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# ◼ A Message from the President

*Ann Boyce, University of Virginia*

Greetings to my NAKHE colleagues! Spring has sprung, well at least in Charlottesville, Va., and thank goodness for that. By now, we are all preparing for the end of the spring semester, with numerous academic tasks to be followed by my favorite part of the year, graduation! It is one of the few times in my academic life that I see some closure – that is, before they send the fresh recruits in the following fall. Oh well, so goes academia….

NAKHE board and committee members are busy preparing The Leadership Development Workshop and the inaugural Department Head Certification program; both of these events will be held at Georgia State University in Atlanta (July 6–8, 2016), and the 2017 annual conference (January 4–7, 2017) will be held in Orlando, FL.

Under the exceptional leadership of Betty Block and Tara Tietjen-Smith, NAKHE is launching its 1st annual Department Head Certification (DHC) program. This event will provide leadership training for NAKHE professionals who will embark on a yearlong intensive training with support from kinesiology administrators. This ongoing DHC program will include: (a) initial training, (b) mentor support throughout the year, (c) information sharing, and (d) scholarship related to higher education administrative issues. This event will precede the well-established Leadership Development Workshop with both events hosted by Georgia State University on July 6–8, 2016. If you need information on either of these events, please contact Betty Block at betty.block@tamuc.edu. Again, these two events clearly support NAKHE's strategic plan to "create and sustain leadership opportunities for its members."

In January 2017, NAKHE will host its annual Conference under the outstanding leadership of Tara Tietjen-Smith, our conference VP. The theme this year is "Power of the Past: Focus on the Future." Tara, VP and conference manager, has booked Byron Reese, a noted author and futurist, as our keynote speaker. The three named lectures (Hanna – Brain Culp, Homans – Betty Block, and Sargent – Jessie Germain) have all accepted their roles as our lecturers and their speeches promise to be the highlights of our convention. The January dates are from the 4th though the 7th. Please note conference planning has allowed time to visit with Mickey and Minnie. If you need information on either of these events, please contact Tara Tietjen-Smith at Tara.Tietjen-Smith@tamuc.edu.

In addition to the aforementioned workshop, DHC Program and annual conference, NAKHE also has outstanding publications that are a benefit of membership in the organization. NAKHE is pleased to announce that the new journal, the *International Journal of Kinesiology in Higher Education* (IJKHE), will be formally published by Taylor and Francis, to be included with Quest as a benefit to our members. Under the able leadership of Daniel Burt and Britt Johnson this transition from a newsletter (*The Chronicle of Higher Education*) to an international research journal (*International Journal of Kinesiology in Higher Education* [IJKHE]) has been accomplished. Given that there are few journals that specifically deal with issues related Kinesiology in higher education at the international level, this journal is both timely and relevant to the profession of Kinesiology. *The Chronicle* provided the foundation for the *IJKHE* and has evolved over the past few years with our new mission. The addition of research studies and peer reviews made this transition possible. We are also pleased to welcome our new editor of *IJKHE*, Jody, who will guide us through the first of many editions of *IJKHE*.

NAKHE is the premiere organization "where scholars learn to lead." Through our leadership and scholarly activities we seek to continue our long-held legacy and to inspire and develop future leaders in Kinesiology. We are an organization that fosters professional growth through

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our scholarship, conference, training workshops, publications (*Quest, IJKHE*), awards and network building opportunities. There is a welcoming place at NAKHE for all professionals who are just starting their careers, as well as those who are at the midpoint and sunset places. In NAKHE, we all work together for the good of our profession and this organization. ■

Remember …

"It is not our abilities that set us apart, but our choices."

Albus Dumbledore, *Harry Potter and the Chamber of Secrets*

# Editor's Note

*Dr. Jody Langdon, Editor*

Welcome to the Spring 2016 edition of the IJKHE. I would first like to thank Dr. Britton Johnson for giving me the tools and expertise to successfully run the journal. I would also like to acknowledge my associate editors, Beth Hersman, Steve Prewitt, and Jenna Lorusso, in helping me to assemble this edition of the journal. I am excited for the next three years as editor of the IJKHE.

In this edition, we continue the series on Leading, Fast and Slow. Brad Strand, Gary Ligouri, and Michael Craw expand on part 1 by discussing more of the high stakes issues with making hasty decisions. From there, Doug Hochstetler and Richard Lally delve into "Philosophical Themes for Teaching and Learning," which focuses on the challenges of contemporary teaching in Health and Physical Education through the lens of American philosophical traditions. From a more practical perspective, we have articles addressing mobile technology use as a vehicle for learning Anatomy and Physiology from Matthew Bice, Jon Carey, Gregory Brown, Megan Adkins, and James Ball, and perceived competence of physical education students' use of technology integration from Mauro André. Finally, Lisa Griffin provides an account of her experience in developing a Master of Arts in Teaching program in Health and Physical Education.

I am very excited to present this edition and the thoughtful research that it contains. We are always looking for more submissions, so please consult the submission guidelines located at the end of the journal. We look forward to seeing your work!

# ■ Published Articles

## Leading, Fast and Slow – Part 2

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Part 1 of Leading, Fast and Slow (Strand, Liguori, & Craw, 2015) explained the concept of thinking via Systems 1 and 2 (Kahneman, 2011) and cautioned readers why System 1 thinking may lead to hasty decision making and in some cases, bad decision making (Facione & Gittens, 2015). With this article we will continue that discussion of what may be considered managerial hubris (Li & Tang, 2010) which refers to an exaggerated belief about one's own judgment that may deviate from objective standards (Hiller & Hambrick, 2005)

In today's resource-scarce, highly competitive environment, effective leaders are the key to the contests for increasingly scarce resources (Lawson, 2014). Choices regarding leadership strategy must be made, and those choices are not mutually exclusive. In other words, more than one leadership strategy may be needed and warranted at any particular time. This complicates leadership because leaders must make informed choices, followed by synchronizing and harmonizing the strategies they have selected (Lawson). The internal contexts are fast moving, inherently unstable and uncertain, and money does matters. Indeed, because the quest and need for money drives planning, operational decision-making, and resource allocations, leaders and leadership must be framed, developed, and implemented accordingly.

Important decisions with long-lasting implications are made every day in departments, colleges, and universities across the United States. "Resources are allocated for strategic plans ….. with the expectation that these plans will be sufficiently comprehensive, coherent, aligned, and "actionable" (Lawson, p. 10)." In reality, however, too many important decisions are made in haste and have the potential to harm or hinder, rather than help faculty and/or an academic unit. A great example involves former Notre Dame and University of Kansas football coach Charlie Weis who could earn a combined 25 million dollars from those two institutions not to coach football (see: http://www.sportingnews.com/ncaa-football/story/2015-05-19/charlie-weis-salary-notre-dame-kansas-not-coaching-unemployed).

We are pretty sure that all reading this paper know of an individual who received a nice start-up package with adequate research budget, lab space, and graduate support only to jump ship after a couple of years for a better offer. This is a reality of university life but certainly

costly for an institution. As such, all faculty and administration, and especially Deans and Department Heads, have a fiduciary responsibility to be good stewards of the resources within a college or department, to ensure sustainability, and to achieve positive, or above average, returns on investments. With that as a background, we present Part 2 of Leading, Fast and Slow.

## Review of the Two Systems and Heuristics

In review, System 1 uses subconscious values, drives, and beliefs that influence one's 'gut reactions'. With System 1, there is a tendency to be quickly influenced by heuristics, as introduced in Leading, Fast and Slow – Part 1 (Strand, Liguori, & Craw, 2015), that can easily lead one to jump to conclusions regarding causality. When answers come quickly, one operates effortlessly, which is risky at times, but not always bad. System 2, on the other hand, articulates judgments, makes choices, endorses or rationalizes ideas and feelings, and then one makes up stories to either confirm or deny those conclusions (Johnson, n.d.). System 2 requires conscious effort to engage and examine long-held heuristics while System 1 is more intuitive.

Kahneman (2011), in his book *Thinking, Fast and Slow* used the story of the Monkey Business Illusion (https://www.youtube.com/watch?v=IGQmdoK_ZfY&safe=active) to articulate how focused thinking can interfere with one's ability to see the big picture. In the Monkey Business Illusion viewers are directed to watch and count the number of times white-shirt individuals pass a ball through a larger group of black-shirt individuals. During the activity, an individual dressed in a black monkey suit appears on the screen and replaces one of the students dressed in black. At the conclusion of the video viewers are asked how many passes the students dressed in white completed and most give the correct answer. And then they are asked if they saw the monkey in the video. Most say they did not. When the video is replayed they then state that they see the monkey. They are then asked if they saw the curtain in back of the stage change color and of course, the answer is again no.

The point is, sometimes one only sees what he or wants to see, what he or she has been told to see, or one is so focused on a task that other important details are missed (Bingham & Haleblian, 2012; Smoll & Smith, 1989). Part 1 of this paper presented five common heuristics that can cloud one's thinking. Following those five topics are seven additional System 1 heuristics as identified by Kahneman (2011) and detailed by Johnson (n.d.).

### *Overestimating the Likelihood of Rare Events*

It is certainly important to pay attention to things that are likely to happen rather than things that are unlikely to happen. However, it is easy to overestimate the probability of unlikely events (known as the availability heuristic and explained in Part 1) and to overweight the unlikely events in our decisions (Barron & Yechiam, 2009). Combined, these two actions result in rare events being given greater psychological weight than is normatively appropriate (Burns, Chiu, & WU, 2010).

Hubris is defined as an excessive or exaggerated pride or self-confidence (Hubris, n.d.). Leaders must be careful of giving in to fear mongers who deliberately misrepresent data or information with an air of hubris in favor of their cause. When given a choice, one is more likely to choose the alternative in a decision that is described with explicit vividness, repetition, and relative frequencies (Johnson, n.d.). However, just because something is repeated multiple times with great detail does not mean it has happened many times. In fact, it may very well be quite rare, but by simply repeating it over and over, it appears that it is happening frequently. Schlesigner (1997) discussed hubris as a shaky basis for leadership and Collins (2009) wrote about the organizational side of hubris in his book *How the Mighty Have Fallen.* Collins stated that hubris sets in when an individual becomes arrogant, regards success as an entitlement, and loses sight of the real underlying factors that created success (Baldoni, Sept. 8, 2010).

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### The Halo Effect and Priming

The halo effect is described as basing an opinion on an alternate feature or trait, typically to create an advantage (Rosenzweig, 2007). For example, an individual who is enthusiastic, neat, and timely might also to be judged as very competent. Conversely, one who is unkempt with a messy appearance is judged to be incompetent. In reality, however, neither of these assessments may be accurate.

