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Rationale and Example of a Grant Writing Course for Graduate Students in Sport Management

Khirey Walker, M.S.

Louisiana State University

Jeremy Foreman, M.S.

Louisiana State University

Chad Seifried, Ph.D.

Louisiana State University

Brian Soebbing, Ph.D.

University of Alberta

Abstract

To prepare graduate students for their future careers and to help solve a variety of problems (e.g., societal, environmental, economic, practical, and theoretical), grant writing courses or seminars should be considered with respect to their required or elective curriculum. This work intends to provide an example of a previously taught course concerning the setting up and developing of a quality graduate-level grant writing class in Sport Management to provide necessary knowledge and experience for future scholars of the field. A multi-step approach and discussion of the grant writing process modeled after an actual grant writing course dedicated to Sport Management graduate students is presented to develop an appreciation for research, collaboration, and technical writing skills among prospective scholars. Finally, course evaluation components and a review of the course are included to make recommendations for future efforts.

Keywords: Grant writing, graduate students, academic writing

A Rationale and Example of a Grant Writing Course for Graduate Students in Sport Management

As in any academic field, Sport Management students, faculty, and staff require resources to position themselves for future career success and to help solve a variety of problems (e.g., societal, environmental, economic, practical, and theoretical). However, the pursuit of resources has been complicated in recent years as economic trends resulted in institutions of higher education experiencing state and federal cuts to their funding (Baker, 2012; Ehrenberg, 2012; Rikli, 2009; U.S. Department of Education, 2010). Grant writing has been adopted by numerous disciplines at colleges around the world as one method for obtaining resources (Baker, 2012; Thomas, 2003). Further, the demand for grant writing skills has been promoted through many faculty job postings (Solmon, 2009; Woods, Karp, & Feltz, 2003). Within this point, Solmon (2009) emphasized “[e]ven a casual examination of job advertisements supports the notion that all types of institutions have expectations for scholarship that include research and pursuit of external funding” to address current economic, social, and environmental challenges (p. 76).

In some places, Sport Management faculty and graduate students fail to capitalize on the wealth of funds available through grants, which exceed \$40 billion annually from over 90,000 different organizations (Blankenship, Jones, & Lovett, 2010; Devine, 2009; Jones, Brooks, & Mak, 2008). To support this statement, Jones, Brooks, and Mak (2008) found grant writing was only practiced by about half of Sport Management faculty members responding to their survey. Furthermore, among those who actively pursued grants, the average amount of funding secured over a four-year period was less than \$500. Mahony (2008) also acknowledged grant funding by Sport Management to be substantially less than other academic fields such as Health and Education, Exercise Science, and Physical Education

where, interestingly, many Sport Management programs are located (i.e., either in colleges, schools, or departments).

As a response, many scholars advocated for Sport Management programs to place greater emphasis on grant writing and suggested the need for formal grant writing structure to be established for graduate students (Baker, 2012; Barnes & Brayley, 2006; Blankenship, Jones, & Lovett, 2010; Jones, et al., 2008; Mahony, 2008). However, recent work by Foreman, Walker, Seifried, and Andrew (2016) found only 3 of 204 graduate programs of North American Society for Sport Management (NASSM) in the United States actually supported program-led grant writing courses. The concern for the lack of grant writing courses can be further enhanced by the work of Kelly and Grant (2012) and their examination of how external funding impacts pay for faculty. Controlling for other factors related to a faculty member's personal (e.g., gender, marriage and family status) and professional characteristics (e.g., rank, number of publications, number of classes taught), their results revealed the presence of external funding awards for the faculty member led to an increase in his/her salary between six and nine percent. Other comments supporting grant writing as a stand-alone course suggested the activity is beneficial for doctoral students because grant writing is a sort of 'currency' in occupational socialization with respect to what is considered scholarship (Woods, et al., 2003). Barnes and Brayley (2006) also promoted the skills gained by master's students in grant writing classes as beneficial to their future endeavors outside of the academic setting. For instance, many areas of Sport Management, particularly in the non-profit and community or recreation sport setting, receive a portion of their overall revenues via grants and government funding to address societal needs (Wicker, Breuer, & Hennigs, 2012).

In order to prepare the next generation of Sport Management scholars and practitioners, and to build on the foundation established by current and previous faculty, grant writing courses appear

necessary for Sport Management graduate students. Moreover, grant writing will likely assist the discipline in remaining competitive within university settings (Foreman et al., 2016). As an example, activities associated with grant writing (i.e., discovery, integration, and application) are regularly valued in academic circles because they generate revenue and may help establish important knowledge bases, facilitate interdisciplinary research, and identify problems in communities that require solutions (Woods, et al., 2003). This paper intends to contribute to the growth and/or change of Sport Management curricula through the presentation of how to organize a grant writing course; however, other sport management-related faculty of different programs (e.g., physical education, health and human sciences, and recreation) should find use in the information presented if desiring to create their own grant writing class.

To achieve this objective, sample steps are provided for instructors so that they could set up their own course for graduate students. This multi-step approach and discussion about various components of the grant writing process is provided to build an appreciation for research, collaboration, technical writing, and presentation skills. Furthermore, this paper helps promote example locations where scholars of sport can search and apply for grants. Finally, an example description of the various course evaluation components used in one instance by an instructor is provided to make recommendations for future efforts. Such an effort honors the call by Solmon (2009), Rikli (2009), and Woods et al. (2003) to provide opportunities for prospective graduate students to understand what programs might be best in preparing them for future work demands.

LITERATURE REVIEW

For graduate students who are conducting research, producing papers, grant proposals, and presenting their work, language and writing skills are very important (Weisblat & Sell, 2012). In particular, “[r]efining writing skills and developing ethical research tools, habits and skills are all new

capital that increases institutional capacity and effectiveness” (Weisblat & Sell, 2012, p. 72). The completion of a grant writing course provides graduate students with the opportunity to develop themselves as better writers and as ethical researchers (Foreman et al., 2016; Seifried, Walker, Foreman, & Andrew, 2015; Solmon, 2009). Within writing, one area in need of recognition concerns the differences that exist between academic and grant writing. It is understood similarities exist between the academic and grant writing styles. For instance, completing tasks such as searching databases, locating relevant works, and reviewing previous literature are required skills needed for academic research as well as grant writing (Solmon, 2009). However, despite these similarities, it is critical for future researchers to understand there are differences too.

Differences between Grant and Academic Writing

Porter (2007) reviewed the differences between grant writing and academic writing by explaining grant writing it is more competitive, centered on team work, and built toward service goals using simple but persuasive language. He added academic writing usually contains more of an impersonal tone using specialized “insider jargon” to explain perceptions or topics discovered by researchers (p. 38). Walden and Bryan (2010) further clarified distinctions between the two writing approaches by suggesting grant writing is a form of writing “geared toward the future, oriented toward service, focused on a single project, written to persuade the reader using a personal and lay tone, team-focused and brief” (p. 86). Academic writing, on the other hand, is less competitive, focused on the past, and oriented toward individual researcher pursuits. Walden and Bryan also added academic writing is lengthy and makes use of themes to embrace an explanatory conversation through use of an impersonal tone.

Other studies presented the grant processes as a complex system involving a variety of literatures, genres, and technologies within the team concept (Baker, 2012; McIsaac & Aschauer, 1990;

Myers, 1985; Tardy, 2003; Zachry, Spinuzzi, & Hart-Davidson, 2006). For instance, Tardy (2003) described the grant writing application “constitutes a kind of core genre, in many ways reflecting and necessitating the larger network . . . [that] guides participants through its various social and textual nodes” (p. 26). Zachry et al. (2006) further referenced that the application process associated with grant writing involves developing a communication process through multiple documents designed by various grant participants. O’Brien (2011) added “[t]he grant application as a whole should paint a detailed picture of how there is a need or problem in your community --- and, with funding assistance, how your agency is going to solve it” (p. 72).

Finally, the creation of a case statement for the aforementioned application is recognized as the most important component of a grant writing process (Bazzarre, 2008). Case statements, also known as proposals, are acknowledged as vital aspects of the grant application process because they provide insight to the agency supporting grant opportunities. For example, the case statement includes information that discusses the social and philanthropic goals of the grant applicant and the budgets required to achieve such objectives (Bazzarre, 2008; Weisblat & Sell, 2012). Furthermore, the case statement is organized to connect the grant applicant to the supporting grant foundation’s mission and vision for why that grant opportunity exists.

Rationale for Grant Writing by Graduate Students

It is important to recognize that having graduate students involved in grant writing can benefit both the student and the institution, not just in Sport Management but throughout related programs (e.g., non-profit management, physical education, health and human sciences, and recreation). For example, Weisblat and Sell (2012) promoted through the utilization of grants and grant writing, the idea that students will also be more educated of the outside world and create service opportunities to benefit society. Next, Fredson (2009) and Dopke and Crawley (2013) argued the future federal grant

writing will basically require interdisciplinary approaches and/or collaboration to demonstrate depth of research findings. Such a statement suggests that graduate students should gain exposure to other academic disciplines because grant awarding agencies believe collaboration can best help solve real-world problems (Gregor, 2008; O'Brien, 2011). Fortunately, the effort to solve problems through collaboration is already well appreciated in Sport Management and the aforementioned related programs. For example, Solmon (2009) suggested “creating and maintaining a culture of collaboration with related subdisciplines is an important aspect of learning to be a good researcher” (p. 81).

Within Sport Management, collaboration also emerges as a benefit to grant writing because it initiates and maintains collegial relationships with other faculty, appears useful to help create working and research relationships with external sport agencies, and breaks down misconceptions that the field is only interested in professional and intercollegiate athletics (Jones, et al., 2008). To support this point, Rikli (2009) added grant writing:

enhances student learning, promotes faculty vitality and currency in the field, helps attract top faculty applicants, facilitates the translation of research from theory to practice, serves the region and state through its applied research function, and prepares students for admission to doctoral programs. (pp. 69)

Thomas (2003) and Crosta (2004) similarly recommended that graduate students also need to uniquely experience grant writing in order to fully develop as researchers. Solmon (2009) further highlighted the importance of this point by suggesting that prospective doctoral candidates will eventually be “required to execute an original research project that makes a unique contribution to the knowledge base” that is “subject to a review process [i.e., rigorous]... and includes some form of external evaluation or peer review” (p. 75).

Grants can also importantly help graduate students receive outside funding to assist with educational costs and the pursuit of research interests. Specifically, in areas such as tuition and fees, living expenses, transportation costs, and research-related expenses regarding dissertations and thesis work, the utilization of grants can provide financial relief (Weisblat & Sell, 2012). To provide more substance to the argument and recognize available opportunities, Spirduso (2009) endorsed the creation of discipline-specific seminar courses to research and review issues that will provide prospective researchers (i.e., graduate students and faculty) the ability to solve compelling problems plaguing society. Interestingly, paid grant writing workshops and programs provided by outside organizations and grant specialists have proven effective in learning the basics of grant writing but some have argued these may be inadequate (i.e., too broad in nature) to meet the needs of any one specific discipline (Seifried, et al., 2015; Walsh et al., 2013). For instance, the inadequacy of those grant writing workshops and programs could emerge from their lack of recognition of sport-specific grant awarding agencies (Seifried, et al., 2015).

Also seeking to solve compelling societal or organizational problems, many sport organizations act as grant awarding agencies. As an example, sport-specific associations such as the National Collegiate Athletic Association (Innovation and Graduate Student Research Grant), International Olympic Committee (Advanced Olympic Research Grant), and Union of European Football Associations (Research Grant Programme) have their own competitive grant proposal process to help them solve internal problems or how they can better assist society. Elsewhere, sport-centered professional organizations also regularly support grant writing and research efforts. For instance, Shape America (2015) has awarded over \$600,000 in grants since 1997. Further, the Association for Applied Sport Psychology (2015) provided roughly \$40,000 annually in grants (i.e., Regional Conference, Research, Community Outreach, Equity/Cultural Diversity, and See), while the North American

Society for Sport Management (2015) has also supported research grants for faculty and students in the form of the Janet B. Parks Research Grant and Doctoral Student Research Grant awards.

Beyond sport, other possibilities exist; moreover, the field of Sport Management should challenge itself to look beyond sport-specific or sport-centered agencies for grant opportunities. As an example, Heere and Seifried (2015) characterized the ‘sport’ part of Sport Management as

“a form of entertainment, very similar to music, acting, art, and most other forms of leisurely activities or games ... All of these different cultural outlets offer two ways to experience it: We (actively) engage with them as participants or administrators, or we (passively) watch others, often the very best or youngest, in performing that activity to display their skills and enjoyment within participation.” (p. 3)

With respect to this point, grants offered by the National Endowment for the Humanities (NEH) and National Endowment for the Arts (NEA) emerge as viable places for grant activities as sport is full of culture and regularly identified as possessing a notable historical record. For example, NEH grants are available for media projects, preservation, book writing, and summer research stipends among many other alternatives (National Endowment for the Humanities, 2015), while the NEA has grants available for translation services, cultural planning, and research projects ranging from \$10,000 to \$200,000 (National Endowment for the Arts, 2015). Collectively, it is for these reasons that we propose faculty and students can look for grants in what we call sport-specific associations or sport-centered professional organizations and should look to do so in their own grant writing courses.

