

Promoting Identity Development in Student Athletes: There's An App for That

Paul C. Harris, Brian Pusser, Darren Kelly, Jim Bauman, Phil Gates, Sami Fekadu, Rachel Desmond, & Tony Teate



Need

All college students are encouraged to engage in self-exploration in order to develop a clear sense of self, commitment, and direction. Playing a sport can either complement or impede this process, and much depends on the supports in place for student athletes.

Innovative Approach

ReadyApp, a mobile application, was developed to support the healthy identity development of student athletes in and out of their sport in a time efficient manner. ReadyApp includes a library of messages that are rooted in identity status theory and provide practical guidance on how to develop a healthy identity. Participants in the project were assigned to a treatment and control group. All 27 participants downloaded ReadyApp, but only the 14 in the treatment group received the messages three times per week for 5 weeks, while the 13 in the control group received placebo messages. Completed surveys before and after the intervention were analyzed. Transcripts from interviews conducted with 5 participants in the treatment group after the intervention were also analyzed.

So What?

Our findings suggested that the ReadyApp was beneficial in that it allowed for student athletes to access information and guidance on their own time, challenged them to think critically about their future selves, provided useful action steps for the student athletes to implement in working toward a well-integrated identity, and reinforced them for the positive steps they are already taking.

How Other Campuses Can Adopt

The free ReadyApp can easily be incorporated into the practices of life skills coordinators, sport psychologists, student affairs administrators, and any other campus level personnel for whom the identity development of student athletes is a priority. Delivery of such content in this way enables advisors, instructors, and other stakeholders to maximize personal time spent with student athletes, building on the content delivered through ReadyApp.

Future Plans

The potential for the app's content is limitless. Work on additional content that aligns with identity status theory, as well as learning and study strategies content for the app is already underway by the researchers.

**ReadyApp is part of Ready Athletes research. More info at www.readyathletes.com*

2015 NCAA Innovations Grant

Final Report

Promoting Identity Development in Student Athletes: There's An App for That



READY
ATHLETES

Dr. Paul C. Harris, Principal Investigator, University of Virginia

Dr. Brian Pusser, University of Virginia

Dr. Darren Kelly, University of Texas-Austin

Dr. Jim Bauman, University of Virginia

Mr. Phil Gates, University of Virginia

Mr. Sami Fekadu, IBM

Ms. Rachel Desmond, Grad Assistant, University of Virginia

Mr. Tony Teate, Undergrad Assistant, University of Virginia

Problem Statement

The need for support of collegiate student-athletes' identity development is readily apparent. Emerging adults are engaged in a variety of developmental tasks such as identity formation, becoming personally competent, developing interpersonal relationships, and planning for the future. Playing a sport adds an unexpectedly complex layer to these stage-related tasks (Heird & Steinfeldt, 2013). Gayles (2015) noted that student-athletes must balance a unique set of circumstances, such as balancing athletic and academic endeavors, social activities with the isolation of athletic pursuits, athletic success or lack of success with maintenance of mental equilibrium, physical health and injuries with the need to keep playing, the demands of various relationships, and reconciling the termination of an athletic career with setting goals for the future. As such, the degree to which one exclusively identifies with the athletic role, also known as athletic identity, can have a variety of implications. Specifically, over-identification with the athletic role has been tied to harmful outcomes, such as decreased college success and lower rates of completion (Harris, 2014; Comeaux, 2013; Kelly & Dixon, 2014). There is a critical need for interventions that promote student athletes' healthy identity development.

This study proposed using ReadyApp, a mobile application, to promote healthy identity development in collegiate student athletes. ReadyApp allowed student athletes to instantly and conveniently access guidance on a variety of topics related to healthy identity development, and allowed the research team to measure changes in the identity development of student athletes using the application.

Project Aims

Aim 1: Develop a series of messages that promotes the healthy identity development of collegiate student-athletes.

Aim 2: Integrate the intervention into a mobile app that can be accessible to any collegiate student-athlete.

Aim 3: Measure the impact of the intervention through administering the Revised Identity Style Inventory (ISI – 5) and semi-structured interviews.