Many factors can taint one's appraisal of someone else and result in 'appraisal bias' (Lauby, 2013). One such bias is known as the primacy effect (first impression). For example, a person who speaks first in a meeting can 'prime' the opinions of others (Miller, & Campbell, 1959). If the first to speak proposes a course of action in a positive fashion he or she has primed the others to think positively about the action. Conversely, their first statement could also prime others to think negatively. In addition, that first statement may direct the thinking of others and a variety of opinions are not shared.

Often, what one sees is all there is and the decision maker must not favor information based on impressions and intuitions but rather, stay focused on hard data (Kahneman, 2011). System 2 thinking can help one combat overconfidence, the halo effect, and priming by basing beliefs on critical thinking, not subjective information.

### The Endowment Effect

An object one owns and uses is more valuable to them than an object they do not own, use, or like (Kahneman, Knetsch, & Thaler, 1991). In fact, some objects become holy grails, or a talisman, that one is unwilling to part with no matter how decrepit or dated the object (Rast, 2015). In academia, this is similar to holding onto courses that have served their purpose and are no longer contemporary or do not meet accreditation competencies; yet, they are still offered because they are a professors favorite course. For example, laboratory equipment 'needs to be kept' because it is a professors favorite that he or she 'grew up' with. While it may have once represented the 'gold standard' in the field, it has since been replaced with newer, more contemporary equipment. In a similar vein, one might find it difficult to sell or get rid of an item because they are getting less in return than they paid for it.

System 2 thinking can help one understand the true value of something and that clinging to objects for sentimental reasons may prohibit growth and development as new products, technology, curricula models, and pedagogy are ignored.

### Cognitive Ease

Cognitive ease is the mental state in which "things are going well – no threats, no major news, no need to redirect attention or mobilize effort" (Khaneman, 2011, p. 59). When one experiences cognitive ease, concepts that are easier to compute, more familiar, and easier to read seem more true than topics that require hard thought, are tough to understand, or are difficult to see. By repeating a message endlessly, such as in advertising, the message becomes familiar and appears to be more true simply because one has heard it repeatedly. One accepts the message due to the concept of cognitive ease. If one hears a lie, a mistruth, or an exaggeration frequently, he or she tends to believe it.

System 2 thinking would say, "It seems like we should believe the premise because it has been repeated so often, but let's think about it again."

### The Planning Fallacy

The planning fallacy means taking on a risky project confident of the best-case scenarios without seriously considering the alternative(s) (Buehler, Griffen, & Ross, 1994). Conversely,

if one consults with others who have engaged in similar projects he or she will get a critical outside perspective (Johnson, n.d.). A System 2 thinker would say, "He's taking an inside view. He should forget about his own case and look for what happened in other cases." Without seeking outside views, one tends to make decisions based on delusional optimism rather than on a rational weight of gains, losses, and probabilities.

Again, a System 2 thinker would say, "She is the victim of a planning fallacy. She's assuming a best-case scenario, but there are too many different ways for the plan to fail, and she is not willing to see them all." In other words, poorly planned projects that fail to include the 'outside look' will have a greater chance of failure than those in which an outside look was employed.

### Theory-Induced Blindness

Being raised within our paradigms and living within our personal space or boxes, known is sociology as the "convergent theory" (Jones, & Wicks, 1999), we have gotten used to these comfort zones and accept long-held theories and philosophies without question as they provide a framework to navigate the challenges in life. In time, however, the more one embraces a theory or philosophy, the more likely one becomes blind to things that might otherwise contradict that which is used in an individual setting or environment. Once an individual has accepted a theory and used it as a tool in his or her setting, it is extraordinarily difficult to notice its flaws and he or she becomes less open to other ideas (Colbert, Barrick, & Bradley, 2014). Unfortunately, this theory-induced blindness causes one to cling to old paradigms that have outlived their usefulness. History, tradition, and personal reputation often prohibit openness to new thoughts.

The challenge is to use System 2 thinking to question existing paradigms in order to see situations differently.

### The Illusion of Validity

Sometimes individuals believe, with great confidence, their opinions, predictions, and points of view are valid when overconfidence is unwarranted (Kahneman, Oct. 19, 2011). Some, in fact, go so far as to cling with confidence to ideas in the face of counter evidence. This confidence comes from affiliating with like-minded peers and perhaps over valuing one's recognition of wins while ignoring losses. In describing this type of person Kahneman (2011, p. 221) said, "She is a hedgehog. She has a theory that explains everything, and it gives her the illusion that she understands the world."

Kahneman (Oct. 19, 2011) stated that confidence is a feeling determined mostly by the coherence of the story and ease with which it comes to mind. The illusion of confidence means that one has confidence in his or her judgments about someone or something and is not impacted by a statistical fact that is known to be true. System 2 thinking recognizes that mistakes happen when one bases the validity of a judgment on the subjective experience of confidence rather than on objective facts.

## Summary

Decision makers must consider key forces, factors, and colleagues in their individual settings and seek to balance the needs, problems, threats, and opportunities that exist (Lawson, 2014). All of the System 1 shortcomings described in this paper and in Part 1 typically lack any substance, and worse, if the person making the statements has a strong personality or has inherited some sort of leadership position, he or she can be very convincing. This leaves us with the big question: So what if decisions are made using the common heuristics of System 1?

Hiring and firing, tenure and promotion, financial resource allocation, curriculum design, technology implementation, and facility renovations, among other things, take up much of a leaders time. As unmade decisions pile up, it is easy to defer to the intuitive thinking of System 1. However, the stakes are simply too high and one cannot afford to make poor hiring decisions as new hires require resources for recruitment, travel, on-site interviewing, and start-up packages. Similarly, granting tenure to questionable employees means they will be a part of the department until retirement or they seek other employment. Furthermore, renovating a facility and then renovating portions of the same facility shortly thereafter use valuable resources.

Throughout these papers (Part 1 and Part 2) the case has been made that leaders must be cautious of relying too much on System 1 thinking and to encourage whom they lead to be just as cautious. The stakes are simply too high to make rash decisions that can have long-lasting implications, and relying more on System 2 thinking can help to avoid these common pitfalls.

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# Philosophical Themes for Teaching and Learning

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Physical education teachers face numerous trials in their daily task of promoting quality physical education. As a discipline, physical education teachers work within an educational system which views courses in a hierarchical manner wherein "core courses" like math and science become valued more highly than "specials" such as music, art, and physical education. In many schools, teachers (not physical education teachers, normally) and students alike, refer to physical education classes as "gym class," often a pejorative term used to devalue the nature of the discipline and those who attempt to teach. As a discipline charged with preparing future physical education teachers, our kinesiology faculty (especially those within the PHETE domain) are well aware of the present environment.

Our purpose here is to address the challenges of teaching physical education within the present educational climate and societal context. Our method is to introduce themes from the American philosophical tradition – primarily from Henry David Thoreau but borrowing from others in this tradition too – as instructive for physical education teaching and learning. Our primary focus is on teachers, although given the transactional process of education, we are cognizant of implicit inferences for students too. Furthermore, we write this paper with a deep and abiding respect for teaching and learning. We believe in our discipline and in the role that teachers play in helping students become educated in and through physical activity.

Over the course of our educational life spent as students, those individuals we would term our "best teachers" exemplified the themes that follow – experience, immersion, and acceptance of risk. Similarly, through our careers thus far as college professors, our own "best teaching moments" have occurred in ways consistent with, and because of, these very themes. As a final caveat, and staying true especially to Thoreau, we submit not a recipe or paint-by-number approach for successful teaching, but rather conceptions which may prove instructive for individual educators intent on teaching well.

As a 19th century literary figure, Thoreau wrote on topics ranging from botany to philosophy, with philosophic themes including civil disobedience and the life of simplicity. He became most well known for his book *Walden* and shaped an intellectual movement, which became known as transcendentalism. With his Harvard education, many expected Thoreau to enter the ministry or perhaps the field of law. Instead, Thoreau chose to pursue writing, while supporting himself through other work as a surveyor and employee in his family pencil-making business.

We find Thoreau especially helpful in that he exemplifies a life of movement. For a two-year period, Thoreau moved to a cabin beside Walden Pond, which enabled him to focus on his scholarly writing apart from society. During this time Thoreau explored his natural surroundings on foot, walking or "sauntering," almost daily. Ralph Waldo Emerson (in Thoreau, 1854) described Thoreau as "a good swimmer, runner, skater, boatman, and [as one who] would probably out walk most countrymen in a day's journey" (X, p. 11). Indeed, physical activity permeated his daily life and routine. It is not only relevant that Thoreau displayed an

active life, but also the attitude or stance in which he approached these experiences. Walking, for Thoreau, had "nothing in it akin to taking exercise . . . as the sick take medicine at stated hours, – as the swinging of dumb-bells or chairs; but is itself the enterprise and adventure of the day" (IX, p. 257). Given the challenges present in teaching quality physical education, it is imperative to think clearly about potential solutions. In the following sections we examine three themes instructive for teaching and learning: experience, immersion, and acceptance of risk.

## Experience

For Thoreau, physical activity provided the means to encounter life around Concord. He described these experiences in his journals, chronicling his time spent walking, hoeing beans, and more generally attempting to "drive life into a corner, and to reduce it to its lowest terms . . . to know it by experience" (1982, p. 344); a process which proved instructive for writing and living – a means central to the transcendental project. Thoreau did not view experience in terms of discrete moments but rather as a continuous stream without artificial boundaries. As a result, the conjunctive moments of experience, which stand between memorable events, were as valuable and instructive as the earth-shattering moments of life. As he came close to, and interacted with the natural surroundings, he lost himself in the immediacy of the situation.

Like Thoreau, today's best teachers seek out instructive experiences for their students. When this does not occur, however, learning experiences may become chaotic without any pattern or apparent narrative direction. At times, physical education classes may include plenty of activity – with students running, jumping, and throwing – but the activities may not be directed toward meaningful ends. For example, lessons may lack sufficient objectives, feedback cues, or classroom management strategies, all of which preclude students from acquiring sufficient skill development. Lesson units may be so short that students are unable to grow meaningful attachment to a particular activity or sport. How can we expect students to appreciate floor hockey, for example, if their experience is limited to only a few class periods?

Despite the challenges, this theme of experience is especially instructive for teaching and learning and, in particular, teaching physical education. Exemplary teachers learn through experience, using the feedback and knowledge they acquire with their classes to inform future class sessions. Over time, instructors come to realize how many activities to include in their lesson plan, how to deliver instruction and feedback constructively, and how to effectively manage off-task behavior. These teachers also draw from their own experience as a student and perhaps athlete. For example, they understand the time and focused attention required for becoming a proficient soccer player. The best instructors recognize that they teach from a particular context, appreciating their own pathway to learning as a student while realizing that their students (with their own particular life experience) may learn best in another manner.

