to become Bingocize® instructors. After being trained, groups were formed and

assigned a community site location. During the remainder of the semester, the students attended class on campus twice a week for lectures, group discussions, and opportunities to work together to improve their service-learning programs. See Table 2 for course calendar.

Once a week, the students visited their service-learning sites to lead the Bingocize® program. The five tenants (support from authority, common goals, cooperation, equal group status, and opportunity for friendship) of quality intergroup relations were used to enhance the service-learning activity for both the students and participants (Allport, 1954; Pettigrew, 1998). See Table 3 for examples. The students were overseen by the instructor of the course, as well as the community site supervisor from each facility.

Students completed written reflections to make connections between their community site experiences, course information, and group discussions. At the end of the semester, students presented their work during a campus-wide showcase of service-learning projects.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics 23 Software (SPSS Inc., Chicago, IL, USA). Independent sample t-tests for continuous data and Pearson Chi-Square for categorical data were used to explore baseline participant characteristics. Comparisons between the ISL group and controls were made using mixed between-within subjects analysis of variance with emphasis on “group status” (ISL, control) X “time” (baseline, posttest) interactions to determine if the ISL group improved compared to controls. Alpha was set at the $p < .05$ level.

Results

There was no significant interaction for the FSA between group and time, $\lambda = 1.0$, $F(1, 24) = .010$, $p = .922$, $\eta_p^2 = .00$. There was a significant main effect for time, $\lambda = .759$, $F(1, 24) = 7.62$, $p = .011$, $\eta_p^2 = .241$, with both groups demonstrating increased ageist attitudes. The main effect comparing the ISL intervention to controls was not significant, $F(1, 24) = .244$, $p = .626$.

There was no significant interaction for the PAQ between group and time, $\lambda = .979$, $F(1, 24) = .531$, $p = .473$, $\eta_p^2 = .021$. The main effect for time was not significant, $\lambda = .979$, $F(1, 24) = .531$, $p = .473$, $\eta_p^2 = .021$, with both groups demonstrating no significant increases in their knowledge of aging. The main effect comparing PAQ between the ISL intervention and controls was not significant, $F(1, 24) = .622$, $p = .438$. _See Table 5 for results.

Discussion

The purpose of this study was to examine the effects of an ISL course on undergraduate Exercise Science students’ attitudes and knowledge of aging and older adults. It was

hypothesized that at the end of the semester, the ISL students would have more aging knowledge and more positive attitudes toward older adults when compared to other Exercise Science students. Our results suggest students in the ISL course did not gain significant aging knowledge as measured by the PAQ. Surprisingly, both the ISL and control groups showed significant increases in their negative attitudes towards older adults.

The low level of aging knowledge in our sample was not surprising at the beginning of the semester. Many Exercise Science students have not had many opportunities to engage with older adults or enroll in Gerontology courses. However, the ISL students' low level of aging knowledge at the end of the semester was surprising. The low scores could be attributed to the low number of ISL students who completed the questionnaires. Questionnaires were distributed on the first and last day of the course, not capturing the students who added the class after the start of the semester and those who did not attend class at the end of the semester. Of the 33 students enrolled in the course, only 10 complete sets of data were obtained.

Though Palmore's Facts on Aging Questionnaire has been used widely to measure changes in aging knowledge (Kline, 1990), the course did not cover the exact material on the 25 question quiz. The short questionnaire was developed to encompass the physical aspects of aging, along with mental and social aspects (Palmore, 1977) that were not directly covered in the Exercise Science curriculum. The service-learning portion of the course may not have been sufficient to improve scores on the PAQ. Future Exercise Science courses should include more of the information measured in the PAQ or an alternative measure should be found to better measure the content of the particular course.

It was hypothesized that participating in the ISL intervention would result in decreased ageism. However, both groups of students' ageism significantly increased. The course concepts did not focus on social justice issues, which could have been a factor in the increase in ageism. Though the students may have informally discussed factors related to ageism during class discussions, it was not formally taught in the intervention. Again, the service-learning experience alone may not have been sufficient to improve scores on the FSA.

In the future, if researchers decide to examine the construct of ageism, it would be advantageous to include in-course lectures and discussions on social injustice and its effects on healthcare providers and consumers. As for the control group, their increase in ageism further provides support for educational interventions that may be able to combat negative stereotypes about older adults.

Though they were very simple to administer, the FSA was developed in 1990, and the PAQ was developed in 1977. Since then, the base of knowledge on aging and adulthood has changed drastically and future researchers should consider developing a more advanced measure of knowledge and attitudes. The Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) may be a better way to further study attitudes toward older adults without the social pressure of being politically correct on an explicit measure.

The National Institute on Aging (2014) states that for the next 40 years, the fastest growing segment of the United States population will be over 80 years old. Internationally, 40% of the population in the developed world will be over 55 years of age. These demographic shifts call for medical and allied health professionals with a base of aging knowledge and a positive regard for working with older adults. Our sample of Exercise Science students performed at the similar levels as other medical and allied health students on aging knowledge. See Table 6 for results. The low knowledge of older adults found in our study could cause Exercise Science students to regress in their attitudes towards older adults, and potentially could harm our healthcare system as it adjusts to the growing older adult consumer population.