Literature Review

According to Berzonsky, Soenens, Luyckx, Smits, Papini, and Goossens (2013), a well-integrated identity provides a frame of reference for making decisions and interpreting experiences. Berzonsky (1990, 2004) developed a model of identity formation that suggests three different identity-processing styles: informational, normative, and diffuse-avoidant. Berzonsky et al (2013) suggest that individuals with an informational identity style have a clear sense of commitment and direction; those with a normative identity processing style are conscientious, self-disciplined, and have a strong sense of commitment, but also internalize the expectations and standards of others; those with a diffuse-avoidant style tend to put off dealing with identity conflicts and decisions as long as they can, and when they do act on decisions it is largely

determined by situational circumstances and consequences. Berzonsky and Barclay (1981) suggested that these three styles embody what is presented in James Marcia's (1966) four identity statuses: diffusion, moratorium, foreclosure, or achievement. Marcia's four categories borrow from Erikson's (1994) conceptualization of identity development as a task involving exploration of various possible positions in the world and ultimately making mature commitments to certain ones, such as religion, career, political affiliation or sexual orientation. Each status category can be defined by the presence or absence of exploration and commitment. The informational identity processing style is associated with the achieved or moratorium identity status; the normative identity processing style is associated with the foreclosed identity status; and the diffuse-avoidant identity processing style is associated with the diffusion identity status (Berzonsky, 2011).

Persons in the diffused category are not actively involved in exploring possible life choices, nor have they made any firm commitments to them. While this may be fairly common in adolescence, it could become problematic later on. Persons whose identity is diffused (i.e., confused) may not trust their ability to find and commit to a meaningful path in life, or they might deny their need to do so. They may also lack a sense of optimism about the future. These individuals may also situate themselves within a highly controlling environment that dictates the conditions of their behavior and the nature of their views. The collegiate athletics landscape, in all its efforts to guide student athletes, has the potential (though preventable) to become that highly controlled environment that the diffused person seeks, which might seem okay for a while until that environment is no longer there. The persons in the moratorium category distinguish themselves from diffusion in that there is more exploration, though still a lack of commitment. The prize to be gained from this adolescent and early adult trial and error is an identity that has been personally constructed. Constructed identity is not based on a predetermined set of expectations, but represents either a personal redefinition of childhood and early adolescent goals and values or perhaps something very different from them. Foreclosure describes a category of individuals who make commitments with little or no exploration of alternatives (Marcia, 1964, 1980). It may also characterize young people entering adolescence who incorporate the values and goals of significant others, such as their parents, without reflection. These commitments are, by definition, premature, preordained by or constrained by some circumstance. The identity attained by those who are foreclosed is called a conferred identity, rather than a constructed one. Foreclosure's perspective on the future involves meeting the expectations of a "prearranged set of ideals." Identity achievement comprises individuals whose development has been marked by exploration and commitment to certain alternatives (Marcia, 1967, 1980).

New technologies open opportunities for innovative approaches to developing healthy identities for student-athletes. The use of technology offers the opportunity for creating high impact and time efficient interventions, which are critical given the time demands already placed on student-athletes. Given the unique time demands that student-athletes endure, a mobile app creates a unique mechanism through which such identity development can efficiently occur. The use of technology maximizes instructional time, which is critical given the time demands already placed on student-athletes (Walker, 2011). Using a mobile app can facilitate and enhance individual and collaborative learning experiences independent of time and place (Biden & Ziden, 2013).

The use of ReadyApp, a mobile application that can be installed on any mobile device allows student athletes to conveniently access guidance on how to develop a well-integrated identity. A multidimensional sense of self has been found to protect one's self-concept in the event of failure in one dimension (Heird & Steinfeldt, 2013).

Conceptual Framework

Identity status theory and transactional distance theory (TDT) guide this study. Identity status theory, espoused by Marcia (1967) suggests that there are four identity statuses that individuals can occupy: Diffusion, moratorium, achievement, and foreclosure. Marcia (1967, 1980) suggests that an adolescent's identity is shaped by crises, or the extent to which one's values and choices are being reevaluated, and commitment. Each status category can be defined by the presence or absence of exploration and commitment (see Figure 1). The messages delivered through ReadyApp are structured in such a way that individuals are encouraged to develop an identity processing style (i.e., informational) congruent with the either the moratorium or achievement identity statuses.