Attentive teachers also understand the difference between inchoate experiences and the kind of fulfilled experience Thoreau had in mind. In this sense, experience informs the physical education environment when teachers are able to create opportunities for their students to become deeply engaged with sport and physical activity. Other American philosophers interested in quality pedagogy have echoed Thoreau on this point. John Dewey (1938) stated that, "It is the [teacher's] business to arrange for the kind of experiences which, while they do not repel the student, but rather engage his activities are, nevertheless, more than immediately enjoyable since they promote having desirable future experiences" (p. 27). At best, the physical education environment is a place where students learn new skills and develop life-long, abiding relationships with sport and physical activity. Lessons may include activities that are fun – but fun in itself is not enough if the lessons do not prompt deeper engagement with the activity.

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Physical educators certainly have an advantage over other teachers in that the nature of physical activity, because of its engaging quality, has the potential to foster deeply meaningful experiences. One of our own teaching exemplars, during his time instructing table tennis, made it a goal to provide such a learning experience. Throughout the class periods he drilled students in the fundamentals and provided an instructional environment where students improved their skill level while simultaneously growing more passionate about the game. In addition to the captivating appeal of sport and physical activity, great teachers also recognize that skill development happens over time, very gradually, and not necessarily in a linear fashion. There is something to be learned and also appreciated in the routine and discipline of dedicated practice – developing a commitment to the craft, which requires continual attention and effort. This notion of experience is intimately connected to an additional important theme – one of immersion.

## Immersion

This second theme of immersion is a concept that appears repeatedly throughout Thoreau's written word but perhaps even more importantly exemplified in Thoreau's daily life while at Walden. By immersion we mean his ability to get as close as possible to the natural surroundings and his own ideas and thoughts. American philosopher Henry Bugbee (1999) describes immersion as "a mode of living in the present with complete absorption." (p. 51–52). In other words, immersion entails removing the psychic or figurative distance between us and the world, coming into close contact with the other.

To a great degree, Thoreau's project at Walden Pond focused on his ability to become immersed in his own daily existence. He observed and chronicled the subtle changes of the spring ice thaw. He heard the sounds of bullfrogs, screech owls, and the nearby locomotive whistle. Travelling by foot with notebook in hand, jotting down observations that became the muse for his journals later in the day, Thoreau found these solitary hours conducive to this project in attentiveness. This kind of immersive task, spending two years of his life beside the pond, required an inordinate commitment on Thoreau's part. To gain the full experience of Walden, to completely focus on his own writing and his natural surroundings, Thoreau needed to leave his family home in Concord. He left behind the security of gainful employment to become, in Emerson's (1862) words, "captain of a huckleberry party."

This theme of immersion is instructive for our discipline and, perhaps most importantly, for those who teach physical education at the K–12 level. Unfortunately, physical education teachers face various roadblocks, which make immersion extremely difficult. One potential obstacle is the coach-teacher role conflict. At times coaching duties may take precedence over teaching or at least not allow the physical educator to invest in their teaching role. Teachers also face challenges when it comes to instructional time. In the current high-stakes testing environment, many school districts have drastically reduced time allotment for so-called "specials." This lack of substantive contact time makes it exceedingly difficult for teachers to connect with their students, to develop relationships in a meaningful way.

In order to teach with this immersive quality in mind, several aspects are important, beginning with a commitment to students. By this we mean a genuine concern for student individual growth, not only as practitioners of sport and physical activity, but also a concern that goes beyond to encompass the whole person. Experiencing and striving towards this immersion quality also necessitates a commitment to the discipline of physical education. One cannot become fully in tune with students without becoming fully versed in the disciplinary knowledge of exemplary physical education teachers. During the educational process this entails taking the requisite coursework, and becoming proficient in, subject matter encompassing teaching activities (from individual and team sports to dance, gymnastics, and adventure activities), curriculum and instruction, assessment, psychosocial factors related to movement, and much

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more. Once the teacher begins a career in the schools, remaining immersed in the discipline means staying abreast of current trends in the field, attending conferences and workshops, and so forth.

## Acceptance of risk

The final theme we wish to explore involves an acceptance of risk. By risk, we have in mind "a decision to commit oneself to a possible future rather than to compromise with a certain present" (Anderson, 2006, p. 169). We readily acknowledge the importance of safety and security in life. People go to great lengths to protect family and friends, individual property, and community interests from harm – and rightly so. However, seeking *too much* security can become detrimental. Our point here is not advocating for a reckless pursuit toward dangerous situations, nor a total disregard for safety, but rather taking calculated risks (e.g., using innovative technology or lesson plan ideas) in order to pursue important pedagogical goals.

The theme of risk is readily apparent in Thoreau's life and writing. The Walden project demonstrated a risk-filled endeavor personally for Thoreau. He left behind a comfortable life in his hometown of Concord to pursue his literary ambitions. He approached this time in terms of an experiment and, by design, experiments are inherently precarious endeavors; even valiant and well-intentioned efforts may not produce intended results. Thoreau (1982) was willing to take these chances however. His aim was to:

> 'live deep and suck out all the marrow of life . . . to drive life into a corner, and reduce it to its lowest terms, and, if it proved to be mean, why then to get the whole and genuine meanness of it, and publish its meanness to the world; or if were sublime, to know it by experience' (p. 344).

Because of his willingness to accept a degree of risk and uncertainty, he could move forward toward his goals.

Yet teaching occurs in a culture where risk is not always rewarded and may even be threatening. Any attempts to infuse the teaching and learning process with creative pedagogical ideas can indeed be risky. Despite this tendency toward pedagogical risk aversion, our best educators accept risk and expect failure on some occasions – and for someone, perhaps the students, perhaps her future self, to learn from the failure. This pedagogical approach is not for the faint of heart; it is an approach that offers no guarantees or plausible deniability for poor outcomes. If we believe that teaching excellence is a worthwhile goal, we are required to act in a way that demands both responsibility for outcomes and the acknowledgment of a risk of failure. As Anderson (2006) asserts, "the fundamental risk [exemplary] teachers accept is found in their willingness to confront both success and failure in the interest of teaching better . . . They risk themselves in being responsible for their work" (p. 38–39). Superlative teachers remain accountable for their actions and the resultant outcomes, continually refining their efforts and approaches.

This concept of risk acceptance is most certainly applicable to teaching physical education. Those entering the disciplinary field quickly find, like Thoreau, that their chosen career path can be misunderstood and underappreciated. Many people have a stereotypical conception of a "gym teacher" and have very little understanding of what it takes to teach physical education in a professional manner. In many ways, becoming a lawyer, doctor, or school administrator would guarantee more respect. Yet the teaching profession, and we contend the profession of teaching physical education too, is an enduring and honorable profession with the potential for significantly affecting individual lives.

The disciplinary content in itself is somewhat risky in that movement entails a degree of threat. The very nature of guiding 30 students (or, increasingly many more) through a lesson in the gym or outside is much different (and potentially perilous) from doing so in the classroom. Students on the move will and do get injured. Additionally, teachers face the possibility

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that some lesson or unit plans may not succeed. Even those activities that have worked in the past may not necessarily do so with the changing landscape of new students and classes. With these potential risks in mind, the challenge for the physical educator is to take informed risks, to adequately prepare detailed lesson and unit plans, to carefully choose curricular activities that meet important fitness, skill, and health ends, while acknowledging the potential growth such activities may provide. Quality teaching is a gambling endeavor in part, although the acceptance of risk with new approaches is not the same as an acceptance of a thin curriculum. It is not enough to be entertaining or merely "roll out the ball"; good teaching requires creativity that provides better learning outcomes than the safe but musty recipe of mediocrity.

In sum, we have no doubt that our discipline of kinesiology will continue to face both challenges and opportunities in the future related to preparing physical educators. In this paper we advanced and expounded on themes from American philosophy as a potential framework helpful for guiding our attempts to teach earnestly and effectively. These themes of experience, immersion, and the acceptance of risk help us think innovatively about the teaching and learning process. Like Thoreau, we can continue to refine our individual approaches, attentive to our students and subject matter as well as our own sense of what it means to teach well.

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# The Use of Mobile Application to Enhance Learning of the Skeletal System in Introductory Anatomy & Physiology Students

*PEER REVIEWED RESEARCH*

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Education continues to evolve and institutions are searching for new, innovative tools to engage students more effectively in the learning process. Educators are encouraged to consider various factors that influence student learning including class setting, student characteristics, learning objectives, teaching activities, and teaching strategies (Fink, 2003). Educators may not have control of all aspects of a course and how students learn, but educators do have the choice of what information students are expected to learn and, of increasing importance, how they can access it. Similarly, information accessibility is a key component for students (Sabry & Barker, 2009).

Student engagement and active learning has evolved to interactive learning (Thiele, Mai, & Post, 2014). The current generation of students have been surrounded by technology at home and in the classroom from an early age and are more competent with technology use than previous generations (McBride & Nief, 2015). Some argue that student technology use focuses on entertainment and social media rather than on programs to increase learning and productivity (Hausman, 2015; McBride & Nief, 2015). However, there is a plethora of mobile applications and other technology options that are designed to enhance student learning and engagement. Therefore, instructor selection of appropriate technological tools is essential for students to effectively learn necessary information (Duffy & McDonald, 2008). In the current environment, educators must be at ease with technology use including the integration of technology in class and teaching students how to use technology more productively. Evidence supports the use of technology and notes that technology helps supplement teaching and enhances educators' teaching ability (Schacter, 2015). Students also report that they support the use of technology in the classroom (Perry, Cunningham, & Gamage, 2012; Schacter, 2015; Woodrow, Smith, & Pedretti, 2000). Furthermore, technology such as interactive web-based instruction with lab students and multimedia has been applied to teaching Anatomy and Physiology classes and has been noted as a supplemental aid that positively influences students' learning outcomes (Gopal et al., 2010; Schacter, 2015; Woodrow et al., 2000).

For many years, the standard source for gaining a knowledge base for classes has been textbooks. Textbooks serve as guides as many educators design their specific course based on textbook chapters. Supplemental learning tools to textbooks have historically included printed study guides and Internet resources; moreover, web-based applications that can be utilized on smartphones and portable tablets are becoming increasingly common in lieu of printed resources (Duffy, 2008). Smartphones and other mobile technology devices may be surprisingly

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useful didactic resources for classes, providing access to a wealth of information, and are becoming more familiar in the classroom (Rainie, 2010; Thornton & Houser, 2005). College students enjoy using smart technology and students report that the use of cell phones enhances their learning, and they do not believe it distracts them from learning (Tessier, 2013). The use of mobile technologies, in and outside the classroom, is growing and some higher education institutions have specific applications (apps) and web resources on smartphones to access school or class specific content. Applications can be specific to a single mobile device platform (e.g. Apple or Android) and available for free access.

Mayfield, Ohara, and O'Sullivan (2013) found that the use of a laboratory specific mobile application enhanced learner engagement, increased time on task behavior, and increased learning in a human dissection class. Furthermore, Steward and Choudhury (2015) found that an iPad-based interactive book enhanced student engagement and increased tests performance. Both of these studies used customized mobile applications specific to the course being taught. The effectiveness of applications that are intended to be used as a general learning assistance, as opposed to a course specific application, have not been evaluated.