If executed and measured properly, the best way to engage students in quality contact with the older adult community is through ISL. Beling (2003) showed the greatest increase in knowledge of older adults from pre to posttests came from the physical therapy service-learning students, compared to other teaching pedagogies.

Though our quantitative results were disappointing, there was qualitative anecdotal evidence to suggest that a positive impact was made on the Exercise Science students after participating in ISL. One student wrote in her final reflection about the relationships made with their older adult Bingocize® participants,

"I have mixed emotions about my site. I'm excited with all the hard work we have put in... but at the same time I am sad to leave because I grew a special bond with these women and in a way they are like family now and I wish I could continue working with them and it did not have to end."

Another student shared in a reflection about the value she was gaining for her future career endeavors,

"I feel like I am being prepared for my future career through this process (of service-learning) because in occupational therapy I will be working more with the elderly population. This is preparing me with responses I may get and showing me the issues I will face with getting them to follow through with their exercises and therapy."

Conclusions

Future researchers should consider qualitative data collection in the form of student reflections, as they are already a critical tool used in many different forms of service-learning. Due to individual variation in service-learning experiences, it may be advantageous to consider each service-learner's growth using qualitative assessment.

Exercise Science departments should continue incorporating Gerontology concepts into course framework and engaging students in interactions with older adults. Surprisingly, Davis-Berman & Robinson (1989) found that after an introductory course on aging, students were less interested in working with older adults than before the course. It seems that the exposure to the

knowledge negatively influenced their perceptions of aging, which could be a result of the generally dispiriting topics discussed in a course about the "end of life" years. Nevertheless, if given the opportunity to work with older adults, students may find a new life in the field of Gerontology. If in the future Exercise Science faculty are able to foster quality contact between students and older adults, aging knowledge and attitudes toward older adults could improve.



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Table 1. Baseline Participant Characteristics

Characteristic	ISL (n=10)	Control (n = 17)	p value
Gender			.516
Male	4	9	
Female	6	8	
Age			.277
Under 20 years old	0	2	
20-24 years old	10	15	
Race			.434
Caucasian	10	16	
African American	0	1	
Class Status			.065
Freshman	0	0	
Sophomore	0	1	
Junior	2	11	
Senior	7	5	
Graduate Student	1	0	

Note. * $p < .05$

Table 2. Schedule of Topics for Exercise and Aging Course

Week	Topic
1	Intro to Service-learning project; Understanding human aging
2	Understanding human aging; Bingocize® Training
3	Physical and psychological benefits of physical activity
4	Active living-options and benefits for older adults
5	Motivating older adults to initiate physical activity
6	Assessing physical activity, fitness, and progress in older adults
7	Spring Break
8	Active options for older adults with special issues/concerns
9	Cardiovascular & pulmonary function
10	Muscular Strength & Power
11	Balance, postural, locomotion
12	Health, exercise, and cognitive function
13	Physically elite older adults
14	Helping older adults select physical activity programs
15	Physical activity options for older adults
16	Cumulative Final Exam

Table 3. Contact Theory Tenants Applied to Exercise Science ISL Course

Tenant	Descriptor
Support from Authority	<p>A teaching assistant was assigned to the course and available via e-mail, in-class visits, and on-site visits</p> <p>Community partners created a venue for students to showcase their experience at the end of each semester</p> <p>The professor and teaching assistant created time in the syllabus to train the students in the Bingocize® program, and how to engage in service-learning</p>
Common Goal	The students conducted a functional assessment using the Senior Fitness Battery with the older adults prior to beginning Bingocize® and both groups were working toward improvements on those measures
Cooperation	Students are encouraged to treat the older adult participants as partners in the Bingocize® program, where the older adults and the students are both engaging in exercise and playing Bingo.
Equal Group Status	The students frequently used modeling as a tool for motivation, where the older adult participants would lead exercises alongside the students
Opportunity for Friendship	The students were encouraged to arrive at their site early to interact with the older adult participants before the session, and stay a few minutes after cleaning up to speak with residents.

Table 4. Results of Fraboni Scale of Ageism

	Group	<i>M</i>	<i>sd</i>	N
FSA (Pre)	ISL	88.33	6.60	9
	Control	90.18	9.89	17
FSA (Post)	ISL	92.00	6.36	9
	Control	93.59	10.11	17

Table 5. Results of Palmore's Facts on Aging Quiz

	Group	<i>M</i>	<i>sd</i>	N
PAQ (Pre)	ISL	15.80	2.25	10
	Control	15.58	2.42	17
PAQ (Post)	ISL	16.60	1.89	10
	Control	15.58	2.64	17

Table 6. Previous PAQ Results for medical and allied health students

Study	Type of Student	<i>PAQ M (sd)</i>
Our Results	Exercise Science	16.60 (1.89)
Beling, et al. (2003)	Physical Therapy	16.87 (2.5)
Carmel, et al. (1992)	Medical	15.19 (7.9)
Carmel, et al. (1992)	Nursing	13.75 (8.82)
Fabiano, et al. (2005)	Dental	14.21 (2.03)
Lusk, et al. (1995)	Nursing	17.57 (2.34)
Waldrop, et al. (2006)*	Dental	15.03 (2.67)

Note: *The original study was conducted with four cohorts, but were averaged together for comparison

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