Mobile learning (M-Learning) refers to the use of wireless or mobile devices for the purposes of learning while in transition (Park, 2011). M-learning solutions are incredibly useful for making learning more flexible and personalized, enabling education to be provided independent of time and space as with other distance education mechanisms (Tetard, Patokorpi, and Carlsson, 2008). TDT is one of the primary theoretical underpinnings in the field of distance education, and generally describes the relationship between three variables: dialogue, structure, and learner autonomy (Moore, 1980, 1993). Moore (1980, 1993) suggests that transactional distance is a psychological and communication space that needs to be crossed by "instructor" and learners. When autonomy is low, the need for structure is high, and when structure is low the need for autonomy is high. Further, interventions with low dialogue require a high degree of learner autonomy, and interventions with low dialogue and structure require a high degree of learner autonomy. ReadyApp is structured to provide learners with a high degree of autonomy, thus minimizing the transactional distance (see Figure 2).

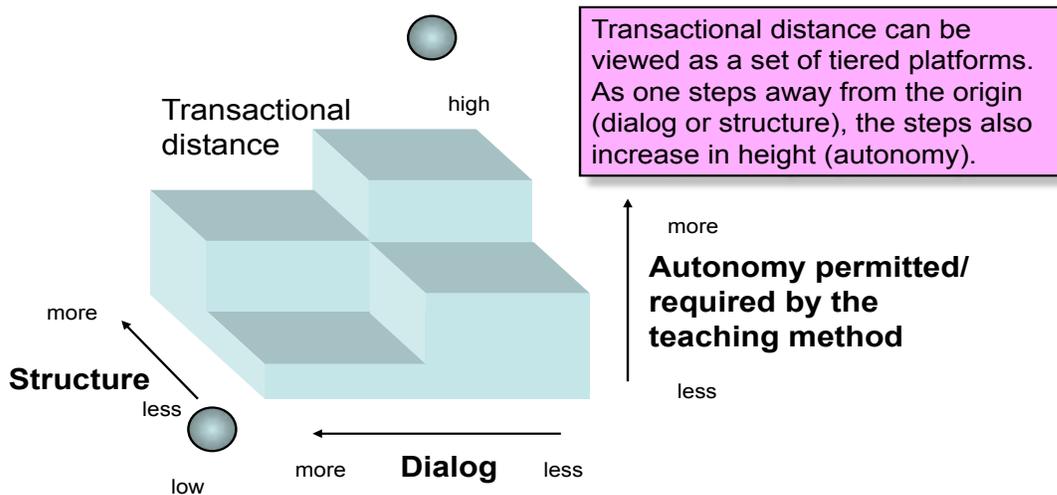
Figure 1.

Identity Status Categories

		Commitment	
		Present	Absent
Exploration	Present	Identity Achievement	Moratorium
	Absent	Identity Foreclosure	Identity diffusion

Figure 2.

A 3D Model of transactional distance



Methodology and Data Collection

Participants

The goal of this project was to develop and assess the impact of ReadyApp, a mobile application designed to promote the healthy identity development of student athletes. ReadyApp alerted participants to messages 3 times per week for 5 weeks.

Participants in this pilot study included 27 student athletes from a division I NCAA-member institution on the east coast. At no time in the process did student athletes feel compelled or coerced to participate. Athletics personnel, for example, were only involved to help develop content for the app.

The majority of student athlete participants were recruited through a course taught by a co-investigator that had an enrollment of 235 students, 40% of which were student athletes. Fourteen (14) participants were in the treatment group and had access to the ReadyApp content. They were sent messages related to identity development on Mondays, Wednesdays, and Fridays throughout the semester. Thirteen (13) participants in the control group received placebo messages through ReadyApp.

Intervention

The treatment group received messages through ReadyApp on Mondays, Wednesdays, and Fridays for five (5) weeks. On Mondays, an “Awareness” message highlighted some aspect of identity development. On Wednesdays, an “Advice” message provided a suggestion for how the student athletes could operationalize Monday’s “Awareness” message in their own lives, with the intent of maximizing their ownership of their identity development. On Friday, an “Advance” message provided encouragement and reinforcement that extended Wednesday’s “Advice” message. The participants in the control group were sent messages unrelated to identity development through ReadyApp.

Data Analysis

The Revised Identity Style Inventory (ISI – 5) was the quantitative measure used in this study, while phenomenological interviews provided a qualitative inquiry into the efficacy of the intervention.

For quantitative analysis, descriptive statistics were assessed as a first step to determine the mean scores and standard deviations for each identity processing style on the pre- and post-administrations of the ISI-5. Reliability estimates of each component of the inventory (pre and post) were also assessed. A split-plot repeated measures analyses of variance (ANOVA) was conducted to evaluate the between groups, within subjects, and interaction effects on each of the four component scores in the inventory.