The objective of this study was to evaluate whether the use of a general learning assistance mobile application focusing on the skeletal system improved student performance on examinations.

## Method

### *Overview*

For five semesters, multiple sections of a single semester introductory Anatomy and Physiology class (PE 310) were taught using the same course outline. During the skeletal system portion of the course, students were exposed to the same lectures for two weeks of class, took an in-class exam after instruction, and participated in a lab focusing on bone structures, articulations, and formations. Lecture content, lab assignments, and tests were the same over the five-semester experiment. Four (out of nine) course sections were selected and instructed to use the *Essential Skeleton 4* application (3D4Medical, San Diego, California; Dublin, Ireland), which is available for free and works on Apple and Android platforms, as a supplemental study tool for the skeletal chapter test. Instructors showed students how to use the application and students were left on their own to use it at their discretion. Student performances on skeletal chapter tests were compared to evaluate effectiveness of the supplemental skeletal system application. This study was approved by the University of Nebraska at Kearney Institutional Review Board.

### *Course Description*

The PE 310 course is titled "Introduction to Human Physiology of Exercise" and is taught as a single semester Human Anatomy & Physiology course. PE 310 is required for students with majors in Athletic Training, Exercise Science, and Health/Physical Education and students with minors in Health/Physical Education or Interscholastic Coaching. This course also serves as an elective course for any student on campus. No prerequisites are required for enrollment; however, PE 310 is a prerequisite for enrollment in subsequent courses in Anatomical Kinesiology & Biomechanics and Exercise Physiology, which also serve as prerequisites for other courses. Ideally, PE 310 is the first course of a 4-semester sequence of exercise science classes. During the semesters used for this investigation, lectures met from 8:00–8:50 AM, 10:10–11:00 AM, or 12:15–1:05 PM on Mondays, Wednesdays, and Fridays. The textbook, *Anatomy & Physiology with Integrated Study Guide* (Gunstream, 2013), was used for all sections. Course topics included (a) basic chemistry; (b) cell structure; (c) metabolism; (d) blood; and the (e) skeletal; (f) muscular; (g) integumentary; (h) cardiovascular; (i) lymphatic; (j) respiratory; (k) nervous; and

(l) endocrine system. Of the course topics, students were required to obtain a grade of 70% or above on the metabolism, skeletal, and muscular exam to continue in the class. Students who score below 70% were provided up to three total "make-up" attempts in order to obtain the minimum grade on all three exams. Those who were unable to reach this minimum were advised to drop the course.

### Mobile Application

The *Essential Skeleton 4* application provides a 3-dimensional model of the skeletal system and allows users to zoom in to view bones from every possible angle. Users can touch a specific bone to reveal its title. When bones are selected, an information box appears with the name, pronunciation, and bone location. Additionally, when the information icon is selected within the information box, users have access to specific bone structures and joint associations. The *Essential Skeleton 4* application is available for no cost and works on Apple and Android platforms.

### Participants

Participants were all students at a moderate-sized, Midwestern university. The *Essential Skeleton 4* application was used as a part of the course during the 2013–2015 calendar years. Two hundred and fifty-three students were in the four class sections that utilized the application, and 141 students were in five class sections that did not utilize the application during the 2013–2015 calendar year. There are two sections of PE 310 each semester and course sections were randomly selected to use the application each semester. Numbers of students in each class ranged from 24 to 32. Varying class sizes were a result of students dropping the course.

### Course Section(s)

The current study spanned over five semesters with four semesters including two course sections. Three of these four semesters involved two different instructors teaching the two sections. Classes were provided the same study guides, used the same lecture slides, and were given the same lab assignments. The difference among groups was the inclusion of the application during lectures and labs. The students were encouraged to use the application as a supplemental study aid but given the discretion to use the application however they wanted. Both instructors met throughout the course to ensure that the same content was covered each semester.

### Data Collection

Each section of class took the same skeletal exam, consisting of twenty-five multiple-choice questions and fifteen fill-in-the blank bone or bone structure identification questions. After exams were graded, all skeletal exam scores were combined into one database. For the purposes of this study, only the initial test scores were used in data analyses ("make-up" scores below 70% on the initial skeletal test were not included). One week after exams were graded and returned, students were provided an application evaluation form. Students were provided a one – page, open-ended evaluation that consisted of questions that addressed student perceptions and attitudes toward application use. Classes were tested to make sure they were similar at the outset of the study by student's major and class rank.

### Data Analysis

Test scores were analyzed for differences between classes who used a mobile application as a supplemental study resource and those who did not, via one-way ANOVA. The dependent variables were student's grade on the skeletal system among sections that used the application and did not use the application. We ran the analysis among individual instructors as well

as instructors grouped together. Significant alpha level was established at 0.05. The statistical software package used was Statistical Package for the Social Sciences (SPSS, Version 22).

## Results

A total of 254 test scores were used in data analysis. Student majors included Exercise Science (n = 119), Athletic Training (n = 39), Physical Education (n = 32), Recreation (n = 2), Sports Management (n = 12), among others within the College of Education (n = 50) (Table 1). In addition, Table 2 describes the number of students each semester between the two instructors based on the *Essential Skeleton 4* application use. Test scores were consistent across the five semesters; there was no statistical significance between test scores between semesters of course sections with no application exposure ($p = 0.14$) or application exposure ($p = 0.09$) (Table 3). No significant difference was found between test scores of one instructor's class versus the other. Furthermore, consistent test grades were present in Spring 2014 ($M = 78.55$), Fall 2014 ($M = 77.67$), and Spring 2015 ($M = 78.86$) among class sections without the inclusion of the application (Table 3). Student test scores were significantly higher with the application use ($M = 83.83 \pm 3.64$) compared to test scores with no application use ($M = 77.18 \pm 4.62$; $p < 0.05$; Table 4).

Table 1. Distribution of students by academic major and academic classification in an undergraduate introductory Anatomy & Physiology course during which Essential Skeleton 4 were used as supplemental study tool before an in class test was taken

| Semester | ES *n* | AT *n* | PE *n* | R *n* | SM *n* | Other *n* | Total *n* |
|---|---|---|---|---|---|---|---|
| Fall 13′ | 13 | 0 | 5 | 0 | 3 | 11 | 32 |
| Spring 14′ | 11 | 6 | 5 | 0 | 3 | 3 | 28 |
| | 6 | 9 | 1 | 0 | 1 | 9 | 26 |
| Fall 14′ | 18 | 2 | 2 | 0 | 0 | 6 | 28 |
| | 18 | 1 | 4 | 0 | 1 | 5 | 29 |
| Spring 15′ | 8 | 13 | 2 | 0 | 0 | 4 | 27 |
| | 9 | 6 | 3 | 1 | 0 | 6 | 25 |
| Fall 15′ | 20 | 0 | 6 | 0 | 2 | 3 | 31 |
| | 16 | 2 | 4 | 1 | 2 | 3 | 28 |
| Total *n*(%) | 119 (46.64) | 39 (15.41) | 32 (12.25) | 2 (2.3) | 12 (4.73) | 50 (18.97) | 254 |

Note: ES = Exercise Science, AT = Athletic Training, PE = Physical Education, R = Recreation, SM = Sports Management

Table 2. Summary of sample based on semester and instructor

| | Fall 13 | Spring 14 | Fall 14 | Spring 15 | Fall 15 | Total |
|---|---|---|---|---|---|---|
| Application Use | 0 | 0 | 29* | 25* | 31*; 28** | 113 |
| No Application Use | 32* | 54* | 28** | 27** | 0 | 141 |
| Total | 32 | 54 | 57 | 51 | 59 | **254** |

*Indicates Instructor #1; **Indicates Instructor #2

*(continued)*

Table 3. Percentage of Scores on tests on the skeletal system for students who used (App) or did not use (No App) a mobile application study tool on skeletal system

| Semester | Technology | n | Test Grade M | SD |
|---|---|---|---|---|
| Fall 13' | No App | 32 | 73.02 | 5.63 |
| Spring 14' | No App | 28, 26 | 78.55 | 3.08 |
| Fall 14' | No App | 28 | 77.67 | 5.33 |
| | App | 29 | 83.77 | 3.04 |
| Spring 15' | No App | 27 | 78.86 | 4.87 |
| | App | 25 | 83.85 | 4.43 |
| Fall 15' | App | 31,28 | 83.30 | 5.12 |

Table 4. Analysis of Variance Analysis of Student Mean Performance Scores with Application and No Application Use

| | n | Application M | SD | No Application M | SD | F | p |
|---|---|---|---|---|---|---|---|
| Instructor A | 172 | 83.95 | 3.77 | 76.5 | 4.32 | 24.48* | 0.000 |
| Instructor B | 82 | 81.67 | 3.38 | 78.25 | 5.06 | 1.66 | 0.201 |
| Skeletal Chapter Test Grade | 254 | 83.83 | 3.64 | 77.18 | 4.62 | 22.62* | 0.00 |

*= Interaction effect (P < 0.05) between application and no application for skeletal test topic.

## Discussion

The primary finding of this project is that the use of a web based application as a skeletal system learning tool enhanced student performance on in-class testing over the skeletal system. Some people contend that student technology use focuses on entertainment and social media rather than programs to increase learning and productivity (Hausman, 2015; McBride & Nief, 2015). Students are competent in using technology for social media and other various activities, but instructors are the ones tasked with the job of finding technological programs and applications that will increase learning (Gopal, 2010). This study revealed that the use of a web-based application may be an effective supplemental tool to increase a student's performance on a test.

Mobile applications can be a useful tool for many instructors in higher education and researchers are beginning to notice a trend in people's motivation to learn through mobile devices (Jeng, Wu, Huang, Tan, & Yang, 2010; Mayfield et al., 2013; Stewart & Choudhury, 2015). Campuses across the nation are expanding the integration of technology as a means to reach more students and broaden teaching modalities. The coupling of the user acceptance of mobile applications and the recent push from universities toward experiential learning

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suggests the potential for educational apps to one day become a part of everyday instruction (Harnish, Ling, & Shehab, 2012). Mobile devices may be more accessible to and easier to use for students because they can store multiple files, applications, and course documents as well as provide access to mobile platforms, such as Blackboard®. This may alleviate the burden of carrying multiple textbooks.

The term, *traditional student,* has broadened from using age as an indicator to inclusion of the various responsibilities in addition to being a student. Added responsibilities can potentially result in irregular study habits, including students' study time becoming more fragmented. Presumably, a five-minute study session is easier to accomplish with the aid of mobile technology. Mobile technology devices provide an opportunity to readily study in various environments with unlimited access. Campuses, and many other places where students are likely to gather such as restaurants or coffee shops, are typically equipped with wireless internet connectivity and students can freely connect to the internet and access course material without the burden of toting multiple books everywhere.