TEACHING METHODS

To facilitate the grant writing process, the following step-by-step information is presented to demonstrate how we (i.e., authors) organized a seminar class for graduate students on grant writing. Featured within the steps below are these main pursuits: 1) establish a need for grant funding; 2) recognize the use of grant writing in relevant careers (e.g., professional and academic) of sport management; and 3) actually engage in the grant writing process by seeking and applying for grants.

To address these pursuits, graduate students should be expected to apply for an internal university grant, review grant applications, seek other sources of funding, collaborate in a group project, and formally present findings. The collaborative group project and subsequent presentation should be oriented toward assisting the students in identifying funding sources, understanding application requirements, and recognizing how grants are applicable to the field of Sport Management (e.g., an urban planning grant could apply to sport facility construction). It should be noted that the grant writing course should be taken to expose graduate students to grants and funding agencies oriented toward multiple disciplines connected to Sport Management (e.g., business, kinesiology, recreation, and health).

The process of establishing this course, its structure and assignments, showed some course requirements proved to be very effective, while others were recognized as needing some adjustment. Many of the assignments were multi-faceted in the ways they incorporated the application of the material being examined (e.g., collaboration skills during group projects versus individual critiques of reading assignments versus individual grant applications). Next, the final examination added to this course differed from most other grant writing courses as Foreman et al. (2016) observed in their review of syllabi. The final examination was designed to challenge the graduate students to utilize the information they learned about grant writing in a hypothetical scenario they may or may not have been familiar with as individuals in Sport Management.

Step 1: Instructor Education

Consistent with any instructional effort of value to a graduate student in Sport Management, the grant writing course commenced with the instructor attaining the requisite knowledge on the main components, theories, and intricacies of grantsmanship.¹ Reading and analyzing any previous relevant literature regarding grantsmanship as well as contacting previous instructors of grant writing courses,

the university office of research, successful principal investigators, and Sport Management practitioners was a strategy implemented to collect additional resources to facilitate student learning about seeking, applying for, and maintaining grant funding. As an example, recent textbooks and syllabi (i.e., within two years) from graduate-level courses in grant-writing available to Sport Management graduate students were solicited.

Importantly, this work recognizes other scholars have previously used a content analysis of textbooks and syllabi to create or improve courses for graduate students (Grady & Andrew, 2004; Mondello, Andrew, Todd, & Mahony, 2008). For instance, Mondello et al. (2008) utilized a content analysis within a review of course syllabi and textbooks to improve the quality of delivery regarding sport finance classes. Similarly, Grady and Andrew (2004) analyzed sport law textbooks to improve the education of students on the American with Disabilities Act. From this approach, instructors used the syllabi and textbooks to establish recommended readings, course objectives, and course requirements prior to establishing their own course.

Step 2: Establishing Course Objectives

Course objectives guide the instructor in setting up the class. In order to establish course objectives, the instructors identified terminal learning objectives (e.g., given a request for application, students will be able to write a competitive grant proposal) and enabling learning objectives (e.g., students will be able to identify the differences between academic and grant writing) in accordance with Walden and Bryan (2010) and Porter (2007). Terminal learning objectives explain the expectations of students' knowledge and abilities upon the conclusion of the course, whereas the enabling learning objectives exist as subordinate objectives used to help achieve the terminal learning objective for which it is associated.

The relevant literature included in the design of the terminal and enabling objectives involved both textbooks as well as peer-reviewed articles specific to grant writing. These learning objectives are used to determine topics to be covered, select the most appropriate course materials, establish a course schedule, and identify needs for course requirements. Overall, the key themes found in many of the course objectives include the seeking/identifying possible funding sources and writing/developing of grant proposals. Other components generally involve budgeting, collaborating, and critiquing/reviewing grant proposals or applications. Below is a list of course objectives recommended by this work for a graduate grant-writing class in Sport Management.

After completing the course, students should be able to:

1. Explore the facets of an organization that contribute to organizational culture (i.e., grant writing, securing, locating).
2. Apply selected theories to the behavior and culture within a sport organization (i.e., grant writing, securing, locating).
3. Define the various individual characteristics that create the environment for faculty and students.
4. Describe the relationship between organizational outcomes, the employee, and the organization.
5. Demonstrate knowledge of decision-making processes within the environment of the institution (i.e., grant writing, securing, locating).
6. Identify how leadership impacts the behavior and culture of an organization (i.e., grant writing, securing, locating).
7. Given a request for application, be able to write a competitive grant proposal.
8. Identify the differences between academic and grant writing

Step 3: Selecting Course Materials

During the instructor education step, course materials including peer-reviewed academic articles and grant writing textbooks will emerge. As an example, Foreman et al. (2016) found the two textbooks used in multiple graduate grant writing courses made available to Sport Management graduate students were *Fundraising Principles and Practice* by Sargeant (2010) and *The “How-to” Grants Manual* by Bauer (2011). While these textbooks and likely many others provide a comprehensive guide to grant writing, they may not address specific issues and challenges important

among Sport Management graduate students and the sport industry. Still, Baker et al. (2012) recommended the study of textbooks because they can be instrumental for instructors when trying to establish a structure and schedule for their classes focused on external funding.

To supplement what may be missing from textbooks, peer-reviewed articles should also be helpful when attempting to learn about the grant writing process. Typical topic areas covered by the peer-reviewed academic literature include: (a) grants and the university's mission, (b) grant issues in Sport Management, (c) introduction to grant courses, (d) institutional readiness and stakeholders, (e) collaboration, (f) the components of grant proposals, (g) scholarships and fellowships, and (h) opportunities for grants in research centers of sport (Foreman et al., 2016).

Step 4: Reading Assignments and Class Discussions

Following Steps 1 through 3, instructors should assign required readings as homework. These reading homework assignments can require students to accomplish two tasks: (a) submit 2-3 page critiques of the assigned peer-reviewed articles and (b) prepare for a discussion on the application of the assigned articles and their corresponding theories. The reading assignments and corresponding critiques turned in by the students can be used as the foundation of the course, contributing to class discussion and overall student participation. Again, a wide variety of complex materials can be provided from which students should be properly prepared for each class period with a thoughtful, personal analysis of the assigned course materials (Appendix A).

Step 5: Development of Grant Applications

Another important component of any grant writing course should involve the actual act of completing an application for funding. During this step, graduate students should be provided with an opportunity to apply the concepts they learned in class to a real-world grant writing opportunity

provided by their university (i.e., internal grant). After completing the grant application, the next major step should involve the review and critique of the application by other students. Should the instructor desire, he/she can solicit the help of his/her university's grant specialists as well as other faculty members who may serve on college or university grant committees.

Step 6: Reviewing and Critiquing Applications

Upon completion of the funding application, students can be required to exchange their applications with other students in the class in order to apply course content to reviewing and critiquing the grant applications. In essence, the applications can be examined to determine whether they adhere to the requirements laid forth in the request for applications; demonstrate clear writing; provide consistency in format, font, and language within and between sections; and present correct spelling, grammar, and punctuation. Following the review/critique of applications, corrections should be made and final drafts can be submitted to the funding agency (e.g., university office of research).

Step 7: Group Project Assignment and Explanation

Next, instructors can assign each of the students in the class to a group (3-4 students) for a class project. For the class project, each group can be assigned a different area to search for grants internally at their university and externally through associations (e.g., North American Society for Sport Management, Federation Internationale de Football Association, National Collegiate Athletic Association, and Union of European Football Associations), centers (e.g., Center for Sport Management Research at Texas A&M, Michigan Center for Sport Management, and Mark H. McCormack Center for Sport Research and Education), and government/federal sources (e.g., National Endowment of the Humanities and National Science Foundation). While searching for potential funding sources and grants, groups can be tasked with the duty of creating a database for their findings. Details about the content and layout of the database will also be required to be explained in detail. The

databases should include important information regarding the grants each group found, website addresses, application requirements and deadlines, and a brief description of the grant and grant agency.

Regular meetings should occur between each group and the instructor to ensure each group was efficiently headed toward the desired goals for the project. Importantly, in these meetings, the instructor can assess and clarify any obstacles or questions the groups have during the process of seeking/identifying funding sources. Importantly, instructors should also adjust their advice as students may experience Tuckman's (1965) four stages of group development (i.e., forming, storming, norming, and performing) separately during the semester. Within this point, many groups or individual group members may assign roles or assume roles (e.g., group leader) which may require special attention by the instructor to facilitate the group achieving the objectives related to the group assignment. Interestingly, the instructor can also take this as an opportunity to reinforce the important of collaboration in the grant writing process.

Step 8: Group Presentations

During the final week of the course, the groups can present their findings. Presentations can be evaluated for the various elements discussed throughout the class regarding presenting results for research grant purposes. Following each group's presentation, a short question and answer period should ensue to provide thoughtful discussions regarding every aspect of the assignment and presentation relating to material covered throughout the term. Some of the questions to be asked can cover methodologies (e.g., how were the keywords selected to search databases for relevant grants?) and how can this grant be used in Sport Management. The presentations and subsequent discussions should be of great value to the students as they facilitated the learning of research and presentation skills, identifying funding sources, and particular grants of interest.

Step 9: Final Examination

At the conclusion of the course, the students should be tested on the various components of grant writing (highlighted in Step 3) from the materials they are required to read, critique, and discuss. The examination should be cumulative and can consist of essay questions to utilize lessons learned in class to answer hypothetical situations such as selecting an appropriate methodology for a given study and justifying its use (see Appendix B).

Step 10: Instructor and Course Evaluation

Once the course is finished, it is recommended for the instructor to meet with random sample of the graduate students to discuss, critique, and analyze the teaching tools employed in the course as well as the specifics of the covered material and assignments. This final evaluation should prove to be of great value since grant writing courses in Sport Management are rare (Foreman et al., 2016; Seifried et al., 2015). Specifically, this final evaluation should provide insight to the instructor about what evaluation processes were most and least effective from multiple perspectives (e.g., methodology, content, and structure) to effectively relay advice to other and future instructors who may desire to teach a grant writing course for Sport Management.

CONCLUSION

Grant writing, particularly in Sport Management, is an underutilized tool for obtaining much needed resources for both graduate students and faculty members. Consistent with previous literature (e.g., Rikli, 2009; Solmon, 2009), this work supports the notion that most graduate students have no knowledge or background in grant writing, though it may be expected of them in their future careers and necessary to address future problems in society (Baker, 2012). Notably, the implementation of courses in grant writing specific to graduate students could assist them in related disciplines (e.g., Non-Profit Management, Health and Human Sciences, Recreation) when looking to work outside academia.

The guidance established in this paper provides a framework in which a grant writing course could easily be established. Moreover, this work demonstrated motivating graduate students to be excited about and engaged in the content and assignments of a grant writing course is possible and a task capable of providing direct financial benefits to the students. Another motivator provided in this work suggests there will be an increased likelihood that future jobs will require or prefer the pursuit of external support and that grant writing is a viable activity to help Sport Management faculty obtain the resources they need to succeed. Further, there are plenty of grant opportunities available through sport-specific associations, sport-centered professional organizations and other national non-sport outlets. Many graduate students, as future employees, will need to present and defend their request for funding to employers and other funding agencies to support their work and to help them achieve their individual career and organizational goals. Finally, grant writing is a tool to help them build currency within their home discipline and with others in their departments because it is a great example of scholarship in action to solve a variety of problems (e.g., societal, environmental, economic, practical, and theoretical).

Footnote

¹ Detailed information about the main components, theories, and intricacies of grantsmanship can be found in Foreman et al. (2016) and Seifried et al., (2015).

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Appendix A

Sample List of Papers Reviewed for Class Critiques and Discussion

- Barnes, M. L., & Brayley, R. E. (2006). Institutional readiness and grant success among public recreation agencies. *Managing Leisure, 11*, 139-150.
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Appendix B

Final Exam Question for Graduate Grant Writing Course

- A. Assume that you are working as part of a research team that is responding to a RFP (Request for Proposals) from Major League Baseball and their interest in research on work socialization and newcomer adjustment, with respect to foreign players (i.e., non-American). The RFP calls for *rigorous field research* that tests the effectiveness of theory-based interventions aimed at facilitating the adjustment of new organizational members to complex and/or stressful work conditions typical of Major League Baseball. The major goal of your team's research is to test the effectiveness of a self-regulation intervention focused on language acquisition, which trains newcomers to identify and use relevant social information and cues to regulate work behavior.

As a tenure-track Assistant Professor/faculty member you are trying to determine your time allocation for this project. Link, Swann and Bozeman (2008) investigated the time allocated among teaching, researching, grant writing and service by science and engineering faculty at top United States research universities. Link et al. focused on the relationship between tenure tracks and time allocation.

1. Please talk about the time allocation challenges that tenure-track faculty face highlighted in the Link et al. (2008) reading.
 2. Next, talk about the role of grant writing and research in masters and doctoral student development as highlighted in Solmon (2009) and Rikli (2009). Further, what benefits can you see from working with MLB for each of these groups?
- B. Your group hypothesizes that self-regulation training through technology will be more effective than other common treatments or interventions (e.g., realistic job previews, institutionalized socialization tactics). According to Social Cognitive Theory, self-regulation is an individual's ability to set specific and attainable goals, employ effective strategies for attaining the goal, and self-monitor to evaluate his or her success in attaining the goal. Skill in self-regulation can be acquired through experience, training, and effort. You have been included in the team because of your methodological expertise.
3. **Study Design:** Construct and describe a study that uses two different methods to measure language acquisition important to newcomer work socialization. Describe your two methods in detail and provide a rationale for the key elements (e.g., sampling, data collection technique, proposed analysis) of your methods. Be sure to write a justification of the design. What threats to validity does it rule out or limit? And what limitations remain?