The researchers also utilized a limited number of in-depth, semi-structured interviews with 5 participants from the treatment group to further understand the meaning of the intervention for the participants. Open-ended questions with prompts and follow-up questions were employed in order to elicit both breadth and depth in responses (Breakwell, 1995). The interviews were

recorded and transcribed, after which the researchers employed a thematic analysis, a foundational method for qualitative analysis (Braun & Clarke, 2006).

The following steps were taken by the research team in conducting the thematic analysis: 1) Read through the entire data set at least once prior to coding; 2) After producing a list of ideas about what is in the data, generated initial codes from the data, coding for as many potential themes/patterns as possible using NVivo software; 3) Sorted the codes into identified potential themes; and 4) Reviewed the themes, collapsing themes into others where appropriate, and ensure that data within themes are consistent. Sample questions are provided in the Appendix.

Findings

Quantitative

Table 1 shows the means and standard deviations for all four of the identity processing style Reliability estimates on all component scores in the pre measurement were below normally acceptable levels ($\alpha = .70$) except for the Informational Style component ($\alpha = .75$). In the post measurement all components exceeded normally acceptable levels of reliability except for the Normative Style component ($\alpha = .63$). Table 1 shows the means and standard deviations for all four of the identity processing style scores on the pre- and post- administrations of the ISI-5. Table 2 shows the results of the split-plot repeated measures ANOVA models. Figure 3 is a plot of a power analysis conducted to determine the sample size required to detect a significant difference in the interaction effect given the effect sizes and correlations between pre and post scores found in this study.

Table 1.

Means and standard deviations by pre / post test and treatment condition. ($n_{treatment} = 14$ and $n_{control} = 13$)

	Pre Test		Post Test	
	Treatment <i>M(SD)</i>	Control <i>M(SD)</i>	Treatment <i>M(SD)</i>	Control <i>M(SD)</i>
Informational Style	35.86 (3.57)	34.39 (4.44)	35.86 (4.60)	34.92 (4.46)
Normative Style	23.64 (3.63)	27.08 (2.90)	24.71 (3.69)	26.54 (3.73)
Diffuse-Avoidant Style	19.50 (3.80)	22.92 (3.82)	19.57 (4.67)	21.08 (4.89)
Strength of Commitment	36.00 (3.33)	34.46 (4.41)	35.93 (5.15)	36.46 (4.26)

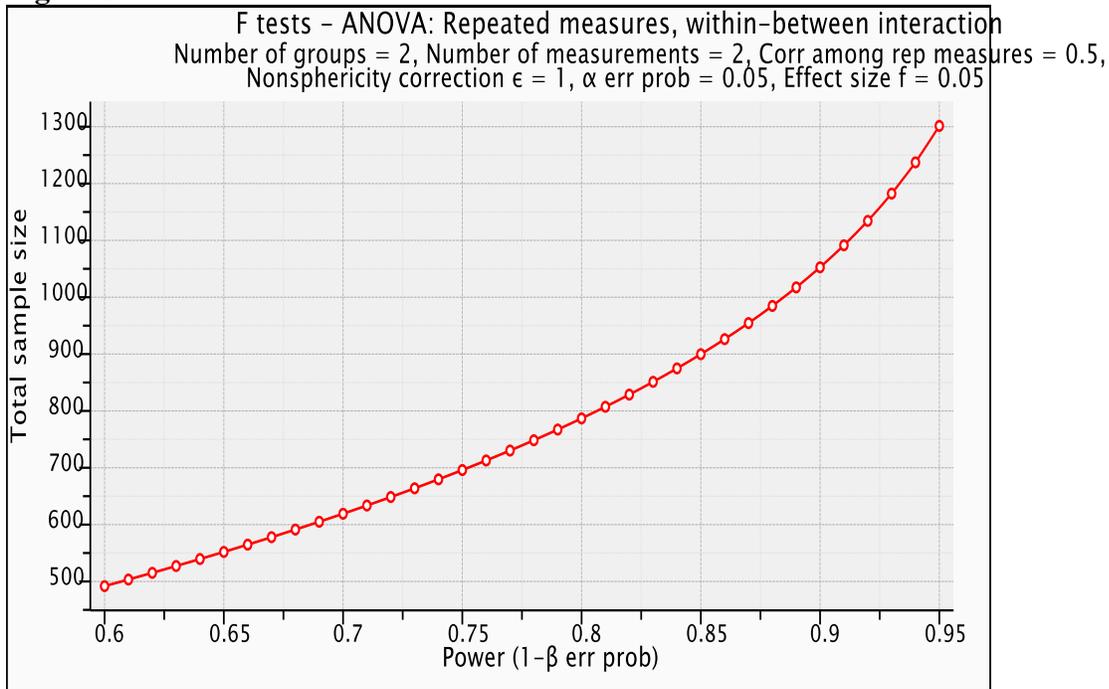
Table 2.