When instructors have to focus on whether or not students are paying attention, communication can be lost. Many instructors struggle with students paying more attention to their smartphone, tablet, or various technology devices and not focusing on the lecture. This distraction can distort the message an instructor is trying to relay and serve as a distraction to other students, ultimately limiting the effectiveness of a lecture. Conversely, supplementing mobile applications and other technologies into lecture type classes can have a positive impact (Harnish et al., 2012). Mayfield (2013) reported that the use of a mobile application increased students' time on task. If mobile technology is integrated into areas within the lecture, instructional barriers may be decreased, and course lectures may potentially be enhanced.

Not only can mobile applications serve as a mechanism for memorization but they also serve as a study tool for individual review. The *Essential Skeleton* 4 application includes 3-dimensional views of the skeletal system and additionally allows students to quiz themselves on the various bones and bone structures. This function on the application allows students to quiz/test their knowledge without their score/grade being reviewed by others, such as an instructor. Furthermore, the application provides a mode of enhancing intellectual knowledge while allowing students to identify areas of weakness. The concept of testing and receiving feedback concerning educational performance with no consequence for poor performance potentially provides students the ability to build self-efficacy concerning the subject topic and better prepare for the in class test.

### Impact on the Kinesiology Profession

Certain topics of content are essential for student progress within their institution's department and future profession. Tests in these topics are a vital component of student education. The addition of mobile technology does not and should not take the place of traditional textbooks; rather, they should serve as a supplemental study aid for testing. Mobile applications appeal to today's students because of their ease of use, portability, and the interaction that leads to immediate results (Harnish et al., 2012). Modern students have ample opportunities to become involved in multiple on- and off-campus activities, yet still must maintain and uphold their student-related responsibilities. Mobile technology allows students to study more throughout the day (frequency), limiting long study sessions (duration), thereby utilizing their time more efficiently. Mobile devices can provide a great source to connect course study material in opportune areas and environments. Accessibility can provide an educational edge propelling students to study more frequently yielding favorable test scores potentially resulting in long-term content material retention.

In this study, the use of mobile applications yielded higher test grades on the student's skeletal exams. Students reported enjoying the use of technology in class and the accessibility

among various mobile devices. The suggestion that mobile applications totally take the place of traditional textbooks is not recommended, but the addition of technology in the form of mobile applications may have a profound positive effect on students' test performance.

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# Physical Education Students' Perceived Competence in Using Technology Integration

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In 2005, SHAPE America (formerly known as the National Association for Sport and Physical Education [NASPE], 2005) published a revision of the guidelines for physical education (PE) teacher candidates to establish the standards for PE teachers. SHAPE America's revisions were made in order to meet the Council for the Accreditation of Educator Preparation – CAEP (formerly known as the National Council for Accreditation of Teacher Education [NCATE], 2005) standards that were published earlier in the same year. Technology was one of the ten standards that were developed by SHAPE America/CAEP, therefore, establishing the importance of including Technology Integration in Physical Education (TIPE) as part of the Physical Education Teacher Education (PETE) curricula of universities. Within these standards, SHAPE America seeks to ensure that every PE teacher develops the knowledge and ability to use technology in order to enhance students' experiences and learning. In 2008, SHAPE America restated the importance of incorporating technology in PE teaching practices in order to support students' learning (NASPE, 2008).

Nevertheless, the definition of technology is not clear and technology itself changes constantly. As a result, many questions related to the use of technology by PE teachers may arise when considering these guidelines. Mitchell (2006, p. 24) considers the addition of this standard as 'contentious' while raising a series of questions, including: "What is appropriate technology in which candidates should develop competence? Should all candidates implement the use of heart rate monitors or pedometers into their teaching? Should candidates use a computerized fitness program such as Fitnessgram to measure and record fitness scores?" These questions are placed in a provocative form to call attention to the reader that although SHAPE America obligates every future teacher to know how to implement technology in their teaching; it is still vague as to how this should be done.

A few years later Woods, Karp, Miao, and Perlman (2008) applied a survey to investigate teachers' perceptions in TIPE. The research findings were: (1) male teachers perceived themselves as more competent in using TIPE than female teachers; (2) there was no consensus where teachers learned to use technology; (3) the three major reasons why teachers use technology in their classes included student assessment, visual aid, and understanding individual development (pedometers and heart rate monitors that showed students' progress). The educational contribution of PETE programs did not appear to be the major contributor for using TIPE.

In the ten years since SHAPE America's requirement to include TIPE in teachers' practice, there has been a growing interest in developing a body of literature to support teachers in using technological tools. However, most TIPE publications do not present any empirical data, instead focusing on describing how to use specific devices in PE settings. Recent studies have shown that TIPE has the potential to both enhance student's physical activity engagement (Clapham, Sullivan, & Ciccomascolo, 2015) and learning outcomes (Palao, Hastie, Cruz, &

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Ortega, 2015). However, there is still limited research that provides evidence on how physical educators should teach with technological tools (pedagogical strategies), hindering PETE programs to develop courses that may support this need.

### Purpose

The purpose of the present research was to determine if physical education students feel prepared to use TIPE in their teaching. More specifically, the research addressed the following research questions: (i) What do physical education students understand regarding TIPE and its usefulness? (ii) In what content areas and grade levels do PETE students intend to use TIPE in their teaching? (iii) How do PETE students perceive their technological skills (how to use devices), pedagogical strategies (how to teach) and content knowledge when teaching with technology integration?

## Method

### Data Collection

Participants answered a 43-item questionnaire including multiple choice (32 items) and open-ended questions (11 items)[1]. The 32 multiple-choice items were statements where participants would position themselves according to their perception using a 5-point Likert-type scale (1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree). All statements were designed in a way that the higher the score, the higher the perceived competence was reported. The multiple-choice questions were adapted from the Schmidt et al. (2009) Technological Pedagogical Content Knowledge (TPACK) instrument. TPACK was introduced as a theoretical framework in the educational field while considering three forms of knowledge when teaching with technology integration: technological, pedagogical and content (Mishra & Koehler, 2006). TPACK reinforces the importance of teachers to make the link between the three forms of knowledge.

The questions needed minimal adaptations in order to substitute other academic content area terms (e.g. English, Math) for physical education terms. However, the essence of the questions was maintained. For instance, while Schmidt's questionnaire included the following question: "I have sufficient knowledge about mathematics", the present study used the following statement: "I have sufficient knowledge about physical education". All survey questions were taken from Schmidt et al. (2009) study, which conducted a study that validated the assessment as well as ensured its reliability. When performing the internal consistency reliability tests (coefficient alpha), the authors reported a range from .75 to .92 for the seven TPACK subscales, which are acceptable to excellent. To ensure validity, the authors invited three nationally known researchers with expertise in TPACK. The experts provided a rate for each question as well as suggestions and comments. After extensive review, Schmidt et al. (2009) study was able to validate the survey reviewing all experts' consideration.

The six open-ended questions were developed by the author in order to provide a space where participants could share their understanding of TIPE and their intention to teach with TIPE and in which grade level and content area. Lastly, participants answered five questions that related to their background in order to examine if different backgrounds suggest a difference in perceived competence in using TIPE.

### Data Analysis

The data analysis included statistical as well as qualitative analysis. Research questions (i) and (ii) were addressed with open-ended questions. The data analysis of these questions fol-

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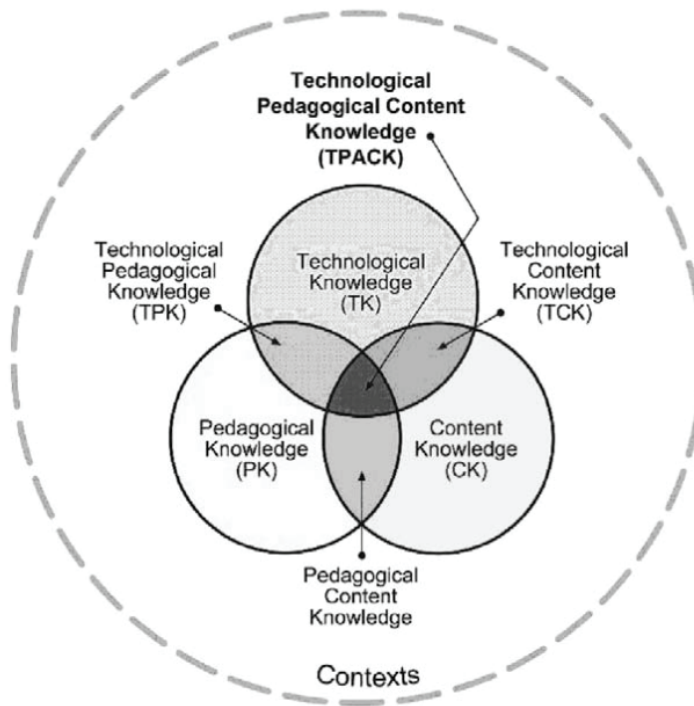[1]A copy of this survey is available upon request.

Figure 1. The Components of the TPACK Framework (Schmidt, 2009, p. 124).

lowed a systematic process of inductive analysis and comparison among different responses using the protocols proposed by Denzin and Lincoln (1994) and Lincoln and Guba (1985). When accumulative data confirmed the same concept, themes were generated.

Research question (iii) was answered by the 32 multiple-choice items, and as a result, two statistical analyses were conducted. First, a descriptive analysis presented an overview of students' perceived competence in each knowledge (technological, pedagogical and content) and their intersections (pedagogical content knowledge, technological content knowledge, technological pedagogical knowledge and technological pedagogical content knowledge). Figure 1 shows all knowledge factors considered in the TPACK instrument and their connections. Second, a one-way ANOVA was conducted to examine if there were statistical group mean differences when considering different backgrounds (gender and years in college).

*Participants and Setting*

All declared Physical Education students (from freshmen to graduate level) nationwide were considered potential participants for this study. The researcher identified 20 physical education teacher education (PETE) programs from around the United States. Initially, the study had targeted to reach at least one PETE program from each region of the United States (New England, Mid-Atlantic, South, South-West, Mid-West, West, West Coast and Non-Continuous) however, due to the very low response rate, ultimately, only two regions were included at this stage of the study. The participants in this study included 47 collegiate students (27 male, 20 female) from three different American universities (two from the Midwest region and one from the South region). In order to invite students to participate in the study, two different options were offered: inviting students to complete the questionnaire online or inviting students to complete a hard copy of the questionnaire.

*(continued)*

## Results

The results of this research are presented in accordance with the two types of data analysis. First, the qualitative data findings are presented while seeking to answer research questions (i) and (ii). Second, findings from the quantitative data are presented while seeking to answer research question (iii).