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Cultural Bias: Gymnasts, Judges, and Bilateral Trade Agreements

Brian P Callahan

Seton Hall University

Sean E. Mulholland

Western Carolina University

Kurt W. Rotthoff

Seton Hall University

Abstract

Bilateral trade agreements may arise from and enhance shared cultural norms across countries. Greater cultural understanding or similarities may be revealed through a number of avenues. We investigate one particular avenue: the judging of gymnastic performances. Using execution and difficulty scores from the 2009 World Gymnastics Championships, we find that gymnasts realize a greater return in terms of execution score for each bump in difficulty when the home countries of the judge and the athlete share a bilateral trade agreement.

I. Introduction

In David Ricardo's seminal work, "On the Principles of Political Economy and Taxation" (1817), he reveals the welfare gains that can be realized through specialization and exchange. These benefits are usually modeled in terms of lower prices and greater production for those directly involved with the consumption and production of the goods or services. However, the exchange of goods and services may be the result of or serve as a conduit for greater understanding and trust between those willing to voluntarily trade.

In this sense, trade and sentiment is a two-way street. In one direction trust and sentiment affects trade: Gupta and Yu (2007) find that government action and public sentiment impacts the levels of economic activity between two countries. Guiso, Sapienza, and Zingales (2009) find that language and ethnicity play an important role as well. They also find that similar countries, and countries that have high levels of trust, tend to have high capital flows between them. Once trade does take place, it can positively affect sentiment (Schiff and Winters, 1998).

This study seeks to determine whether the benefit of these trade agreements or the characteristics that lead to trade agreements extend beyond the traditional welfare measures. Using a unique dataset from the 2009 World Gymnastics' Championship we analyze whether the greater cultural understanding, as measured through trade agreements, implicitly affects the judging of gymnastic performances.

We find that gymnasts who are scored by judges from trading partner countries realize a greater return in terms of execution score for each increase in difficulty than do gymnasts who are evaluated by judges from non-trader partner countries. Shared cultural norms, such as a shared religion or language, or a reasonable understanding of different cultural norms may partially explain why countries are

trading partners. Once cross-country trade is expanded, the exchange of goods and services may serve as a conduit for ideas that enable greater cross-cultural understanding. Cultural norms and views on beauty and expression may be better understood or even shared. This may affect how judges assess athletic and artistic expression. In gymnastics, a judge's view of what is and what is not an execution error, particularly on new or relatively novel elements or combinations, may be more closely aligned with athletes who share the judge's cultural framework.

Finding a cultural relationship bias has implications far beyond sports competition. Cultural bias might also affect how employers assess job applicants, colleagues assess each other's productivity, and whether negotiators are able to come to a contractual agreement. Using trade as a proxy for sentiment, we provide evidence that the positive sentiment towards one another extends beyond traditional welfare measures. The next section presents the data. The third section discusses our methodology. Section four presents our results and the final section concludes.

II. Data

To determine whether the cultural familiarity between a judge and an athlete results in higher scores, we match each athlete-judge country pair from the 2009 World (Artistic) Gymnastic Championships, to these respective countries' bilateral trade agreement(s). We use performance data from this particular championship because its unique format reduces the selection bias problems present in most other gymnastics events (see Damisch, Mussweiler, and Plessner, 2006).¹

¹ For instance, Damisch, Mussweiler, and Plessner (2006) find a sequential order bias; that an athlete's score is influenced by the athlete who performed immediately before them. Rotthoff (2013) finds that this sequential order bias does not exist at this competition.

First, there is no team competition. Most elite level international gymnastics meets have a team competition in which teams are allotted performance slots. Coaches then strategically place their athletes to maximize the team score. This traditionally means ordering the athletes from the lowest expected score to the highest. Without the team competition, coaches are not seeking to maximize the team score. Therefore, our data are less likely to suffer from bias due to strategic sorting.

Second, in the preliminary round, countries are randomly assigned one to three starting spots to place their athletes. These spots are then assigned to each athlete, by the country's governing body, within a given session, event, and order in that event. Judges therefore have the opportunity to measure an athlete's performance relative to the other athletes based on the overall performance order during the entire competition, the order in which they appear in a given session, and at the smallest level, the order in which they appear in a given rotation.

In women's gymnastics there are four different events (vault, uneven bars, beam, and floor) while the men participate in six events (vault, floor, pommel horse, rings, high bar, and parallel bars). The structure of the competition allows for enough recovery time between events, so that the athlete's performance on each event should, barring injury, be independent. Based on their performance in the preliminary round, athletes can make the finals in the individual all-around competition or for one or more individual events. The finals for each apparatus *is* structured in the traditional gymnastics way: in order from the lowest scoring finalist to the highest. For this reason, we only use data from the preliminary rounds. For each of the ten events, we observe between 106 and 134 performances; the number varies based upon the number of athletes attempting to make the finals in either the all-around or on a specific apparatus.

In addition to the unbiased ordering, the FIG (Federation Internationale de Gymnastique), the gymnastics governing body, completely overhauled the scoring system for elite level gymnastics in 2006.² Under this new system, scores are now determined by two separate panels of judges evaluating two components of the routine: difficulty and execution. The difficulty of a routine is initially determined by each element and combinations of elements that are planned for the routine. A panel of judges then evaluates the routine as it is actually performed and (rarely) adds or (usually) subtracts points for changes in the routine (such as under-rotation) or penalties (primarily given for athletes stepping out of bounds), to determine the final difficulty score. The difficulty score is theoretically infinite and is determined by the athlete when they design and perform their routine, meaning it is, in theory, exogenous to the execution judges. Furthermore, much of the difficulty score is objectively set by predetermined values for each element and set of combinations. Therefore interpretation and by extension cultural biases likely play little to no role in determining the difficulty score.

The execution score evaluates how well the athlete performs a given routine. Each athlete starts with an execution score value of 10. Although deductions from the execution score can reflect purely technical errors, many other possible deductions come from the artistry of the routine, such as poor rhythm, additional hops or swings, or incorrect body position. Given that the execution score is determined by the judge's perception of how well the routine was executed, the execution is quite subjective and thus more likely to reflect a judge's cultural and artistic biases.

The execution and difficulty scores are then added together at the end of each routine for an overall score. The overall score is finalized before the next contestant makes their attempt. The average

² This change came after a judging controversy in the 2004 Athens Olympics.

and standard deviation of scores for women are shown in Table 1. The summary statistics for men are shown in Table 2.³

Table 1 – Summary statistics for the women’s events.

Summary Statistics (women)				
Variable	Vault	Uneven Bars	Balance Beam	Floor
Participants	107	113	118	113
Mean Difficulty Score	4.94	4.89	4.99	4.92
Standard Deviation of Difficulty Score	0.706	1.194	0.650	0.564
Mean Execution Score	8.24	6.91	7.21	7.37
Standard Deviation of Execution Score	0.904	1.517	1.161	0.778

Table 2 – Summary statistics for the men’s events.

Summary Statistics (men)						
Variable	Parallel Bars	High Bar	Rings	Floor	Vault	Pommel Horse
Participants	127	127	126	134	122	132
Mean Difficulty Score	5.31	5.31	5.43	5.51	5.31	5.14
Standard Deviation of Difficulty Score	0.88	1.00	0.91	0.79	0.88	0.90
Mean Execution Score	8.07	7.80	7.94	8.16	8.07	7.68
Standard Deviation of Execution Score	0.78	0.85	0.66	0.96	0.78	1.17

³ Given the differences in means and standard deviations, it is necessary to use a relative score to aggregate the data across different events.

The 2009 World (Artistic) Gymnastic Championships meet is the first elite level competition without a team competition to use the new, overhauled scoring system. In addition to measuring potential cultural bias, we need to control for other forms of bias that may be present given the characteristics of gymnastic competition. Flôres and Ginsburgh (1996), Bruine de Bruin (2005), and Page and Page (2010) all find that when a participant performs affects their score. Flôres and Ginsburgh (1996) find the day an artist competes impacts that artist's final standing. While Bruine de Bruin (2005) and Page and Page (2010) find that order biases in the results of the "Eurovision" and "Idol" song contests, respectively. Following the literature, we control for performance order by utilizing the athletes' order in the overall competition.

Although athletes are randomly assigned a performance slot, performance bias might also be driven by a few very talented people.⁴ This might come from a trend setting athlete or team of athletes attempting to change the culture associated with artistic expression or innovative elements. To address this possibility, and because ability is very difficult to measure on its own, we control for athletes who come from superstar countries (following Morgan and Rotthoff, 2014, and Rotthoff, 2015). The superstar countries are shown in Table 3, for women, and Table 4, for men. To be defined as a superstar country, the athlete's country has to have won at least three medals, in a given event, in one of the World's competitions (2001-2003 and 2005-2007) or the Olympics (2000, 2004, and 2008).

⁴ It is possible that the most talented individuals capture a different level of bias than other athletes in the competition. Controlling for these superstar countries allows for those at the highest level of talent to have a different impact from these biases.

Table 3 – Countries that are considered ‘superstar’ countries for women’s events.

Super Star Countries (women)			
Vault	Uneven Bars	Balance Beam	Floor
USA	USA	USA	USA
Russia	Russia	Russia	Romania
China	China	Romania	
Germany		China	

Table 4 – Countries that are considered ‘superstar’ countries for men’s events.

Super Star Countries (men)					
Parallel Bars	High Bar	Rings	Floor	Vault	Pommel Horse
China	Germany	China	Canada	China	China
S. Korea	Slovakia	Bulgaria	Romania	Romania	Romania
		Italy		Poland	Japan

Each event has two panels of judges: one panel calculates the difficulty score and one panel assesses the execution of each routine. Judges may only serve on one panel for an event. Using information from GymnasticsResults.com, we observe the home country of each judge on each execution panel. These are reported in Tables 5 and 6. We do not have the country of each judge on the difficulty panel.

Table 5 – Country of the execution judges, by event.

Country of Execution Judges (women)			
Vault	Uneven Bars	Balance Beam	Floor
Mexico	N. Korea	India	Slovenia
Bulgaria	Egypt	Ireland	Germany

S. Korea	Norway	Portugal	Venezuela
Italy	Canada	Argentina	Lithuania
Romania	Brazil	France	China
Ukraine	Germany	Israel	Russia

Table 6 – Country of the judges, by event.

Country of Execution Judges (men)					
Parallel Bars	High Bar	Rings	Floor	Vault	Pommel Horse
Netherland	Algeria	Bulgaria	Japan	Mexico	Slovenia
S. Korea	Portugal	France	Venezuela	New Zealand	Russia
Lithuania	Austria	Germany	Luxemburg	Belarus	Portugal
Argentina	Ukraine	Qatar	Romania	Germany	Brazil
Czech Republic	Hungry	Jordan	Egypt	Canada	N. Korea
Poland	Great Britain	South Africa	Italy	Israel	Denmark

Not only do we know the country of each judge on the execution panel, we also have the exact score submitted by each judge for each routine. This means that we have six scores for each athlete for each event. In gymnastics the highest and lowest scores are dropped, and then the overall execution score is the average of the remaining scores. However, because we are interested in each judge’s interpretation of the routine, we use all six judging scores for this analysis. Because we are interested in the cultural bias that may be present across countries, we exclude all athlete/judge pairs that are from the same country. Although it is likely that athletes and judges share a cultural understanding, this understanding is likely to come from more personal experience. Moreover, coding trade within a country as similar to those with bilateral trade agreements across counties may conflate our results.

Given we know the home country of each execution judge, the score given by each of these individual judges, and the country represented by each athlete, we are able to extend the literature on assessment bias: Goldin and Rouse (2000) and Page and Page (2010) find that the order of competition matters, Price and Wolfers (2010) find a racial bias in basketball refereeing, Zitzewitz (2006 and 2014) finds a nationalism bias in figure skating, and Morgan and Rotthoff (2014) find a difficulty bias in gymnastics. We exploit this information to measure whether athletes receive higher execution scores when the home countries of the judge and the athlete share a bilateral trade agreement.

We define our bilateral trade agreement as a formal arrangement between two countries granting one another preferred trading status in some area of their respective economies. There are three ways in which we classify countries as bi-lateral trading partners. First, countries can have formal agreements directly with one another. For instance, the United States-Israel Free Trade Area Agreement (FTA) signed in 1985, was created to lower tariffs between the United States and Israel.

The second way is for two countries to be partners in a trade association. The largest and most publicized of these organizations is the European Union (EU). Other such organizations and agreements relevant to our calculations include European Free-Trade Agreement (EFTA), European Economic Area (EEA), NAFTA (North American Free-Trade Agreement), APEC (Asia – Pacific Economic Cooperation), MERCOSUR (Mercado Común del Sur; English – Southern Common Market), Group of 3, and ASEAN (Association of Southeastern Asian Nations).