F statistics, *p* values, and eta squared effect sizes resulting from the fixed effect split plot repeated measures ANOVAs.

	Effect	<i>F</i>	<i>p</i>	η^2_{partial}
Informational Style	Group	0.640	.431	.025
	Time	0.158	.694	.007
	Group x Time	0.158	.694	.007
Normative Style	Group	5.680	.025	.185
	Time	0.116	.736	.005
	Group x Time	1.060	.313	.041
Diffuse-Avoidant Style	Group	2.768	.109	.100
	Time	1.373	.252	.052
	Group x Time	1.603	.217	.060
Strength of Commitment	Group	0.117	.735	.004
	Time	1.496	.233	.056
	Group x Time	1.726	.201	.065

The power of the significance tests in this study were hampered by the small sample ($N = 27$), but the power analysis provides some guidance as to how many participants would be needed in future research to obtain statistically significant results ($N = 788$ when power = .80). Additionally, increased sample size would allow researchers to confirm the factor structure of the ISI-5, which would enhance the argument for the validity of the measurements. Another limitation was the time of treatment (5 weeks). Since, as Marcia (1967, 1980) suggests, adolescent identity is shaped by crises that drive the reevaluation of values and choices, sufficient time must be allowed for these processes to occur and future research should extend the length of the treatment. It is worth noting, particularly on the post-intervention mean scores, that the treatment group scored slightly higher than the control group on the information identity processing style. This is the preferred identity processing style as individuals who embody this style intentionally seek out, evaluate, and utilize self-relevant information (Berzonsky et al, 2013).

Figure 3.



Qualitative

The semi-structured interviews conducted with 5 of the participants yielded five themes from the data: Identity, positive reinforcement, goal awareness, critical thinking, and limited time and the need for convenience. The themes are further explicated below, along with representative quotes from the interviewees.

Theme 1: Identity

Identity was a central theme espoused throughout the interviews with the student-athletes. The purpose of the project was to focus on identity development of student athletes. It was mentioned multiple times throughout each interview and in some cases was a new concept for the student-athletes to learn about and understand.

“And so, and this, reminds you about your identity and like where you came from and like where you are trying to get to. I think it is very beneficial to see that and know that 1. That athletics isn’t everything and there is a lot more that goes into just being a good player and I think when you’re feeling healthy and better about the other aspects of your life, you are able to perform on the field at a higher level with more confidence.”

-George, Junior, 21 yrs old, Male, White, Lacrosse player

Theme 2: Positive Reinforcement

Participants indicated that the messages received through the app helped to motivate them and inspire confidence in themselves. Overall, the messages served as positive reinforcement for the positive activities they were currently engaged in and the goals they were aspiring to achieve.

For me it was more of a reinforcement of what I already knew. But I think it was really helpful in the sense that these are not things that I think about all the time or like they might cross my mind but I don't focus in on it all the time so basically like if I kind of have goals for myself, like I am not a great, I am a good goal setter, I am very goal oriented but I am really great at trying to get myself there. Like sometimes especially a long-term goal. So there was one day where it came out and said you have to put yourself around people that are kind of going in the direction you want to go. Um, that can kind of help you mold your identity and kind of what you want to see yourself doing in the future things like that. And it was just like a good reminder because sometimes people get wrapped up in the day, what you have to do, what you are doing right here and now.

-Jackie, Junior, 20 years old, Female, Black, Women's basketball player

Theme 3: Goal Awareness

Participants did mention that goal setting was a major component of their lives and how the app made them reflect on, reinforce or even re-think the academic, athletic and career goals they set for themselves.

I think it [the app] was really helpful in the sense that these are not things that I think about all the time or like they might cross my mind but I don't focus in on it all the time so basically like if I kind of have goals for myself, like I am not a great, I am a good goal setter, I am very goal oriented but I am really great at trying to get myself there.