### PE Students' Understanding about TIPE

When trying to explain technology integration, three common themes emerged from students' answers: (i) TIPE must use a technology device and/or software to teach a PE class; (ii) Fitness related devices and activities were the most mentioned; (iii) TIPE was credited for enhancing student learning and interest.

When trying to explain the usefulness of technology integration, three common themes emerged from students' answers: (i) TIPE can be useful, but students acknowledged the need of a pedagogical strategy; (ii) Technology is considered part of our culture, hence it is considered motivational to teach with TIPE, (iii) K–12 students will be able to link physical activity practice with results achieved. Table 1 presents quotes to exemplify each theme.

### Content Areas and Grade Levels Where PE Students Intend to Use TIPE

When considering the usefulness of TIPE in elementary school, more than 69% of students reported an intention to use TIPE when teaching at this level. Table 2 presents further details on these findings. Two themes were generated when considering the reasons why they would teach this grade level: (i) enhance learning, and (ii) enhance motivation due to the technology culture. Fitness was considered the most likely content area that they would teach with TIPE.

When considering the usefulness of TIPE in middle school, more than 90% of students reported an intention to use TIPE when teaching at this level. Table 3 presents further details on these findings. Two themes were generated when considering the reasons why they would teach this grade level: (i) enhance learning, and (ii) enhance motivation. Once again, fitness was considered the most likely content area that they would teach with TIPE as it was claimed that technology might establish a link between physical activities and enhancing fitness levels.

When considering the usefulness of TIPE in high school, more than 95% of students reported an intention to use TIPE when teaching at this level. Table 4 presents further details on these findings. Two themes were generated when considering the reasons why they would teach technology to this grade level: (i) enhance physical activity monitoring, and (ii) support students who wish to maintain a healthy lifestyle after school is over. Fitness was mainly the only content area mentioned by students.

### Physical Education Students' Perceived Competence to Teach with TIPE

The mean score of each factor showed that undergraduate PE students presented a high self-perception of competence for each factor and the low standard deviation showed that there was a small variance among participants: Technological Knowledge (M = 3.84, SD = .53); Content Knowledge (M = 4.38, SD = .66); Pedagogical Knowledge (M = 4.24, SD = .60); Pedagogical Content Knowledge (M = 4.18, SD = .60); Technological Content Knowledge (M = 3.96, SD = .96); Technological Pedagogical Knowledge (M = 3.94, SD = .67); Technological Pedagogical Content Knowledge (M = 4.09, SD = .67). Table 5 presents the number of valid answers for each factor.

A one-way ANOVA determined that the score reported for Pedagogical Knowledge for female students was significantly higher than male students, F (1.40) = 5.55, p < .05. There were no significant differences for the remaining six factors when comparing gender differences. Table 6 and Table 7 present details of gender score differences for each of the seven factors.

*(continued)*

Table 1. Themes and Quotes Explaining the Meaning of Technology Integration

| What is technology integration? | |
| --- | --- |
| **Themes** | **Quotes** |
| TIPE must use of technology & software to teach a PE class | Technology integration in physical education is the implementation of varied technological resources utilized by teachers and students within a physical education class. This could vary from physical use of heart monitor technology or psychological use of projecting information such as knowledge based information or a workout plan onto the wall of the gymnasium. |
| Fitness related devices and activities were the most mentioned | Technology integration in physical education is like using different software for different activities like the Fitnessgram. |
| TIPE was claimed as enhancing students' learning and interest | Using tools that students are excited to use during class to improve their understanding of physical education; keeping the interest of the students |
| What is the usefulness of technology integration? | |
| **Themes** | **Quotes** |
| TIPE can be useful, but acknowledge the need of pedagogical strategy | As long as it is integrated correctly, technology use in physical education can be beneficial because it allows students to learn and implement 21st century skills in the classroom and learn about/improve their health simultaneously. |
| Technology is now cultural, hence it is considered a motivational factor | I feel integration of technology could be useful because we have become a culture full of technology. Students will enjoy have to use some type of tech +enhance their learning. |
| K–12 students will be able to link physical activity practice with results achieved | I have found it very useful because it can be as complex as using heart rate monitors or exercise equipment to keep track of the student's progress over time to as simple as playing music during their workouts. It is a way to break away from the old methods of PE; instead of having them run around with them thinking there is no reason why they need to be exercising, now we have methods to keep track of what they are doing and showing their improvements as a result of exercising. |

### Table 2. Students' Intention to Use TIPE in Elementary School

| Responses | Frequency | % |
|---|---|---|
| Unlikely | 2 | 4.7 |
| Neutral | 8 | 18.6 |
| Likely | 15 | 34.9 |
| Very Likely | 15 | 34.9 |
| Total | 43 | 100 |

### Table 3. Students' Intention to Use TIPE in Middle School

| Responses | Frequency | % |
|---|---|---|
| Unlikely | 1 | 2.3 |
| Neutral | 3 | 7.0 |
| Likely | 17 | 39.5 |
| Very Likely | 22 | 51.2 |
| Total | 43 | 100 |

### Table 4. Students' Intention to Use TIPE in High School

| Responses | Frequency | % |
|---|---|---|
| Unlikely | 1 | 2.3 |
| Neutral | 1 | 2.3 |
| Likely | 15 | 34.9 |
| Very Likely | 26 | 60.5 |
| Total | 43 | 100 |

### Table 5. Number of Valid Answers, Mean, And Standard Deviation for Each Knowledge Factor for All Participants

| Factor | N | Mean | SD |
|---|---|---|---|
| Technology Knowledge (TK) | 44 | 3.84 | .53 |
| Content Knowledge (CK) | 46 | 4.38 | .66 |
| Pedagogical Knowledge (PK) | 46 | 4.24 | .60 |
| Pedagogical Content Knowledge (PCK) | 46 | 4.18 | .60 |
| Technological Content Knowledge (TCK) | 45 | 3.96 | .93 |
| Technological Pedagogical Knowledge (TPK) | 45 | 3.94 | .67 |
| Technological Pedagogical Content Knowledge (TPCK) | 45 | 4.09 | .67 |

## Table 6. Number Of Valid Answers, Mean, and Standard Deviation for Each Knowledge Factor Separated by Gender

| Factor | Gender | N | Mean | SD |
|---|---|---|---|---|
| Technology Knowledge (TK) | Female | 15 | 3.64 | .49 |
| | Male | 26 | 3.94 | .55 |
| Content Knowledge (CK) | Female | 15 | 4.64 | .41 |
| | Male | 27 | 4.35 | .70 |
| Pedagogical Knowledge (PK) | Female | 15 | 4.58 | .46 |
| | Male | 27 | 4.16 | .57 |
| Pedagogical Content Knowledge (PCK) | Female | 15 | 4.42 | .50 |
| | Male | 27 | 4.18 | .54 |
| Technological Content Knowledge (TCK) | Female | 15 | 4.13 | .52 |
| | Male | 27 | 3.97 | 1.06 |
| Technological Pedagogical Knowledge (TPK) | Female | 15 | 4.05 | .53 |
| | Male | 27 | 3.98 | .71 |
| Technological Pedagogical Content Knowledge (TPCK) | Female | 15 | 4.32 | .60 |
| | Male | 27 | 4.04 | .67 |

## Table 7. One-Way ANOVA Analysis to Consider Gender Differences for Each Knowledge Factor

| Factor | df | F | p-value |
|---|---|---|---|
| Technology Knowledge (TK) | 1, 39 | 3.09 | .086 |
| Content Knowledge (CK) | 1, 40 | 2.28 | .139 |
| Pedagogical Knowledge (PK) | 1, 40 | 5.55 | .023* |
| Pedagogical Content Knowledge (PCK) | 1, 40 | 2.02 | .163 |
| Technological Content Knowledge (TCK) | 1, 40 | .34 | .562 |
| Technological Pedagogical Knowledge (TPK) | 1, 40 | .13 | .721 |
| Technological Pedagogical Content Knowledge (TPCK) | 1, 40 | 1.76 | .192 |

*$p < 0.05$

A one-way ANOVA determined that the scores reported for Pedagogical Knowledge presented a significant difference when comparing all four groups (Sophomore, Junior, Senior and Graduate), $F_{(3.38)} = 3.03$, $p < .05$. A one-way ANOVA also determined that the scores reported for Pedagogical Content Knowledge presented a significant difference when comparing all four groups (Sophomore, Junior, Senior and Graduate), $F_{(3.38)} = 3.31$, $p < .05$.

There were no significant differences for the remaining five factors when comparing students from different years in college. Table 8 and Table 9 present details of years in college score differences for each of the seven factors.

*(continued)*

Table 8. Number Of Valid Answers, Mean, and Standard Deviation for Each Knowledge Factor Separated by Year in College

| Factor | Gender | N | Mean | SD |
|---|---|---|---|---|
| Technology Knowledge (TK) | Sophomore | 2 | 4.07 | .30 |
| | Junior | 10 | 3.93 | .54 |
| | Senior | 27 | 3.79 | .58 |
| | Graduate | 2 | 3.64 | .10 |
| Content Knowledge (CK) | Sophomore | 2 | 3.67 | 1.41 |
| | Junior | 11 | 4.15 | .62 |
| | Senior | 27 | 4.63 | .50 |
| | Graduate | 2 | 4.50 | .71 |
| Pedagogical Knowledge (PK) | Sophomore | 2 | 3.86 | 1.21 |
| | Junior | 11 | 4.00 | .59 |
| | Senior | 27 | 4.45 | .46 |
| | Graduate | 2 | 4.50 | .71 |
| Pedagogical Content Knowledge (PCK) | Sophomore | 2 | 3.50 | .71 |
| | Junior | 11 | 4.02 | .49 |
| | Senior | 27 | 4.40 | .47 |
| | Graduate | 2 | 4.50 | .71 |
| Technological Content Knowledge (TCK) | Sophomore | 2 | 4.00 | .00 |
| | Junior | 11 | 3.73 | 1.35 |
| | Senior | 27 | 4.15 | .72 |
| | Graduate | 2 | 4.00 | .00 |
| Technological Pedagogical Knowledge (TPK) | Sophomore | 2 | 3.70 | .71 |
| | Junior | 11 | 3.80 | .79 |
| | Senior | 27 | 4.14 | .58 |
| | Graduate | 2 | 3.60 | .28 |
| Technological Pedagogical Content Knowledge (TPCK) | Sophomore | 2 | 4.20 | .85 |
| | Junior | 11 | 4.03 | .75 |
| | Senior | 27 | 4.21 | .62 |
| | Graduate | 2 | 3.70 | .42 |