The third way to be classified as sharing a trade agreement is for a country's trade organization to have a collective bi-lateral agreement with a country outside of that trade agreement. For example, the EU has a bi-lateral trade agreement with Argentina even though Argentina is not part of the EU, nor does it have trade agreements with individual members of the EU. We match these trade agreement

data with our gymnastics data, by matching the country of the athlete and the country of judge, to find those that share a bilateral trade agreement.⁵

III. Methodology

We have the execution score given by each individual judge, j , for each event, v , for each male and female gymnast's routine. To account for differences across each event, we model the judge's score relative to the overall execution score for athlete i in event v in equation 1.

$$\frac{JudgesExecutionScore_{ij}}{OverallExecutionScore_{iv}} - 1 = RelativeExecutionScore_{ij} \quad (1)$$

Thus if a particular judge's score, *Judges Execution Score*_{ij}, is the same as the averaged score given to that athlete, *Overall Execution Score*_{iv}, the relative execution score, *Relative Execution Score*_{ij}, is zero. This relative measure of each judge's execution score, relative to the overall score given to each athlete, allows us to measure a particular judge's score relative to the other judges' scores and allows us to aggregate the judges within each event and across events.⁶

A value greater than zero reveals that an execution judge viewed the athlete's routine more favorably than his or her peers. Although this may be due to a number of factors, one may stem from a

⁵ Do to inaccurate trade data we drop athletes from Kazakhstan and Kuwait.

⁶ Given that there are different means and standard deviations across events, this method allows us to aggregate across events (as in Morgan and Rotthoff, 2013, who use a normalization process).

cultural interpretation of the routine. The summary statistics, including both the relative and raw execution and difficulty scores are in Table 7.

Table 7: Summary Statistics

	Mean	Standard Deviation	Max	Min
Overall Score	13.12	1.542	16.8	6.725
Raw Execution Score	7.849	0.997	9.7	1
Relative Execution Score	-0.001	0.038	0.485	-0.889
Raw Difficulty Score	5.298	0.83	7.2	1.7
Order	62.65	36.24	135	1
Superstar	0.062	0.242	1	0
Cultural Relationship (Yes=1)	0.644	0.479	1	0
N	4518			

To control for the known biases in the literature we estimate equation 2:

$$\begin{aligned}
 \text{Relative Execution Score}_{ij} = & \beta_0 + \beta_1 \text{Overall Order}_{iv} + \beta_2 \text{Overall Order}_{iv}^2 + \beta_3 \text{Difficulty Score}_{iv} \\
 & + \beta_4 \text{Super Star}_{vj} + \beta_5 E_v + \beta_6 \text{Male}_i + \beta_7 \text{Cultural Relationship}_{ij} \\
 & + \beta_8 (\text{Cultural Relationship} * \text{Difficulty})_{ij} + \varepsilon_{ij} \quad (2)
 \end{aligned}$$

where the *Relative Execution Score* submitted by judge j , for athlete i , in event v , is a function of the athletes performance slot, *Overall Order* and *Overall Order squared*, the *Difficulty Score* for the athlete's routine, the superstar effect, *Super Star*, a vector of event specific dummy variables that control for any fundamental differences between the different events, E , a control for any fundamental

differences in the male and female athletes, *Male*, and the *Cultural Relationship*, for which trade agreements are the proxy.⁷

Morgan and Rotthoff (2014) find a difficulty bias. This means that attempting a more difficult routine raises a gymnast's execution score, even though a) the scoring is theoretically independent and b) more difficult routines increase the probability of technical and artistic deductions. The presence of difficulty bias means that although cultural biases may directly affect the execution score, it is possible that routines containing more difficult elements or combinations may be subject to more cultural bias. One reason for this may come from the fact that more difficult routines likely include new elements and combinations that execution judges rarely witness. Without the benefit of well-defined technical or artistic standards, execution judges must use greater discretion when assessing a routine.⁸ For this reason we run the model both with and without an interaction term of the cultural relationships and difficulty score.

IV. Results

If bilateral trade agreements enhance or measure cultural understanding, then, the effects can be measured through the coefficient on cultural relationships and, possibly, the interaction between cultural relationships and difficulty. A positive relationship would suggest that an athlete whose country has a trade agreement with the judge's home country realizes a benefit from a common cultural

⁷ Because we are interested in whether a specific judge gives a higher score to athletes from a country with which they share a cultural understanding, we also, as a robustness check, estimate this equation with athlete fixed effects, to separate out a judge's possible preference for a specific athlete – as opposed to all athletes from a specific country – and judge fixed effects to account for the possibility that specific judges may consistently give higher or lower scores for all performances. The results are qualitatively similar. We have also interacted *Male* and *E*. We continue to find similar results.

⁸ Athletes might alter the difficulty level of their routines if the athlete or coach believes a judge will view their execution favorably. We do not have the ability to separate these effects out, thus we treat them as the same.

understanding or overall positive sentiment. Using a relative execution score we measure how each execution judge's score is relative to the average judge's score in Table 8. The first column excludes the interaction on cultural relationship and difficulty score. The second columns include this interaction. The Hausman test values of 3.12 for column one and 3.86 for column two reveal that coefficients estimated by the efficient random effects estimator are not statistically different than the ones estimated by the consistent fixed effects estimator. Therefore, both columns report the random effects estimator (Hausman, 1978).

Without the interaction, the coefficient on cultural relationship in column 1 of Table 8 is insignificant. This implies that having a cultural relationship has no impact on an individual judge's execution score relative to the average judge's execution score.

We also find that more difficult routines are not statistically associated with a higher relative execution score. Thus judges appear to similarly account for difficulty score when calculating the athlete's execution score. This does not refute Morgan and Rotthoff (2014) findings that execution scores increase with difficulty; it only shows that on average all judges' execution scores are higher when an athlete attempts a more difficult routine.

Table 8: Results of equation 2. Finding that cultural relationships have a positive impact on the difficulty bias found in Morgan and Rotthoff (2014).

VARIABLES	(1) Relative Execution	(2) Relative Execution
Order	0.00009* (0.091)	0.00009* (0.087)
Order Squared	-0.00000 (0.131)	-0.00000 (0.126)
Difficulty Score	0.00044 (0.359)	-0.00109 (0.207)
Superstar	-0.00042 (0.532)	-0.00048 (0.468)
male	-0.00057 (0.589)	-0.00058 (0.585)
Cultural Relationship (Yes=1)	-0.00009 (0.939)	-0.01306* (0.062)
Cultural Relationship x Difficulty Score		0.00246** (0.044)
Constant	-0.00473 (0.119)	0.00324 (0.511)
Observations	4,518	4,518
R-squared	0.0008	0.0016
Event Specific FE	Yes	Yes
Athlete RE	Yes	Yes
Number of id	322	322
Overall Cultural Effect		-0.01060
Standard Error		0.00070
Overall Difficulty Effect		0.00137
Standard Error		0.00579

Robust pval in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In column 2 of Table 8, we present the results including the interaction of cultural relationship and difficulty score. The estimation reveals a positive and significant coefficient on the cultural relationship/difficulty score interaction term. Therefore athletes attempting more difficult routines receive an even greater increase in their execution score from judges with a cultural relationship than from judges without a cultural relationship.

This suggests that, although all judges appear to give higher execution scores for more difficult routines, one source of the difficulty bias found by Morgan and Rotthoff (2014) may be the shared cultural experience of a judge and gymnast. In terms of points this means that a gymnast attempting a one standard deviation more difficult routine, or an increase of 0.83 points from 5.3 to 6.13, receives an execution score that is 0.0536 points greater from a judge with a cultural relationship than from a judge without this relationship. The magnitude of the estimated cultural bias has the ability to alter the outcome of this event. For reference, a 0.0536 point increase on each event would be an increase of 0.214 in a woman's overall score. This is a large enough increase in score to move the second place gymnast, who was from Romania, into first place. On the uneven bars this also means that the third place finisher, from the People's Republic of Korea (North Korea), would have finished second if she shared a greater cultural understanding with the judges. Although the R-squared measures are small for the overall impact on the athlete's score, the existence of the bias itself, and the magnitude of the bias, are still relevant.

Our results suggest that judges deduct fewer execution points from more difficult routines if the gymnast is from a country with a cultural relationship. Gymnasts attempting difficult routines may be performing new elements or combinations whose technical and artistic standards may not be well-

defined. Thus the execution score relies less on the accepted standards and more on a judge's interpretation of the artistry, form, body position, etc. Without well-defined standards, a judge's assessment maybe more susceptible to cultural interpretation. If the athlete's approach to these new elements or combinations is more similar to the judge's, then an athlete will receive a higher execution score for these more difficult routines.

These findings support the idea that cultural relationships extend beyond the international trade arena. Knowing a judge on the panel has a cultural relationship means that the athletes can expect a larger difficulty bias from this judge. Given the dependent variable is the judge's score relative to the average execution score, which includes that judges score, these estimates are underestimating the true effect of this finding.

V. Conclusion

Formal bilateral trade agreements increase the gains from trade. This exchange between nations is both reflective of and serves as a conduit for greater understanding and trust between citizens in each country. We use data from execution judges of the 2009 World (Artistic) Gymnastic Championships, finding that gymnasts who are scored by judges with a cultural relationship, using trading partner countries as a proxy, receive a higher difficulty bias and thus higher execution scores than athletes without a cultural relationship performing similarly difficulty routines. We find that for each one standard deviation increase in difficulty, a judge enters an execution score that is 0.0536 higher for athletes with a cultural relationship than those athletes without a cultural relationship. This occurs even though the execution judges are not charged with determining the difficulty score. These results

suggest that the benefit of these cultural relationships or the characteristics that lead to trade agreements extend beyond the traditional welfare measures.

These findings shed light on one possible source of the difficulty bias found in Morgan and Rotthoff (2014). Our results also support the suggestion by Glejser and Heyndels (2001) that accurate comparisons of different people, in their case musical auditions, requires music that is the same level difficulty. Finding a non-welfare enhancing bias in the judging process results in an inefficient, or at least suboptimal, outcome.

If our hypothesis is correct and cultural differences measured through trade agreements are associated with a larger difficulty bias in execution scores, a gymnast might want to maximize the more objective score (difficulty) than the less objective (execution). The size of this effect is large enough to alter the overall standings and, in some cases, the composition and order of the top three athletes on the podium.

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Gender Differences in Performance of Equivalently Loaded Push-Up and Bench-Press Exercises

Tal Amasay

Barry University

Constance M Mier

Barry University

Katelyn K. Foley

Barry University

Tonya L. Carswell

Barry University

Abstract

Push-up and the bench-press are common exercises to develop upper-body strength and muscle endurance. The purpose of this study was to compare muscle endurance performance of matched load push-up and bench-press between men and women, where women perform modified push-up and men standard push-up. Thirty-two young healthy men and women (16 men and 16 women) participated in the study. Participants completed three tests, push-ups to failure, one repetition maximum (1RM) bench-press, and a bench-press test to failure performed with a load equivalent to percent body mass during the push-up. On average men performed 17.5 more repetitions than women in the bench-press test (men 25.3 (5.7), women 5.9 (4.2), $p < 0.001$). No difference ($p = 0.25$) was found between women and men in the number of push-ups performed (men 32.8 (8.3), women 29.6 (7.1)). However, within subjects differences were observed between bench-press and push-up exercises, $p < 0.001$. 1RM bench-press load was greater in men, in absolute values, men lifted 77.7 kg more than women ($p < 0.001$), and relative to body mass, men lifted 2.4 times more mass than women ($p < 0.001$). These results suggest that bench-press and push-up muscle endurance exercises differ greatly in women but not in men, likely due to gender differences in upper-body strength. This is an important consideration for upper-body strength training prescriptions.

Keywords: Biomechanics, fatigue, upper-body muscle endurance, upper-body muscle strength, close kinetic chain, open kinetic chain

Abbreviations:

1RM - One Repetition Maximum

6RM – Six Repetition Maximum

ABS - Absolute

ACSM - American College of Sports Medicine

AMTI - Advanced Medical Technologies Inc

EMG – Electromyography

RBM – Relative to percent Body Mass

SD – Standard Deviation

YRS - Years

Introduction

In the past several years, there has been a positive shift in women participation in sport and exercise. More women and young girls are taking part in a variety of sports and physical activities. The National Collegiate Athletic Association (NCAA) reported in 2014 that the number of female varsity athletes increased from 74,000 in 1981 to 208,000 in 2014, by almost three folds (Irick, 2014). In the 2013-2014 Annual Report of the National Federation of State High School Associations they have reported that the number of girls participating in sport increase by 11 folds from 294,015 in the 1971-72 academic year to 3,267,664 in 2013-14 academic year (National Federation of State High School Associations, 2014). In a recent fitness trends survey executed by the American College of Sports Medicine (ACSM) it was found that two of the top fitness trends for 2016 will be body weight (i.e. push-ups) training and strength training (i.e. bench-press) (Thompson, 2015). These fitness trends were in the top 10 for the past several years. This trend in increased participation of girls and women in sport activity is an aspect that needs to be further investigated to identify similarities and differences between genders performing or participating in these types of physical activities.