-Jackie, Junior, 20 years old, Female, Black, Women's basketball player

I just learned to like visualize different things while working, and you know, when I'm tired, I really don't want to get up in the morning, I really don't want to do something that I have to do, you just think about your future self and you know if you try to build yourself to be that person. That is just never something I applied in my life until I read some of these things.

-Richard, Freshman, 19, Male, White, Football player

Theme 4: Critical Thinking

The participants expressed statements that highlighted how the app prompted them to think critically about concepts, situations, and behaviors that were relevant to their lives. The messages encouraged the student-athletes to engage with the material and concepts in order to get a better grasp of the ideas.

You were able to get the messages across...you are able to interpret it in your own way because of the medium you're getting it under so you like the message could be broad ...and they might take it and say like oh wow, okay this helps me motivate me to keep working on my progress that

I am making. Whereas you might have someone that is struggling in classes and [says to herself] “you know what I should put more time into this” so because you’re reaching so many different people and you don’t know what they’re going through and...it was left to interpretation, I think you were able to get to different people and affect them all in unique ways and help them individually.

-Christina, Senior, 21 yrs old, Female, White, Softball player

I feel like it [the app] is prompting you to do the thinking on your own. Which I definitely liked because I feel like a lot of the tutoring or life skills stuff you have to like kind of have the motivation to go there and spend an hour or two like whatever once a week at this set time whereas this kind of just buzzes and you could look at it 40 minutes later and it would still be there. And most of it is just kind of sparking the thought process within.

-Mike, Senior, 21, Male, White, Soccer player

Theme 5: Limited time and the need for convenience

The time demands for student athletes is a known unique stressor. Participants overall felt that the app allowed them to do activities that would typically take longer in group or individual sessions or classes.

...through this app you, like you can look back at it or the tasks aren’t daunting or you’re not sitting through an hour long lecture or an hour long presentation. But with this [app] it had the ability to reach you and you could go back and check it out another time.

-Christina, Senior, 21 yrs old, Female, White, Softball player

I mean the fact that it came through my phone was super convenient um again, I think if it was one click and you were there, it would be a lot simpler, but the fact that it was still on my phone and I didn’t have to read a book to find it, I didn’t have to go on my computer to find it, the fact that it was in the palm of my hand, I didn’t even have to look it up, it was there for me and it was something I could still use every message was useful, every message I could apply to my everyday life.

- Richard, Freshman, 19, Male, White, Football player

Implications for Campus Level Programming

ReadyApp is a free download for Apple and Android devices and can be incorporated into the practices of life skills coordinators, sport psychologists, student affairs administrations, and any other campus level personnel for whom the identity development of student athletes is a priority. It can greatly enhance the efficiency of the delivery of services already received by student athletes. It enables advisors, instructors, and other stakeholders to maximize personal time spent with student-athletes, building on the content delivered by the application.