Table 9. One-Way ANOVA Analysis to Consider Gender Differences for Each Knowledge Factor

| Factor | df | F | p-value |
|---|---|---|---|
| Technology Knowledge (TK) | 3, 37 | .36 | .785 |
| Content Knowledge (CK) | 1, 38 | 3.03 | .041 |
| Pedagogical Knowledge (PK) | 1, 38 | 2.42 | .081 |
| Pedagogical Content Knowledge (PCK) | 1, 38 | 3.31 | .030 |
| Technological Content Knowledge (TCK) | 1, 38 | .56 | .647 |
| Technological Pedagogical Knowledge (TPK) | 1, 38 | 1.20 | .324 |
| Technological Pedagogical Content Knowledge (TPCK) | 1, 38 | .50 | .683 |

## Conclusion

It has been over ten years since Shape America (NASPE, 2005) published a revision of the guidelines for PE teacher candidates, including TIPE as a main component in PETE programs. In 'technological years' this can be considered a very long time; nevertheless, ten years is a very brief time for the development of an academic area and for its full incorporation into many PETE programs. One year after SHAPE America's revisions, Liang, Walls, Hicks, and Clayton (2006) conducted research to analyze how preservice PE teachers felt about implementing technology integration effectively. The study's results showed that PE student-teachers at that time felt they had minimal to no basic computer skills (42%), felt they had minimal to no general preparation (62%) and they felt they had little to no preparation to teach using technology (83%). More recently, Kretschmann (2015) has reported a direct correlation between computer literacy (i.e. technological knowledge/skills) and use of technology in PE, reinforcing the importance of teaching TIPE in PETE programs. In the present study, students have shown to feel very confident in all seven factors analyzed by the TPACK instrument, moreover they have reported a desire to use TIPE in all grade levels, although there seems to be a significant emphasis on fitness. Although there has been a great number of papers that have been instructing PE teachers to use different apps, software and devices, little is known on how PETE programs have been able to link these novelties with proper pedagogy to ensure that technology does not become a new form of "ball rolling". Wyant, Jones and Bulger (2015) were able to identify the need of teaching technology integration in PETE undergraduate program in order to enhance technological pedagogical knowledge. More research is needed to confirm if this improvement is also reported in other PETE programs and if higher education is contributing to this progress or if it has been mainly gained from other experiences.

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# Developing a Master of Arts in Teaching in Health & Physical Education

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The rationale behind developing a Master of Arts in Teaching Physical Education (MAT PE) was the result of low enrollment in a B.S. in Physical Education program and a M.Ed. in Health & Physical Education (HPE) – Advanced Teacher Education Concentration program. After many successful years of initial teacher preparation of HPE undergraduates and advanced preparation of graduate students, the inconsistencies and distinct downward trends in enrollments that were occurring in both programs prompted the department to examine other avenues capable of sustaining a HPE teacher certification program. An initial needs assessment was conducted with students in all undergraduate programs in the department, and with new students attending informational and orientation programs. Results indicated that a significant population of undergraduate students was attracted to staying an additional year after attaining their undergraduate degrees (5th year), and adding a master's degree with teaching certification in pre-kindergarten through grade 12 Health and Physical Education (MAT PE).

The development of a one year intensive program that provided graduate students the opportunities to be fully engaged with advanced learning experiences in pedagogical content knowledge and skills necessary to effectively instruct all school-age children in health and physical education was initiated. Graduates would be expected to demonstrate competencies in a variety of cognate areas (e.g., teaching styles, planning, growth and development, assessment, technology, special education, etc.), via course objectives and assessments intertwined throughout the entire curriculum.

From its inception, the MAT PE was designed as a 4+1 educational model. The "5th year" approach to earning teacher certification meant that students would have four years to concentrate on related content mastery at the bachelor's level, and a full "5th year" to focus on the science and art of teaching. Upon satisfactory completion of the program, the MAT PE degree candidate would be eligible to apply for a T5 Teachers Certificate (master's level license). The program was implemented after a three-year design, development and approval process. The mission would be to provide initial teacher preparation at the master's degree level for qualified candidates who hold a bachelor's degree from a nationally accredited institution in a related discipline (e.g. Kinesiology, Exercise Science, Health Promotion, Outdoor Education, Human Performance, etc.).

Internally, the MAT PE was established as one of the few teacher certification programs not housed in the College of Education (COE). Due to this, deans and faculty from two different colleges (COE and College of Health Sciences) would have to play significant roles in the development of the program. Once approved in principle by the COE (the designated "teacher certification unit" on campus), faculty members in HPE were tasked with initiating the first step in the process (initial approval to proceed with a full program proposal). This "initial approval" phase had to advance through departmental, college, university and ultimately state education governance systems.

Because the undergraduate HPE initial teacher certification program and advanced graduate program were established, existing courses were available. However, it became necessary to

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refocus and tweak the existing curricula into a one-year, concentrated, graduate-level, initial teacher preparation program that would provide students with a specific focus on the science and art of teaching health and physical education. Figure 1 shows a copy of the Program of Study.

The 5th year route was a strategic decision to find an avenue for maintaining a HPE teacher certification program on campus. Another major element was the decision to utilize the growing numbers in undergraduate programs (predominately exercise science and athletic training) as a targeted audience to advertise, promote, and build the MAT PE. From a marketing perspective, the one-year approach was seen as an enticing option to be able to offer undergraduate students. The notion that growth in graduate programs could potentially be realized by motivating current undergraduate students to stay and complete their graduate work with one additional year heavily favored the 5th year approach.

Recognizing that undergraduate students could be prepared for the MAT graduate program by creating a minor in PE (Figure 2) that would complete the necessary pre-requisites for entrance into the MAT PE (Figure 3) was another deliberate move. By utilizing existing un-

| MAT-PE Course Requirements | Hours | Semester |
|---|---|---|
| **Research Methods**<br>Prerequisite: Admission into the Graduate Program, undergraduate/<br>graduate level behavioral or biostatistics course or equivalent | 3 | Summer I |
| **Field-Based Learning & the Learner**<br>Prerequisite: Admission into the Graduate Program | 3 | Summer I |
| **Coordinated School Health Programs**<br>Prerequisite: Admission into the Graduate Program | 3 | Summer II |
| **Pedagogical Applications in Health & Physical Education**<br>Prerequisite: Admission into the Graduate Program | 3 | Summer II |
| **Program Assessment and Evaluation in Health & Physical Education**<br>Prerequisite: KINS 6703; Admission into the Graduate Program | 3 | Fall |
| **Program Design & Implementation in Secondary Health & Physical Education**<br>Prerequisite: Admission into the Graduate Program; KINS 6703,<br>Co-requisite KINS 6733 | 2 | Fall |
| **Clinical Experience in Secondary Health & Physical Education**<br>Prerequisite: KINS 6703, Co-requisite KINS 6723 | 4 | Fall |
| **Learner Differences**<br>Prerequisite: Admission into the Graduate Program | 3 | Fall |
| **Program Design & Implementation in Elementary Health & Physical Education**<br>Prerequisite: Admission into the Graduate Program; KINS 6703,<br>Co-requisite 6753 | 2 | Spring |
| **Clinical Experience in Elementary Health & Physical Education**<br>Prerequisite: KINS 6703, Co-requisite 6743 | 4 | Spring |
| **Instructional Technology for Teachers**<br>Prerequisite: Admission into the Graduate Program | 3 | Spring |
| KINS **Elective: Health Related**, Advisor Approval<br>Prerequisite: Admission into the Graduate Program | 3 | Spring |

Figure 1. Program of Study

*(continued)*

| Course | Hours | Prerequisites | Semester |
|---|---|---|---|
| KINS 3203<br>Physiology of Exercise | 3 | BIOL 2160 & BIOL 2170<br>or<br>HSCS 2803 & HSCS 2813 | Fall Year 1 |
| KINS 3103<br>Structural Kinesiology | 3 | BIOL 2160 & BIOL 2170<br>or<br>HSCS 2803 & HSCS 2813 | Fall Year 1 |
| KINS 2303<br>Personal Health and Fitness | 3 | N/A | Spring Year 1<br>or<br>Summer Session |
| KINS 3403<br>Motor Behavior | 3 | PSYC 2103; BIOL 2160 & BIOL 2170 or HSCS 2803 & HSCS 2813; KINS 3103 | Fall Year 2 |
| KINS 4813<br>Research Methods in Kinesiology | 3 | MATH 2600;<br>Departmental Approval | Fall Year 2<br>or<br>Summer Session |
| KINS 4403<br>Skill Analysis & Performance | 3 | KINS 3403 | Spring Year 2 |

Figure 2. PE Minor Program of Study

dergraduate courses within the various major(s) classes, the PE minor would not be burdensome to complete. Many students in current majors (Athletic Training, Community Health, and Exercise Science) would already take these courses for their major requirements. Two new courses, specific to physical education content (motor behavior and skill analysis & performance), were developed for the minor. If a student earned the minor in Physical Education and decided to go on to the graduate MAT PE program, they would have the pre-requisite courses for admittance and could earn a teaching license once completing the graduate program. Otherwise, the minor would just be listed on a student's transcripts, but would not earn them a teaching certificate.

Approval to proceed with developing and submitting the entire new program proposal for the MAT PE was received in 2008. This proposal, which included all course offerings, complete curriculum (programs of study), essential pre-requisites, and the PE minor had to also be formally accepted through the various university governance structures. One of the early approvals came from the College of Education (COE). The COE serves as the "recommending agent" for teacher licensure to the state Professional Standards Commission (www.gcsu.edu/education/teached/certification). Endorsement from the institution (Office of Academic Affairs) came in 2009, and the University System of Georgia and Board of Regents in 2010. Final approval was also achieved in 2010 through the Georgia Professional Standards Commission (https://georgia.gov/agencies/georgia-professional-standards-commission).

The program began in August 2010 with the first cohort of graduate students. Initial enrollment in the program was seven. For a small liberal arts university, this was an acceptable beginning for the first year. By 2015, enrollment had increased steadily to 14. With the growth in undergraduate programs still occurring, the 5th year master's degree program continues to be an appealing option to students. The majority of enrolled graduate students have been undergraduate students from this institution who have decided to stay an additional year and seek teacher certification, thereby providing further opportunities for future employment.