The push-up and bench-press are common upper-body muscle endurance and strength exercises that target the pectoralis major and triceps brachii muscles. Muscular endurance is measured as the ability of a muscle to perform repeated contractions against a submaximal load. Whereas, muscular strength is measured as the force a muscle can exert in a maximal effort (Baechle, Earle, & National Strength & Conditioning Association (U.S.), 2008). The push-up is a closed-kinetic chain exercise that is limited by body weight as a source of resistance, and is difficult to quantify load or training intensity. This is in contrast to bench-press, an open-kinetic chain upper-body exercise that applies measurable resistance loads. Despite the differences between the push-up and bench-press, electromyography (EMG) data indicate that the push-up and bench-press exercises are biomechanically comparable and evoke similar muscle activity (Blackard, Jensen, & Ebben, 1999; Dillman, Murray, & Hintermeister, 1994). Blackard et al. (1999) tested the mean integrated EMG values for the pectoralis major and long head of the triceps during push-up and bench-press with a load equivalent to the push-up, on average 66% of body weight, and bench-press with no load. Similar EMG values in the pectoralis major and long head of the triceps were demonstrated for equivalently loaded push-up and bench-press. However, significant differences were observed between the loaded bench-press and the unloaded bench-press, and the push-up and unloaded bench-press. The authors concluded that comparable external load for each exercise is most important when classifying an activity rather than open or closed kinetic conditions (Blackard, et al., 1999).

It also appears that push-up training is just as effective as bench-press exercises for increasing 1RM bench-press among athletes and non-athletes when volume and intensity are comparable (Calatayud et al., 2015; Dannelly et al., 2011; Prokopy et al., 2008). In recent study, training load was set at six repetitions maximum (6RM) for the push-up and bench-press groups. This means that the

participants were able to performed maximum of six repetitions for each of the exercises. Elastic bands were used to adjust the load during the push-up exercise so the resistance will be equivalent to 6RM. EMG data indicated that activation of the pectoralis major and deltoid muscles were similar between the two exercises. After five weeks of training similar strength gains were observed for the 1RM and 6RM bench-press test (Calatayud, et al., 2015). Thus, when the external load and number of repetitions performed to fatigue are matched, push-ups are just as effective as bench-press to improve maximal upper-body strength. Given this, the push-up and its variations are often viewed as viable alternative exercises to the bench-press and are commonly included in training regimens for sports that require upper-body performance (Contreras et al., 2012; Dannelly, et al., 2011; Prokopy, et al., 2008).

Recently, a study by Mier et al. (2014) determined that under static conditions, men and women support approximately 70% of their body weight in a standard push-up position and 55% of body weight in a modified push-up position with men's values being slightly higher than women's values (Mier, Amasay, Capehart, & Garner, 2014). Previous studies have identified that women's upper body strength is 50% to 60% lower than men's upper body strength (Bishop, Cureton, & Collins, 1987; Janssen, Heymsfield, Wang, & Ross, 2000; Miller, MacDougall, Tarnopolsky, & Sale, 1993). Thus, for women, the standard push-up elicits intensities that are more appropriate for muscle strength stimulation while the modified push-ups is better suited to stimulate muscle endurance and power because of the reduced total mass carried by the arms. Muscle power is the ability of muscle to exert high force while contracting at a high speed (Baechle, et al., 2008). Given the biomechanical (shoulder horizontal adduction and elbow flexion) and muscle activation similarities between the push-up and bench-press, a reasonable assumption is that when a load equivalent to the push-up is assigned to the bench-press, the number of repetitions performed would be similar. This may very well be among young healthy men that can lift over 100% of their body weight during a 1RM bench-press test.

However, it seems unlikely in women given their lower upper-body strength (Bishop, et al., 1987; Miller, et al., 1993). Even women with excellent upper-body strength lift only 80% to 90% of body weight, according to the American College of Sports Medicine's fitness categories (American College of Sports Medicine., 2014). Indeed, among several studies that tested both push-up performance and 1RM bench-press in young men and women (Enemark-Miller, Seegmiller, & Rana, 2009; Kraemer et al., 2001; Michaelides, Parpa, Henry, Thompson, & Brown, 2011; Mirzaei, Curby, Rahmani-Nia, & Moghadasi, 2009; Thomas, Lumppp, Schreiber, & Keith, 2004; Thomas, Seegmiller, Cook, & Young, 2004), men lifted 109% to 140% of body weight while women lifted only 56% to 71% of body weight. Push-ups performed by men ranged from 40 to 67 repetitions. Only one study measured push-up performance in women using the modified version with 47 repetitions reported (Enemark-Miller, et al., 2009). Two other studies tested push-up performance in women using the standard version; repetitions performed were 24 and 33. Thus, despite the relatively high external load during the push-up, women were capable of performing a great number of repetitions. These studies indicate a large discrepancy between push-up and bench-press performances in women, but not so much in men (Thomas, Lumppp, et al., 2004; Thomas, Seegmiller, et al., 2004).

If it is assumed that the percentage of body weight lifted by women during a modified push-up approximately 55% of body weight, and 70% of body weight lifted by men during the standard push-up (Mier, et al., 2014), it can be expected that women would not have the upper-body strength to perform the same number of repetitions on the bench-press with an equivalent load as men, as a result of their lower upper body maximal strength. In contrast, given their relative upper body strength on the bench press, men should exhibit a similar number of repetitions during bench press and push-up when the exercises are matched for external load. Therefore, the purpose of this study was to compare endurance

performance of matched external load push-up and bench-press between active men and women, where women perform modified push-up and men standard push-up. The researchers hypothesized that the number of push-ups performed to fatigue would be similar between physically active men and women, whereas repetitions during the match load bench-press would be significantly lower in women than in men.

Methods

Participants

Thirty-two young healthy men and women (16 men and 16 women) participated in the study (Table 1). Inclusion criteria for the study were physically active for the past year at least three times a week, having experience in correctly performing push-up and bench-press exercises (self reported). Participants were asked to refrain from vigorous activity at least 24 hours prior to the tests. All experimental procedures were approved by the university's review board and each participant read and signed the consent form prior to participation.

Table 1. Participants' anthropometric data *Mean ± (SD)*

	Age (yrs)	Height (cm)	Body Mass (kg)
Men	24.0 (3.1)	177.6 (7.3)	81.4 (7.4)
Women	22.3 (2.4)	163.0 (6.0)	62.2 (8.3)

Procedures

Participants completed three tests, push-ups (women performed modified, men performed standard) to failure, one maximum repetition (1RM) bench-press, and a bench-press test performed

with a load equivalent to percent body weight during the push-up. The participants completed the study in two sessions. In the first session, body weight was measured using two AMTI (Advanced Medical Technologies Inc., Watertown, MA) force plates. The participant was instructed to stand on the force plate without moving for three seconds. The data from the two force plates were added and the data from the middle second were averaged to get the estimated body weight (Mier, et al., 2014). Each participant performed one trial of static push-up using the two force plates (each hand on a different force plate) to measure the average relative body weight carried during the push-up test. The participant perform static push-up in two positions, the up position (elbows extended) followed by the down position (elbow flexed). Each position was held for three seconds. The data of the middle second of each position were averaged. These values were averaged to get the relative weight carried during the push-up. The value obtained was later used to estimate the resistance in kilograms the participant required to use during bench-press to fatigue test.

Following the data collection of the body weight and the relative weight carried in the static push-up, the participant performed five practice trials of the dynamic push-ups to assist in performing the push-ups correctly. Feedback on technique and form was provided. In both the modified and standard push-ups, the participant positioned the hands below the shoulders with the fingers pointing forward. For the modified position, knees and feet were in contact with the floor with the ankles plantarflexed; whereas, the pivot point in the standard position was the toes. The back remained straight through the whole range of motion for both positions (American College of Sports Medicine., 2014). Participants were instructed to lower themselves into the down position making contact with a foam block (10 cm height), using their chin or forehead. The purpose of the block was to insure that all

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participants achieved at least a 90° angle at the elbow, so that the upper arms were parallel to the ground. Full extension of the arms was required in the up position.

Following the practice session and a rest period of at least 2 minutes, the dynamic push-up was performed to failure. Each participant was instructed to perform as many repetitions as possible. To control the pace of the push-up the pace was set to one second down and one second up, regulated by a metronome. Failure was established when the participant could no longer keep pace, extend elbows, touch the block with their chin or forehead, or maintain a straight back. Maximum number of push-ups was recorded for each participant.

On a separate day, each participant performed the 1RM bench-press followed by the bench-press test to fatigue. The American College of Sports Medicine (ACSM) protocol for 1RM bench-press was followed. Before performing the 1RM test, the participant warmed up with two sets of 5-10 repetitions bench-press at a low resistance. Followed a 2-min break, the estimated 75% of 1RM resistance load was set for the first trial. 1RM max was established within four sets (American College of Sports Medicine., 2014). Maximum resistance lifted was registered in pounds and converted to kilograms. Following a 15-min rest period, the participant performed the bench-press to fatigue using a barbell load that approximated his or her percent of body mass supported during the push-up. Participants were instructed to perform as many repetitions as possible. Participant chose his or her own pace to lift and lower the bar. Test was stopped if participants could not extend their arms fully. Maximum number of repetitions was recorded.

Data analysis

A two-way ANOVA was used to measure interaction between gender (male and female) and muscle endurance tests (push-up and bench-press). An independent t-test was use to compare mean

values between genders in the 1RM bench-press. For all statistical tests alpha level was set to 0.05. Equality of variance was determined using Levene's Test. Data are presented as *mean ± standard deviation*.

Results

Equal variances between groups were met for the number of push-ups ($F = 0.001, p = 0.98$) and bench-press repetitions ($F = 3.45, p = 0.07$) performed, but not for the 1RM bench-press ($F = 8.08, p = 0.008$). During the static push-up test, men's *mean* and *standard deviation* force was $71.5 \pm 2.1\%$ of body weight and women's mean force was $51.8 \pm 6.5\%$. To match the load of the push-up test during the bench-press, men lifted 58.2 ± 5.5 kg and women lifted 31.4 ± 5.0 kg. The two-way ANOVA test identified interaction between gender and test, $p < 0,001$. With these loads, men bench-pressed 17.5 more repetitions than women ($p < 0.001$) (figure 1). The mass lifted when expressed as a percentage of 1RM was $51.7 \pm 7.4\%$ for men and $86.1 \pm 11.7\%$ for women ($p < 0.001$). No difference ($p = 0.25$) was found between women and men in the number of push-ups performed (figure 1). Looking at the within difference, significant differences were observed for bench-press and push-up in both male and female, whereas the difference in the male was lower, $p < 0,001$. On average, Men bench-press to fatigue 25 repetitions while women did on average six repetitions. However, both men and women performed, on average, more push-ups. Men performed 33 repetitions whereas women performed 30 push-ups on average.

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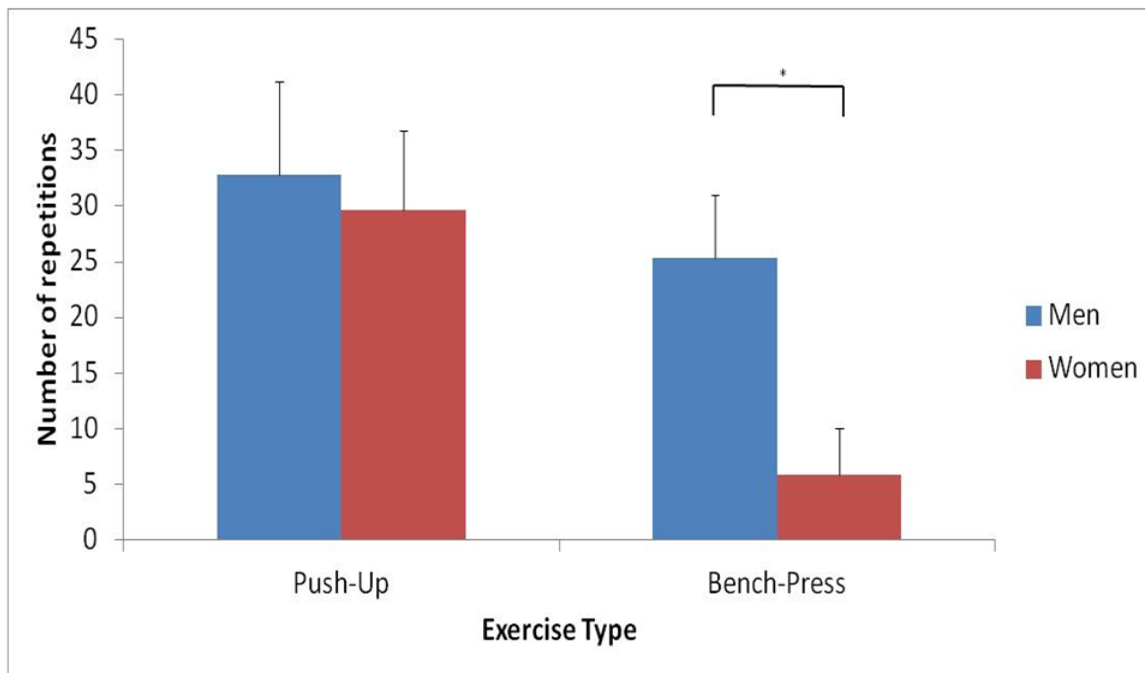


Figure 1.

The means and standard deviations of the maximum number of repetitions performed by men and women during bench-press and push-up tests performed to fatigue with equal loads. $*p < 0.001$.