References

- Berzonsky, M. D. (1990). Self-construction over the life-span: A process perspective on identity formation. In G. J. Neimeyer & R. A. Neimeyer (Eds.), *Advances in personal construct psychology* (Vol. 1, pp. 155-186). Greenwich, CT: JAI Press.
- Berzonsky, M. D. (2004). Identity processing style, self-construction, and personal epistemic assumptions: A social-cognitive perspective. *European Journal of Developmental Psychology, 1*, 303-315.
- Berzonsky, M. D. (2011). A social-cognitive perspective on identity construction. In S. J. Schwartz, K. Luycks, & V. Vignoles (Eds.), *Handbook of identity theory and research: Structures and processes* (Vol. 1, pp. 55-76). London, England: Springer.
- Berzonsky, M. D., & Barclay, C. R. (1981). Formal reasoning and identity formation: A reconceptualization. *Social development in youth: Structure and content*, 64-87.
- Berzonsky, M. D., Soenens, B., Luyckx, K., Smits, I., Papini, D. R., & Goosens, Luc (2013). Development and validation of the revised identity style inventory (ISI-5): Factor structure, reliability, and validity. *American Psychological Association, 25*(3), 893-904.
- Biden, S., & Ziden, A. A. (2013). Adoption and application of mobile learning the education industry. *Social and Behavioral Sciences, 90*, 720-729.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in Psychology, 77*-101.
- Breakwell, G. M. (1995). Interviewing. In G. M. Breakwell, S. Hammond, & C. Fife-Shaw (Eds.), *Research methods in psychology*. London: Sage.
- Brewer, B. W., Van Raalte, J. L., & Linder, D. E. (1993). Athletic identity: Hercules' muscles or achilles heel? *International Journal of Sport Psychology, 24*, 237-254.
- Broughton, E., & Neyer, M. (2001). Advising and counseling student athletes. *New Directions for Student Services, 93*, 47-53.
- Carter, J. E. (2009). Disordered eating in college student-athletes. In E. F. Etzel, A. P. Ferrante, & J. W. Pinkney (Eds.), *Counseling college student-athletes: Issues and interventions* (2nd ed., pp. 303-322). Morgantown, WV: Fitness Information Technology.
- Creswell. (2007). *Qualitative inquiry and research design* (2nd ed.). Thousand Oaks, CA: Sage.
- Comeaux, E. (2013). Rethinking academic reform and encouraging organizational innovation: Implications for stakeholder management in college sports. *Innovative Higher Education, 38*, 281-293.
- Erikson, E. H. (1994). *Identity: Youth and crisis* (No. 7). W.W. Norton & Company.
- Ford, J. A. (2007). Substance use among college athletes: A comparison based on sport/team affiliation. *Journal of American College Health, 55*, 367-373. Doi: 10.3200/JACH.55.6. 367-373.
- Gayles, J. G. (2015). Engaging student athletes. In S. J. Quaye & S. R. Harper, *Student Engagement in Higher Education: Theoretical Perspectives and Approaches for Diverse Populations* (2nd ed., pp. 209-221). New York, NY: Routledge.
- Harris, P.C. (2014). The sports participation effect on educational attainment of Black males. *Education and Urban Society*. DOI: 10.1177/0013124512446219

- Heird, E. M., & Steinfeldt, J. A. (2013). An interpersonal psychotherapy approach to Counseling student-athletes: Clinical implications of athletic identity. *Journal of College Counseling, 16*, pp. 143-157.
- Kelly, D. D. & Dixon, M. A. (2014). Successfully navigating life transitions among African American male student-athletes: A review and examination of constellation mentoring as a promising strategy. *Journal of Sport Management, 28*, 498-514.
- Marcia, J. E., (1966). Development and validation of ego identity status. *Journal of Personality and Social Psychology, 3*, 551-558.
- Marcia, J. E. (1967). Ego identity status: Relationship to change in self-esteem, 'general maladjustment', and authoritarianism. *Journal of Personality, 35* (1), 118-133.
- Marcia, J. E. (1980). Identity in adolescence. *Handbook of adolescent psychology, 9*, 159-187.
- Marcia, J. E. (1993). The status of the statuses: Research review. In J. E. Marcia, A. S. Waterman, D. R. Matteson, S. L. Archer, & J. L. Orlofsky (Eds.), *Ego identity: A handbook for psychosocial research* (pp. 22-41). New York, NY: Springer-Verlag.
- Marcia, J. E. (1999). Representational thought in ego identity, psychotherapy, and psychosocial developmental theory. In I. E. Sigel (Ed.), *Development of mental representation: Theories and application* (pp. 391-414). Mahwah, NJ: Erlbaum.
- Martin, E. M., & Horn, T. S. (2013). The role of athletic identity and passion in predicting burnout in adolescent female athletes. *The Sport Psychologist, 27*, 338-348.
- Moore, M. G. (1980). Independent study. In R. D. Boyd, Apps, J. W., & Associates (Eds.), *Redefining the discipline of adult education* (Vol. 5, pp. 16-31). San Francisco: Jossey-Bass.
- Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (Vol. 1, pp. 22-38). New York: Routledge.
- Park, Y. (2011). A pedagogical framework for mobile learning: Categorizing educational applications of mobile technologies into four types. *The International Review of Research in Open and Distributed Learning, 12*(2), 78-102.
- Tétard, F., Patokorpi, E., & Carlsson, J. (2008). *A conceptual framework for mobile learning* (No. 464).
- Visek, A. J., Hurst, J. R., Maxwell, J. P., & Watson II, J. C. (2008). A cross-cultural psychometric evaluation of the athletic identity measurement scale. *Journal of Applied Sport Psychology, 20*, 473-480.
- Walker, H. (2011). Evaluating the effectiveness of apps for mobile devices. *Journal of Special Education Technology, 26*, 59-63.
- Watt, S. K., & Moore III, J. L. (2001). Who are student athletes? *New Directions for Student Services, 93*, 7-18.