The exercise science students have largely been those drawn to the one-year master's timetable, frequently as a springboard for applying to doctoral programs. The athletic training stu-

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1. Human Anatomy & Physiology or two integrated courses in Anatomy & Physiology or Human Development. **BIOL 2160 &2170 or HSCS 2803 & HSCS 2813 (prerequisite for Phys. of Ex.)**
2. Developmental Psychology or Human Development. **PSYC 2103 (prerequisite for Motor Behavior)**
3. Behavioral Statistics, Measurement & Evaluation, or Research Methodology. **KINS 4813 Research Methodology**
4. An in-depth Fitness/Wellness course (i.e., personal health). **KINS2303 Personal Health and Fitness**
5. Exercise Physiology. **KINS 3203**
6. Kinesiology or Biomechanics, or one integrated course in Anatomical Kinesiology/ Movement Analysis. **KINS 3103 Structural Kinesiology**
7. Motor Learning and Motor Development, or one integrated course in Psychomotor Development & Learning (i.e., Motor Behavior). **KINS 3403 Motor Behavior**
8. First Aid/CPR
9. Activity based courses or relevant certificates which reflect both formal educational experiences leading to knowledge-based and skilled competencies in the following knowledge/skill-based activity areas (minimum of one in each of the areas):
   a. Area One**:** Individual, dual, or team sports (i.e., basketball, volleyball, soccer, tennis, golf, gymnastics, martial arts, fencing, archery, etc.)
   b. Area Two: Dance or Rhythmical Activities (i.e., ballet, jazz, modern ballroom, folk, square)
   c. Area Three: Fitness (i.e., aerobics, yoga, therapeutic exercise, weight training, conditioning)
   d. Area Four: Outdoor/Adventure related skills (i.e., canoeing, kayaking, rock climbing, orienteering, adventure games/activities, etc.)
   e. Area Five: Aquatics (i.e., swimming, lifesaving ARC certification, SCUBA, water aerobics)

> *Being an athlete on a team would suffice for specific areas; utilizing the Outdoor Ed. Center offerings, KINS 4403 (Skill Analysis); other options contingent upon approval.*

Figure 3. Essential Course Admission Prerequisites for the MAT PE

dents complete the program and are truly seeking teacher certification. Most of them have the desire to work with either high school or college athletes, and many public and private K–12 schools in the surrounding area will not hire a full time athletic trainer. Therefore athletic training students get hired as certified teachers to teach half a day and spend the remainder of the day with athletic teams as a certified athletic trainer. The stipend for certified athletic trainers can also be significantly higher than many coaches make.

Graduate students seeking admittance into the program who have not come from a related content area (e.g. business, management, biology) have also applied. In every case, each applicant is screened individually. The assessment of transcripts may provide the ability to waive equivalent courses. In instances where a student has taken very little or no content-related material as an undergraduate, they are required to take course equivalents to the PE minor (either on this campus or another). The philosophy is that if a student is not willing to take the necessary pre-requisites, then they are not committed to earning the MAT PE degree.

One challenge we have faced in this program has been students applying who are coming from other institutions. Their ability to easily assimilate with a cohort of students already familiar with one another from their undergraduate programs has been challenging. It has not

been insurmountable, but with 80–85% of the cohort population being graduates from this institution, it has posed feelings of being an "outsider" on occasion. The reverse side of this challenge has been a major strength. Students who have graduated with one of our undergraduate degrees and completed the minor in PE are well prepared for entry into the MAT PE program and have been highly successful within the program as well.

Another challenge faced has been the surrounding rural region and finding adequate placement sites for student teaching. On the other hand, students who have graduated from the MAT PE program have been able to fill open teaching positions in the nearby area. After 2–3 years, these graduates have become mentor/cooperating teachers for the program, providing us with excellent placement sites. Once again the challenges have provided the program with strengths as well.

This 5th year, entry-level teacher certification graduate program has continued to show steady growth with positive returns. The decision to move in that direction has been favorable. If the MAT PE program continues to flourish, rejecting qualified students may become a common component of the admission process.

# NAKHE Announcements

## NAKHE Foundation Memorial Fund

This fund was started with a large gift to NAKHE through the will of Dean A. Pease. Donations to the NAKHE Foundation Memorial Fund can be forwarded to:

NAKHE c/o Carrie Sampson Moore
Department of Athletics, Physical Education, & Recreation
Massachusetts Institute of Technology
77 Massachusetts Ave.
Cambridge, MA 02139
617.253.5004 (office)
clsmoore@mit.edu

Make checks payable to: NAKHE Foundation Memorial Fund.

## Funding for NAKHE Special Projects

One of the responsibilities of the Foundations Committee is to oversee the spending of all endowed funds. There is interest money available in NAKHE's endowed funds to be used for special projects to further the goals of NAKHE. These are also projects that would not fall under the operating budget of NAKHE. Requests for special projects should be submitted by July 1st or November 1st of each year to the Chair of the Foundations Committee (FC). The FC, if possible, will make their decisions via e-mail. So there should be a short turnaround in the decision-making process.

Project requests should include:

1. Person(s) submitting request, address, phone, e-mail
2. Title and description of project
3. Itemized cost of project
4. Timeline for completion of project
5. Proposed benefits to NAKHE

____ Request Advance      ____ Request Reimbursement      ____ Other

For 2016 requests, submit your proposal to:

Marilyn Buck
School of Physical Education, Sport and Exercise Science
Health and Physical Activity Building (HP) Room 360
Ball State University
Muncie, IN 47306
mbuck@bsu.edu

*(continued)*

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| Steve Prewitt | Steve.Prewitt@tamuc.edu |
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# Authors Sought

The journal publishes work in the following areas of emphasis:
- Best Practices in Leadership
  - Articles written by those in leadership positions, or about leadership work.
- Best Practices in Teaching
  - Articles involving best practices in college teaching in Kinesiology.
- Research
  - Original research articles that address new or existing lines of research pertinent to the field of Kinesiology
- New Professionals
  - Articles written by newly hired professionals to aid others in their search for jobs or navigating the workplace
- Public Affairs
  - Articles written for a public purpose, including position papers
- Graduate Student Submissions
  - Articles highlighting Masters' Thesis or Doctoral Dissertation work

All manuscripts must adhere to the following guidelines:
- 12 point Times New Roman font
- 1 inch margins
- No more than 10 pages, not including references and tables/figures
- APA 6th edition for references, headings, tables, and figures
- Inserted page and line numbers

When submitting your manuscript, please include the following as separate documents:
1. Title page with all authors listed, including contact information for the corresponding author
2. Cover letter, indicating preference for peer or editor review and identified area of emphasis. A statement of originality must be included, as work considered for review cannot be submitted elsewhere.
3. Abstract and keywords, no more than 250 words
4. Main document

*(continued)*

*IJKHE* **Deadlines**

Deadlines for *The International Journal of Kinesiology in Higher Education*:

| Copy to Editor | Published |
| --- | --- |
| January 15 | April |
| July 15 | October |

# To Join NAKHE or Renew Your Membership

NAKHE membership entitles you to three issues of *Quest*, one of which features the *Academy Papers*, and two issues of the *International Journal of Kinesiology in Higher Education* per year, and to member rates for the annual conference. Please complete this form and return it to the address listed. **Or apply online at www.nakhe.org**

What are your special interests?

Check no more than three.

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❑ Concurrent AAKPE Membership $30
❑ Sustaining Member $85
❑ Tax deductible contribution to NAKHE $_____

## NAKHE Announcements, *continued*

**Mail checks, payable to NAKHE, and this form to:**

NAKHE c/o Carrie Sampson Moore
Department of Athletics, Physical Education, & Recreation
Massachusetts Institute of Technology
77 Massachusetts Ave.
Cambridge, MA 02139
617.253.5004 (office)
clsmoore@mit.edu

*(Canadian and other foreign members must use a money order or check imprinted "U.S. Funds.")*

# NAKHE Leadership Roster

**President:** B. Ann Boyce, University of Virginia, bab6n@virginia.edu
**President-Elect:** Betty Block, Texas A&M Commerce, betty.block@tamuc.edu
**Past President:** Steve Estes, Middle Tennessee State University, steven.estes@mtsu.edu
**Vice President:** Tara Tietjen-Smith, Texas A&M – Commerce, tara.tietjen-smith@tamuc.edu
**Vice President-Elect:** Britt Johnson, Missouri Western State University, bjohnson35@missouriwestern.edu
**Executive Director:** Carrie Sampson Moore, Massachusetts Institute of Technology, clsmoore@mit.edu
**Secretary:** Kacey DiGiacinto, Elizabeth City State University, kldigiacinto@mail.ecsu.edu
**Parliamentarian:** Camille O'Bryant, California Polytechnic State University, cobryant@calpoly.edu
**Necrologist:** Alison Wrynn, California State University – Fullerton, awrynn@fullerton.edu
**Archivist:** Pam Brown, University of North Carolina – Greensboro, plkocher@uncg.edu

*Committee Chairs:*

**Bylaws (2015–2018):** Steve Prewitt, Texas A&M University – Commerce, steve.prewitt@tamuc.edu

**Foundations (2016–2017):** Ronald Feingold, Adelphi University (Retired), feingold@adelphi.edu
**Future Directions (2016–2017):** Jody Langdon, Georgia Southern University, jlangdon@georgiasouthern.edu
**Member Services (2013–2016):** Leah Holland Fiorentino, University of North Carolina – Pembroke, leah.fiorentino@uncp.edu
**Publications (2016–2017):** Daniel Burt, Texas A&M – Kingsville, daniel.burt@tamuk.edu

*Member Services Sub-Committee Chairs:*

**Awards:** Valerie Wayda, West Virginia University, Valerie.Wayda@mail.wvu.edu

**Membership:** David Cutton, Texas A&M – Kingsville, david.cutton@tamuk.edu
**Nominations & Elections:** Dennis Docheff, University of Central Missouri, docheff@ucmo.edu
**Public Affairs:** Gwen Weatherford, Texas Woman's University, gweatherford@twu.edu
**Social Justice & Cultural Diversity:** Anne Frank, DePaul University, afrank@depaul.edu
**Technology:** Jim Sweet, Eastern Michigan University, jsweet@emich.edu

# OPERA

### Job Notice/Web Postings

Submit your job openings for posting at a NAKHE Webpage and for e-mailing to over 600 professionals in the field. The Website OPERA is updated weekly and receives nearly 600 hits per week. For details, please visit http://www.nakhe.org/OPERA/Index.html

# 2016 Leadership Development Workshop

### July 7–8, Atlanta, GA

**Theme:** Academic Leadership and Identity Politics: Creating Structures that Support Difference, Emotional Significance, and Group Membership

The NAKHE Leader Development Workshop (LDW) focuses on providing opportunities for kinesiology faculty – especially those beginning their careers – to discuss leadership in the field by working on common problems with some of kinesiology's senior leaders and administrators. NAKHE invites faculty, administrators, and doctoral students who are interested in moving into leader roles to attend the 7th NAKHE Workshop to be held July 7–8 at Georgia State University in Atlanta, Georgia.

Contact Betty Block at betty.block@tamuc.edu for information and to reserve your seat!
More information at www.NAKHE.org.

# 2017 Annual Conference

### January 4–7, Orlando, FL

**Theme:** Power of the Past: Focus on the Future

**Keynote Speaker:**
Byron Reese, Futurist and Author of *Infinite Progress: How the Internet and Technology Will End Ignorance, Disease, Poverty, Hunger and War*

**Conference Headquarters:**
Wyndham Grand Orlando Resort Bonnet Creek
14651 Chelonia Parkway
Orlando, Florida, 32821
PH: (407) 390-2300
http://www.wyndhamgrandorlando.com/

More information at www.NAKHE.org