1RM bench-press load was greater in men (Table 2). In absolute values, men lifted 77.7 kg more than women ($p < 0.001$). When mass lifted was related to body mass, men lifted 2.4 times more mass than women ($p < 0.001$).

Table II. Men and women 1RM bench-press results as absolute (1RM ABS) and relative to percent body mass lifted (1RM RBM) values $Mean \pm (SD)$. $*p < 0.001$.

	1RM ABS (kg)	1RM RBM (%)
Men	114.8 (18.9)*	141 (20.7)*
Women	37.1 (7.8)	59.5 (8.7)

Discussion

Similar to previous work (Gouvali & Boudolos, 2005; Mier, et al., 2014; Suprak, Dawes, & Stephenson, 2011) our current study determined that women supported approximately 52% of body weight during the modified push-up compared to men that supported approximately 71% of body weight during the standard push-up. Under these conditions, men and women performed a similar number of repetitions (33 and 30, respectively) which placed both groups in the "Excellent" fitness category according to the American College of Sports Medicine (American College of Sports Medicine., 2014). In contrast, when a load equivalent to that of the push-up was applied to the bench-press, the number of repetitions performed by men was significantly greater than that observed in women (25 vs. 6). Thus, while the push-up and bench-press exercises at equivalent loads give comparable performance results in men, although significantly different (33 vs. 25), women's performance on the bench-press is markedly reduced compared to the push-up (30 vs. 6). These findings support the researchers' hypothesis that men will performed better than women do on the bench-press to fatigue test while having a closer number of repetitions as the push-up to fatigue test.

One of the reasons for the discrepancy in bench-press performance in men and women is upper-body maximal strength differences. It is well known that women's upper-body maximal strength, typically measured on the bench-press is about 50% to 60% that of men's (Bishop, et al., 1987; Miller, et al., 1993). Our data indicated that in absolute values, women's strength was only 32% that of men. When strength ratio (weight lifted/body weight) was compared, men achieved 1.41, which placed them in the "Excellent" category, while women achieved 0.60, placing them in the "Good" category (American College of Sports Medicine., 2014). The larger than normal gap between men and women in terms of strength may have to do with quality or type of training performed by the men in our study.

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Although all participants were physically active with some resistance training included in their routine, it is possible that men's training placed greater emphasis on upper-body strength using the bench-press as the main exercise. Indeed, when the bench-press load was equivalent to 72% of body weight, the load was 52% of bench-press 1RM in men; in contrast, 52% of women's body weight translated to 86% of 1RM on the bench-press.

Another possibility may be related to the characteristics of an open-kinetic chain bench-press exercise vs. closed-kinetic chain push-up exercise. To perform the bench-press exercise the participant needs to control the movement of the bar from the chest vertically up, from flexed elbows to extended elbows. However, the barbell movement is controlled only by the upper extremities muscles. Changes in the barbell position towards any direction, beside the vertical, will create a torque towards this direction. To compensate for this new torque the participant will have to activate other muscles, such as the rotator cuff muscles, to control the movement. This will increase the energy demand on the upper extremities musculature, which may lead to reduction in force output for the different bench-press tests as a result of early onset of fatigue. On the other hand, when performing push-up the participant is pushing on a stable surface, the ground. In a push-up position, the participant has a wide base of support created by the hands and legs. This reduces the demand to stabilize the body when moving.

Discrepancy in muscle force production between the right and left sides of the upper-body may contribute also to the differences in performance of the bench-press and push-up exercises. When performing the bench-press exercise the participant has to keep the barbell almost parallel to the ground. If the participant upper-body strength production is not similar between the right and left side, the participant will not be able to keep the barbell parallel to the ground while pushing it up. This creates a larger torque towards the weaker side of the body and the participant may not be able to

overcome this torque to lift the bar further, which will lead to an incomplete repetition. On the other hand, during the push-up exercise, the ground is not moving and the center of mass of the body is distributed evenly between the sides. If one side is weaker, the participant can shift their body distribution to the stronger side so they can compensate for the weaker side. This may explain why women, in the modified position, can perform similar numbers of push-ups as men in the standard position. However, they cannot bench-press the same relative body weight.

Nevertheless, we determined that despite the large difference in bench-press performance, women performed as well as men during the push-up. Data from previous studies of young men that performed the standard push-up test and a 1RM bench-press test indicate that push-up performance was moderately correlated to upper-body maximal strength ($r = 0.47$ to 0.61) (Invergo, Ball, & Looney, 1991; Mayhew, Ball, & Arnold, 1991; Vaara et al., 2012). On the other hand, among college-aged women that performed the modified push-up, a weak relationship ($r = 0.26$) to bench-press maximal strength was observed. (Mayhew, Ball, Bowen, & Arnold, 1990) Thus, while the push-up and bench-press have biomechanical similarities, push-up performance is a weak predictor of bench-press maximal strength in women. It is likely that muscle co-activation is more prominent during the push-up exercise by nature of its closed-kinetic chain characteristics. Previous studies have provided evidence that abdominal and psoas major muscles are recruited during the push-up, most likely for trunk stabilization (Calatayud, Borreani, Colado, Martin, & Rogers, 2014; Freeman, Karpowicz, Gray, & McGill, 2006; Juker, McGill, Kropf, & Steffen, 1998). It is possible that co-activation of synergistic and stabilizing muscles play a significant role in push-up performance and their contribution may be greater in women as a means of overcoming strength limitations.

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In this study, both men and women participants were physically active individuals with experience in performing push-up and bench-press exercises correctly. However, the actual participant training protocols were not recorded. If the men's training protocols consisted of more bench-press exercises than the women, or greater training loads for upper body musculature this could have influenced our results. Calatayud et al. (2015) measure the differences in maximal strength gain in 1RM bench-press between push-up and bench-press training and determined that load affects muscle adaptations more than the type of exercise. Thus, it is possible that the men who participated in our study trained at higher intensities than women did.

In summary, it appears that in regards to upper body endurance performance, women perform better during the push-up than the bench press when external load is approximately 52% of body mass. In contrast, due to their relatively high upper body strength, men perform about as many push-ups as bench press repetitions at an external resistance approximately 72% of body mass. For the athlete or strength and conditioning coach, push-up exercises for females should be considered at a higher intensity where loads may exceed bench press strength. Furthermore, the athlete or strength and conditioning coach should emphasize and add the bench-press exercise as an integral part of the resistance training protocol. Further research is needed to measure the influence of other upper body and lower body exercises such as pull-ups and squats. Moreover, the influence of free weight training and its application to relative strength and endurance in women should be measured.

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Academic Advisors' Perceptions of Student-Athletes at NCAA Division-I Institutions

Sarah Stokowski

University of Arkansas

Cheryl R. Rode

Texas Tech University

Robin Hardin

University of Tennessee

Abstract

This study examined academic advisors' perceptions of student-athletes and factors influencing those perceptions. The importance of this research is because unfavorable perceptions of student-athletes by academic advisors can lead to negative experiences for both groups. Findings indicated increasing both eligibility requirement knowledge and athletic department involvement can lead to positive athletic department perception, which can lead to positive perceptions of student-athletes. This would assist in creating a more desirable and productive advising environment for both groups.

Keywords: Academic Advisors, NCAA, Student-Athletes, Stereotypes

Academic advisors' perceptions of student-athletes at NCAA Division-I institutions

The needs of student-athletes are often different than the needs of their non-athlete peers (Broughton & Neyer, 2001; Gayles, 2009; Papanikolaou, Nikolaidis, Patsiaouras, & Alexopoulos, 2003; Thompson, 2013). Many student-athletes have mandatory obligations outside of the classroom such as study hall, weight training, physical conditioning, and practice in addition to participating in their respective sport (Gayles, 2009). Student-athletes also must maintain certain academic standards to ensure they are meeting continuing eligibility requirements set forth by the National Collegiate Athletic Association (National Collegiate Athletic Association [NCAA], 2015). These include maintaining a minimum grade point average, declaring a major before their sixth semester of college, and making progress toward a degree that would lead to graduation (NCAA, 2013). Therefore, student-athletes have different advising needs when compared to their non-athlete peers. Many NCAA institutions have academic advisors or counselors in the athletic department as well as academic centers that assist in maintaining academic eligibility for competition, practice, and financial aid (NCAA, 2015; Wolverton, 2008).

It is exceedingly challenging for athletic department academic advisors to know the inner workings and requirements of every academic major on their respective campuses (Steele & McDonald, 2000). Most institutions require all students, including student-athletes, to meet with their major-specific academic advisor, who typically have no affiliation to the athletic department, on a regular basis to ensure student-athletes are staying on track for graduation. Universities may have requirements that students meet with their academic advisors before being allowed to register for classes as well. Academic advisors may be unaware of the athletic demands and time constraints student-athletes face, and it could invoke bias (Broughton & Neyer, 2001).

Kuhn (2008) defined academic advising as “situations in which an institutional representative gives insight or direction to a college student about an academic, social, or personal matter” (p. 3). Research has demonstrated that effective academic advisors can impact student retention (Carstensen & Silberhorn, 1979; Lotkowski, Robbins, & Noeth, 2004), successful initial transition for freshman students (Habley & Crockett, 1988), and an increase in the overall student experience (Coll & Zalauett, 2007; Drake, 2011; Light, 2001; Thompson, 2009). These factors are just as important for student-athletes.

Student-athletes also need to meet with their academic advisors within their specific academic discipline to ensure requirements for their academic major are being satisfied and progress toward graduation is being made. Thompson and Gilchrist (2011) argued “advisors’ directions help ensure the student-athletes place themselves in the best possible position to meet NCAA requirements” (Thompson & Gilchrest, 2011, p. 29). This warrants further investigation into the interactions between academic advisors and student-athletes.

The ability of academic advisors to effectively communicate and develop rapport with students is essential to ensuring an effective partnership between academic advisors and the students they oversee (Hughey, 2011). Nadler and Simerly (2006) found that when academic advisors demonstrate a concern for students, a relationship of trust and respect will most likely develop. Academic advisors have not only been shown to be an important variable in the process of ensuring student success (Coll & Zalauett, 2007; Drake, 2011; Hughey, 2011; Light, 2001), but according to the National Academic Advising Association [NACADA] (2005) academic advisors serve as a key to unlocking students’ potential by ensuring student development and self-direction of their overall learning goals.

There has been limited research focusing on how academic advisors perceive student-athletes (Coll & Zalaquett, 2007; Drake, 2011; Habley & Crockett, 1988). Therefore, the purpose of this study

was to further develop an understanding of the perceptions of academic advisors working outside of the athletic department towards student-athletes as well as variables that may influence such perceptions.

The following hypotheses were proposed to investigate if understanding NCAA eligibility requirements and athletic department involvement played a role in the level of stereotype an academic advisor would have for a student-athlete:

H1: The higher the level of NCAA understanding the lower the level of stereotype.

H2: The higher the level of athletic department involvement the lower the level of stereotype. It was also proposed that academic advisors with a positive attitude toward the athletic department would also have a lower level of stereotype.

H3: The higher the level of positive attitude toward the athletic department the lower the level of stereotype.

Understanding how academic advisors perceive student-athletes or college athletics holistically can uncover potential for bias and attitude transformations. Ultimately, academic advisors can increase their understanding of this population to make the advising experience more productive and meaningful for both parties involved and ensure student-athletes are given the proper support for academic success.

Literature Review

Student-Athlete and Athletic Department Perception

Student-athletes have been stereotyped as being, among other similar monikers, “dumb jocks,” and based on such perceptions, student-athletes have generally been held to lower academic standards (Burke, 1993; Preacco, 2009; Watt & Moore, 2001). It is important to note that perceptions and stereotypes are not the same. “A stereotype is an exaggerated belief associated with a category. Its function is to justify (rationalize) our conduct in relation to that category” (Allport, 1954, p. 191). Perceptions (specifically negative perceptions) can potentially lead to the development to stereotypes

(Burke, 1993; Preacco, 2009; Watt & Moore, 2001). Faculty members have been shown to have prejudicial perceptions of student-athletes, and student-athletes are often not expected to be intelligent or motivated (Burke, 1993; Engstrom, Sedlacek, & McEewn, 1995; Nelson, 1983; Watt & Moore, 2001). Faculty members often express negativity towards student-athletes out of resentment towards the special treatment student-athletes are given in regards to admissions and academic support (Baucom & Lantz, 2001). Sailes (1996) found undergraduate male students believed student-athletes lacked intelligence and were enrolled in a less challenging curriculum to ensure athletic eligibility. Negative perceptions of student-athletes only perpetuate the “dumb jock” stereotype. However, there is little to no literature on how non-athletic academic advisors perceive the student-athlete population. In addition to coaches, athletic counselors and faculty, non-athletic academic advisors are another group on campus that student-athletes must interact with regularly in order to progress through a selected major. Student-athletes are aware of how they are perceived by their peers and faculty members; but, they do not feel these stereotypes depict them as an individual (Jackson, Keiper, Brown, Brown, & Manuel, 2002).

However, the faculty perception of student-athletes and the athletic department became more positive the more they were involved with the athletic department and the more they interacted with student-athletes (Ott, 2011). Other research indicates faculty members are rather unaware of the functioning of athletic departments, and as such, have a moderate perception of the athletic department on their campus (Lawrence, Hendricks, & Ott, 2007). Junior college administrators believed intercollegiate athletics contributed to campus pride among the student-athletes, students, and the community but faculty at those institutions did not hold that same opinion (Williams & Pennington, 2006). Research has examined how faculty, students, and university presidents’ perceptions of student-

athletes and athletic departments, but the perceptions of academic advisors not working in the athletic department, whom student-athletes work with on a regular basis, has yet to be examined.

Intergroup Contact Theory

Intergroup contact theory focuses on the idea that beliefs, attitudes, and behaviors are interconnected, and within constructive environment professional interaction will result in favorable outcomes between the groups (Allport, 1954). The beliefs, attitudes, and behaviors of individuals or groups are associated with the understanding (or failing to understand) of specific subject matter or groups (Connolly, 2000; Miller, 2002; Tovar, 2011). Allport's (1954) intergroup contact theory provides a means to gain a better understanding of how student-athletes are perceived (both positively and negatively) by their academic advisors. Allport (1954) indicated four conditions that need to be met in order for interactions among groups to be positive: (a) equal status, (b) common goals, (c) intergroup cooperation, and (d) support of authorities, law or custom (Banks, 2002; Dovidio, Gaertner, & Kawakami, 2003; Pettigrew, 1998; Tropp & Pettigrew, 2005). Allport emphasized "equal group status *within* the situation" (p. 66), but research has shown that it is often hard to define the term "equal status" and it is often used in a variety of ways (Pettigrew, 1998). All members should at least perceive that equal status is attained in the situation (Pettigrew, 1998). Pettigrew (1998) stated, "prejudice reduction through contact requires an active, goal-oriented effort" (p. 66).

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1998). Pettigrew (1998) states “prejudice reduction through contact requires an active, goal-oriented effort” (p. 66). An example of common goals is given when Pettigrew (1998) explains how all members of a sports team strive to win a game, division or even the championship and each team member is needed to achieve the common goal. Intergroup cooperation must foster common goals among members without the need for competition among groups (Pettigrew, 1998). This key condition adds to the common goal and ensures all members are working cooperatively to a mutually agreed upon end result. As those in authority positions (i.e. academic advisors) stress the importance of the situation, it is more acceptable to those involved (Pettigrew 1998). Academic advisors along with student-athletes can achieve these four conditions and improve relations between the groups, which can, in turn, provide the student-athlete with academic success.

Equal Status.

One of the goals of the academic advisor and student-athlete advising session should be to focus on coursework for upcoming semesters and a plan toward degree completion and this can be accomplished with the guidance of an advising syllabus (NACADA, 2013). Both the academic advisor and the student-athlete share in the decision-making of the situation and future plans. This shared goal can reduce negative prejudice toward one another and allow progress to continue (Pettigrew, 1998).

Lack of contact with minority groups (e.g., student-athletes) can result in prejudices toward the group, but with additional contact and interaction, these prejudices can be reduced or eliminated (Pettigrew & Tropp, 2008; Tropp & Pettigrew, 2005). Watson and Kissinger (2007) acknowledged, “student-athletes represent a unique, clearly identifiable, college student subpopulation” (p. 153). The student-athlete population could be considered a minority group as it is a subset of the general student population at an institution, regardless of other minority status constructs such as ethnicity or religion. Student-athletes are often categorized as a unique group of students due to their participation in

intercollegiate athletics along with the time constraints and other traits typically associated with being a student-athlete (Broughton & Neyer, 2001). Tropp and Pettigrew (2005) stated members of the minority group tend to be “the target of prejudice from individuals higher in status” (p. 951) and minority group members understand others judge them as being part of a “devalued group membership” (p. 952).

Academic advisors and athletic counselors should collaborate on NCAA Bylaws and legislation as necessary for student-athlete academic success. While athletic counselors are knowledgeable about NCAA Bylaws, many academic advisors may not know the ins and outs and need to be knowledgeable in the legislations to best help the student-athlete (Broughton & Neyer, 2001). However, academic advisors have the best interest of the student in mind and want to gain knowledge in order to help the student-athlete be successful.

Common Goal.

The academic advisor, athletic counselor and the student-athlete all share a common goal of academic success. Pettigrew (1998) states “attainment of common goals must be an interdependent effort without intergroup competition” (p. 67). The academic advisor, athletic counselor and student-athlete must work together to set goals that are realistic and attainable. As the academic advisor’s understanding of the needs and outside of school demands of the student-athlete increases, the advisor can better assist the student-athlete in achieving academic success in addition to athletic success. When conflict exists between groups, whether real or perceived, common goals among members of each group can be difficult to achieve (Gaunt, 2011; Pettigrew, 1998). Negative stereotypes and perceptions toward an institutions athletic department and student-athletes will create conflicts and possibly reduce the opportunity for all parties to meet the common academic goals set by the academic advisor and student-athlete. An example of common goals is how all members of a sports team strive to win a

game, division or even the championship and each team member is needed to achieve the common goal.

Intergroup Cooperation.

Without the NCAA knowledge by the athletic counselor and the major specific knowledge of the academic advisor, a student-athlete may find themselves in a situation where completion percentages are not being met to remain eligible or the student is not in the correct courses for the major. For a student-athlete to remain eligible, they must complete a set percentage of their overall coursework at specific stages of their academic career. An example would be that a student-athlete completing the second year must have completed forty percent of the required courses needed to graduate with that particular major. Athletic departments need to provide support and additional training to academic advisors to ensure student-athletes are successful in the classroom and are working toward the goals set forth by the academic advisor, athletic counselor and the student-athlete. Academic advisors are provided training to guide students through the selected major with not only coursework needed but to assist in other academic and sometimes non-academic related issues. It is imperative for the academic advisor to understand the function of other offices within the institution to be able to assist the student, and in this case the student-athlete, with any issue or situation that arises related to the academic or physical well-being of the student or student-athlete.

Working in cooperation with an athletic counselor and the athletic department allows the academic advisor to help meet the needs of the student-athlete. When members of the various groups begin to work together, negative stereotypes and prejudices for the group can be reduced or eliminated (Gaunt, 2011; Pettigrew, 1998; Tropp & Pettigrew, 2005). These three groups may, at times, disagree on the best course of action for the student, but by working together, the academic advisor, athletic counselor and student-athlete can achieve the common goal of passing their coursework and moving

toward graduation. Intergroup cooperation must foster common goals among members without the need for competition among groups (Pettigrew, 1998). This key condition adds to the common goal and ensures all members are working cooperatively to a mutually agreed upon end result. As those in authority positions (e.g., athletic departments, NCAA bylaws) stress the importance of the situation, it is more acceptable to those involved (Pettigrew, 1998).

Support of authorities, law or custom.

Student-athletes who are not meeting NCAA continuing eligibility standards will not be permitted to participate in competition, so it is imperative to the student-athlete to meet these requirements. It is important for all those involved in the decision-making process to have all the pieces of the puzzle to ensure progression towards maintaining academic eligibility and eventual graduation. Academic advisors want to see all students succeed in their chosen major and eventually graduate however, academic advisors pose potential problems when assisting student-athletes. Student-athletes have time constraints due to practice sessions and competition schedules which may cause a student-athlete to have difficulty in scheduling the proper classes to maintain eligibility and progress toward graduation. In order to reduce stereotypes and prejudices between academic advisors, student-athletes and members of the athletic department, support for academic success must come from the institution and all parties involved. If it is perceived that winning is more important than a student-athlete passing classes and graduating, negative perceptions and stereotypes will increase toward the athletic department, but also toward the student-athlete. Universities and athletic departments must share the expectations of academic success with all members of the institution and provide the necessary support and training to make the academic goals of the student-athlete come to fruition. Academic advisors along with student-athletes can achieve these four conditions and improve relations between the groups, which can, in turn, provide the student-athlete with academic success.

Method

Participants

This study specifically targeted academic advisors at institutions that are members of conferences that are considered the Power 5 conferences within NCAA Division I, i.e. Atlantic Coast, Big 10, Big 12, Pacific-12, and Southeastern. Members of the Big East Conference in 2013 were also included in the data collection. Academic advisors at 61 institutions were invited to participate in the study. The academic advisors worked within academic departments, colleges, or advising centers and advised not only student-athletes but all students within the university community.

Data Collection

Each institution's website was searched and any person that had advising duties as indicated by their job title or listed as having advising duties by their college or academic department were selected for this study. The number of emails per institution varied as the categorization of advisors by each institution varied. Some institutions listed the advisors for a college or department, but only provided a phone number to schedule an appointment while many did include each advisor's contact information. The result was email addresses for 2,004 potential respondents. Institutional Review Board (IRB) approval was gained, and an email was sent with a message explaining the study with an invitation to participate and a hyperlink to an online questionnaire. A reminder e-mail was sent seven days later and data collection ceased seven days after that. The result was 369 valid responses for a response rate of 18.4%. Leonard (2004) had 12.5% of NACADA members responded to a study on technology and academic advising. The response rate was similar to the 21.6% response rate of Tovar (2011) in her study of faculty perceptions of student-athletes, particularly those in football and men's basketball. The number of respondents was within the range received by the Knight Commission (2007) of 12-34% across participating institutions in their extensive study on faculty perceptions of athletic departments

and student-athletes. The range in percentages in the Knight Commission study is a result of a completion percentage calculated for each institution that participated in the study.

Instrumentation

A questionnaire was constructed for this study by using four different scales. The Perceptions of Athletic Departments Questionnaire (PADQ) was developed by the Knight Commission on Intercollegiate Athletics [Knight Commission] (2007) as a result of meetings, interviews, previous research, and discussions about faculty perceptions toward athletic departments. The Student-Athlete Stereotype Questionnaire (SASQ) measured the stereotype toward student-athletes and was modified from the Knight Commission (2007) version to target academic advisors versus faculty. Two additional scales were developed by the researchers to determine the involvement of academic advisors with athletic departments and student-athletes (Athletic Department Involvement, or ADI) as well as to determine knowledge and understanding of NCAA bylaws in regards to academic eligibility (NCAA Understanding). These scales were developed based on the process recommended by Fraenkel & Wallen (2000) and utilized by Cunningham (2007) and Hardin, Trendafilova, Stokowski, and Koo (2013). Input was sought from academic advising professionals in developing the statements that were used to comprise the new scales. The statements were then reviewed for clarity and the final statements were developed. All participants were also asked demographic questions including professional organization affiliations and years as an academic advisor.

Data Analysis

Data analysis was conducted via SPSS 21.0. Descriptive statistics for the participants consisted of frequencies and means (when appropriate). Pearson's correlation was used to examine the relationship between the four scales. Cronbach's (1951) alpha was calculated for scale validity as well (see Table 1). A correlation matrix was constructed and significance levels were calculated to

determine convergent and discriminant validity for the ADI scale and NCAA Understanding scale. The correlation between the items for each scale was higher than 0 and the significance level was $p \leq .05$. That suggests the convergent validity of the two constructs is valid. Discriminant validity of the two developed scales was based on the Campbell and Fiske's (1959) method of constructing a correlation matrix. Their guidelines are to use the items from the two scales to develop a correlation matrix then determine if the correlation is higher among the items in the one scale as compared to the other scale. That is, take the lowest Pearson correlation score and compare it to the Pearson correlation score of the items in the other scale. There were 11 items in the NCAA Understanding scale and 4 items in the Athletic Department Involvement scale. There were a total of 88 comparisons of Pearson correlation scores ($11 \times 4 + 4 \times 11$). There were only nine violations of the comparisons which is well below 50% which is the standard set by Campbell and Fiske (1959).

Results

Demographics

All respondents were advisors at Division I–FBS universities. More than half ($N = 201, 55.2\%$) were members of NACADA, but representation in the National Association of Academic Advisors for Athletics (N4A) was virtually non-existent as less than 1% were members. More than two-thirds of the respondents were female ($N = 246, 67.6\%$), and less than 10% ($N = 36$) were student-athletes when they attended college. A majority ($N = 303, 83.2\%$) held advance degrees with 58.2% ($N = 212$) having a master's degree and 25% ($N = 91$) holding a doctorate. The average number of years as an academic advisor was 9.93.

Insert Table 1 Here

Mean scores and reliability coefficients were calculated for the four scales (see Table 1). The scores were based on a rating scale of 1 to 6 anchored by 1 = strongly disagree and 6 = strongly agree.

Score interpretation was based on the higher the score for Department Attitude and Stereotype or Student-Athlete Perception the more negative the attitude was. The score interpretation for NCAA Understanding and Involvement was the higher the score the more understanding the respondents of NCAA student-athlete eligibility and involvement in the athletic department.

The stereotype score was past the midpoint with a mean of 3.83 as the academic advisors had a negative perception of student-athletes. The department attitude had a mean of 3.17 which is just past the midpoint so there was a somewhat negative perception or ambivalent perception of the athletic department. The perception was characterized by stereotype and included concepts of only meeting the minimal academic requirements, less likely to graduate, and receive special treatment. This was correlated with the respondents' understanding of NCAA eligibility guidelines, their attitude toward the athletic department, their involvement with the athletic department. This was the basis for testing the three hypotheses. H1 examined the relationship between NCAA Understanding and Stereotype. The correlation showed a slight negative correlation but it was not significant thus H1 was rejected. H2 examined the relationship between athletic department involvement and stereotype. There was a negative correlation ($r = -.189, p \leq .000$) which was significant thus H2 was supported. The more athletic department a respondent had the lower the level of stereotype. H3 explored athletic department attitude and stereotype and was supported ($r = .620, p < .000$) which demonstrates the more negative the department attitude the more negative the stereotype.

Insert Table 2 Here

Regression Analysis

A linear regression analysis was conducted as well to examine the relationship with the variables and to explain the role of department attitude, NCAA understanding, and athletic department involvement on stereotype. The model tested was statistically significant ($F = 75.105, p < .000$) and

explained 38.5% (R square) of the variance. An examination of each independent factor of the model showed department attitude was the only statistically significant factor ($t = 11.028$, $\beta = .630$, $p < .000$). An additional linear regression analysis was conducted using only department attitude, and the resulting model was statistically significant ($F = 225.937$, $p < .000$) and explained 38.4% (R square) of the variance.

T-Test

The regression analysis led to splitting the sample into two groups: low department attitude and high department attitude. Low department attitude was defined as those with a mean score of 0 to 2.99 ($n = 144$) and high department attitude were those with a mean score of 3.00 to 6.00 ($n = 220$). The comparisons yielded significant results. The lower the negative attitude toward the athletic the lower the negative stereotype ($t = -9.856$, $p < .000$). Respondents with a higher level of athletic department also had a lower level of stereotype than those with a lower level of athletic department ($t = 5.585$, $p < .000$).

Discussion

Therefore, the purpose of this study was to further develop an understanding of the perceptions of academic advisors working outside of the athletic department towards student-athletes as well as variables that may influence such perceptions. Overall, the results indicated that academic advisors have a somewhat negative view of both student-athletes as well as the athletic program at their institutions. These findings are consistent within the literature in that other campus stakeholders (i.e., faculty) tend to have negative perceptions of student-athletes, and thus, often negatively stereotype this sub-population of students (Baucom & Lantz, 2001; Burke, 1993; Watt & Moore, 2001; Preacco, 2009). This study also found academic advisors lacked knowledge regarding NCAA eligibility criteria and had little involvement in the athletic department.

One significant finding was that the more negative an academic advisor viewed the athletic department, the more likely the academic advisor was to negatively stereotype student-athletes. There was a correlation in that the greater understanding an academic advisor had of NCAA eligibility requirements the more positive the attitude toward the athletic department and student-athletes. This was also the case with involvement with the athletic department. The more knowledge academic advisors have regarding eligibility requirements and involvement within the athletic department, the better the perceptions that academic advisors had towards both student-athletics and the athletic department. This finding supports previous research that showed greater interaction with student-athletes and involvement with governance yielded positive perceptions (Ott, 2011). This relates back to the concept in Intergroup Contact Theory in that the lack of contact or familiarity with a group can result in prejudices and stereotypes (Allport, 1954).

Academic advisors feel the athletic department supports the mission of the institution as a whole. They agree the athletic department follows the rules of the institution, runs a “clean” program, and that student-athletes do not seek special treatment because of their status. They also feel confident in their ability to advise student-athletes. This is a positive development as any perceived notion that student-athletes are trying to circumvent the policies and procedures in place can lead to a negative working and advising relationship. This is very much a part of the common goal and intergroup cooperation of Intergroup Contact Theory. Both groups must have the goal of not only maintaining eligibility but also working toward degree completion. The groups (academic advisors and student-athletes) need to establish goals and then work together to meet those goals.

This study is a clear example that academic advisors need more time to interact with student-athletes and the opportunity to get involved within the athletic department. Increased involvement will assist in bridging the gap between athletics and academics and, ultimately, perceptions will change.

Academic advisors should take a workshop on NCAA eligibility guidelines so they can become acquainted with the policies and rules of the NCAA, which is what Allport (1954) suggested in the support of authorities with Intergroup Contact Theory. Student-athletes should be encouraged to interact with academic advisors so they can learn more about what is required of student-athletes and the pressure placed on student-athletes (Gayles, 2009; Papanikolaou et al., 2003). Student-athletes certainly have demanding schedules but time should be made to develop a positive relationship with academic advisors. Learning more about this population of students will promote greater understanding and ensure student-athletes are reaping the benefits of having a positive advising experience, which will equate to student retention (Carstensen & Silberhorm, 1979; Lotkowski et al., 2004). This will also lead to an increase in satisfaction of the overall student experience (Coll & Zalaquett, 2007; Drake, 2011; Light, 2001; Thompson, 2009).

Conclusion

It is important that academic advisors are aware of the perceptions or stereotypes they may have toward student-athletes. Those perceptions could in fact be influenced by how the advisor views that athletic department at his or her respective institution. Allowing academic advisors to uncover such biases will create a better understanding of the student-athlete population. This will assist in the overall effort to ensure that every student is gaining adequate guidance from academic advisors, allowing for students to have a successful academic experience. This study can begin the understanding and realization process for academic advisors about the potential biases they may have toward student-athletes as well as athletic departments. The key to decreasing the negative perception or stereotypes of student-athletes is creating a positive athletic department perception and attitude. This can be accomplished by increasing understanding of NCAA eligibility requirements and athletic department involvement. Academic advisors, faculty, students and student-athletes are all stakeholders within the

institution. It is crucial for academic advisors to understand the needs of all students within the department. Academic advisors are often versed on the various student services across a college campus, as we have seen, are unaware of the rules, regulations and protocols in place for student-athletes and their academic needs. In addition to workshops to learn about NCAA eligibility requirements and regulations, regular interaction with athletic academic advisors as well as compliance personnel is imperative to stay up-to-date on all rules regarding the NCAA. While it is not necessary for academic advisors to know the ins and outs of NCAA eligibility, familiarity with those rules would make the advising sessions more beneficial for the student-athlete.

Future Research

This study examined academic advisors at NCAA Division I institutions so the findings may not be applicable to other NCAA divisions. Future research should expand the sample to Divisions II and III. The sample can also be expanded to conferences outside of the Power 5 conferences in Division I. The introduction of two scales was also a part of this study. Future research should work to refine those scales (NCAA Understanding and Athletic Department Involvement) so they can be used in future studies investigating parallel topics. Future research can also delve deeper into the demographic influences of both the academic advisors and the student-athletes. Gender, ethnicity, athletic experience may all be a factor in determining the perceptions of the academic advisors and those same factors may influence the perception of the student-athlete. Furthermore, the sample for this study was any person that had advising duties as indicated by their job title or listed as having advising duties by their college or academic department. The researchers did not include the advisor's specific academic program or majors. Upcoming studies may want to focus on academic advisors in specific majors and/or programs that may have a higher population of student-athletes. Future research can also explore the perceptions of student-athletes toward academic advisors as well as strategies to help

improve the relationship to make it more symbiotic. This research did utilize questionnaires which did not allow for an in-depth investigation of the views of the academic advisors so future research can be focused on interviews or focus groups to gain a deeper understanding of the underlying issues involved in the perception of student-athletes. Advising protocols vary by institution and might impact how students and student-athletes are advised throughout the undergraduate career. This study aimed to look at perceptions of student-athletes by a new group—the academic advisor. Previous literature has focused on perceptions from the stand point of faculty and the general student body. This study provided much needed insight into the academic advisor—student-athlete relationship and why problems might exist. Future research will allow the researchers to understand this group a little better and be able to provide more insight into the perceptions of student-athletes by academic advisors.

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Table 1
Means and Reliability Analysis of Measurement Scales

Item	Mean*	Cronbach's α
Department Attitude	3.17	.817
Stereotype	3.83	.825
Involvement	2.45	.732
Eligibility Understanding	3.15	.949

* Based on a 1 to 6 scale with 1 = strongly disagree and 6 = strongly agree

Table 2
Correlation Matrix of Measurement Scales

Item	Attitude	Involvement	NCAA Understanding
Stereotype	.620*	-.189*	-.083
Attitude		-.329*	-.181*
Involvement			.549*

* $p \leq .05$

Response Documents

Response Document to the **Editor**

Comments	Responses
1. Citations	All in-text citations as well as the reference page have been examined and corrections have been made.
2. Stereotype	An academic definition of stereotype has been provided. The concepts have been included in the literature regarding student-athlete perception to add to further understanding regarding how these concepts are operationalized. We also added hypothesis (based on the suggestion on reviewer two). Thus, we hope you find our results (especially pertaining to stereotypes) more focused.
3. Theory	Based on your suggestion, please note significant revisions regarding the theory in this paper. We went much more in-depth on what intergroup contact theory is and how it can be applied to our study (please see pages 5-8). Thank you for helping us improve our paper.

Response Document to Reviewer **ONE**

Comments	Responses
1. I was happy to see that research was being conducted in this area. I would also be interested to see reverse research on student-athletes perceptions of academic advisors vs. their academic counseling experience. I believe perceptions at a smaller DI institution may be a bit more favorable than those of the power 5.	Thank you for your kind review. We are so happy that you appreciated this research and feel it's practical. All of these potential studies have been included in future research.
2. I also would be interested to see the academic focus on advisors surveyed. Do they advise majors where student-athletes tend to perform well or not? The academic level of students they advise typically varies by program areas and can have an impact on perceptions of athletes.	We added academic advisor's programs/majors to suggestions for future research.

Response Document to Reviewer **Two**

Comments	Responses
<p>1. A proper citation is needed. For example, in page 3, authors cited (Allport, 1954) but it was misused because Allport (1954) never mentioned about the bias in academic advisors—student athlete context. I saw many missing and misused citations in the whole manuscript so authors should address this issue.</p>	<p>The Allport (1954) citation was inadvertently added for this sentence and has been deleted and replaced with the correct citation.</p> <p>All in-text citations as well as the reference page have been examined and corrections have been made.</p>
<p>2. On page 3 authors mentioned perception or stereotypes. However, those concepts are not the same so the authors should provide the academic definition (not dictionary definition) of these concepts and explain how they were operationalized in the current study.</p>	<p>An academic definition of stereotype has been provided and included in the literature regarding student-athlete perception to add to further understanding on how these concepts are operationalized. However, the previous literature we cite in this area (Coll & Zalaquett; Drake; Habley & Crockett) fails to define “perceptions.” Thus, because we feel this is a common social science research term that refers to thought, and we were advised not to use the dictionary definition, we did not define “perceptions.” Please note, an effort was made to ensure the reader understands that stereotype(s) and perception(s) are different.</p>
<p>3. On page 4 authors included a section about the “importance of academic advising” but this part could be significantly reduced and moved to the introduction part. In the current research authors should directly go into the “Student-Athlete and Athletic Department Perception” and provide thorough review of the previous studies (this is place authors can give the definitions of perception or stereotypes).</p>	<p>Based on your suggestion, the importance of academic advising section was moved to the introduction. We did our best to cut down this section and eliminated several sentences that failed to support the importance of this topic.</p>

<p>4. Although I kind of understand why the intergroup contact theory was used in this study but how the theory (especially the conditions) were applied to this study could be significantly improved. The first part of this section was from Pettigrew's (1998) study but authors should elaborate more how this theory works in the context of academic advisor – student athlete relationship. For example, the first condition to be met in order to apply contact theory is equal status. However, you didn't even mention this condition in terms of academic advisor and student athlete relationship. Explain how this condition was met between academic advisors and student athletes. Next condition is common goals. What are the common goals for both academic advisors and student athletes groups in the current study? Also elaborate how the third condition was met. Lastly, it seems like authors are confused with the fourth condition of the contact theory. When you apply the contact theory to examine the relationship between academic advisors and student athletes, then academic advisors are not in authority positions but you mentioned they are (page 6). Support of authorities in this context could be the athletic department, the institution, or NCAA but not the academic advisors since they are the "OTHER" intergroup.</p>	<p>Additional information regarding intergroup contact theory was added to the manuscript. The additional information includes how the theory is applicable to the study as well as to the population studied—the academic advisor.</p>
<p>5. The bottom two paragraphs don't fit within the "intergroup contact theory" section. They should be moved to the previous section "student-athlete and athletic department perception" or removed since they are redundant.</p>	<p>The bottom two paragraphs referenced within this comment were edited, moved and some parts were deleted in order for the sections to make more sense and not be redundant.</p>
<p>6. Hypotheses should be included.</p>	<p>The five research questions were replaced with three hypotheses. Thanks for the suggestion. The research is much more focused now.</p>

<p>7. The format of the method section should be restructured. Now authors have only included <i>participants</i> and <i>instrumentation</i>. A general methods section (for this kind of research method) should include <i>participant</i>, <i>data collection procedure</i>, <i>instruments</i>, and <i>data analysis</i> (e.g., statistical software, descriptive statistics analysis, regression, etc.).</p>	<p>Clear subheads were added. More information in regards to the data analysis was added as well under the Methods section.</p>
<p>8. On page 7, authors mentioned they have developed two additional scales. Scale development procedures should be conducted in most rigorous ways. The authors mentioned briefly they followed the process recommended by Fraenkel & Wallen (2000), Cunningham (2007), and Hardin, Trendafilova, Stokowski, and Koo (2013) but I would recommend at least examined the construct validity (i.e., convergent and discriminant validity; e.g., Kline 2010; Anderson & Gerbing, 1988; Fornell & Larker, 1981) for the newly developed scales.</p>	<p>Information was added in regards to the two developed scales in regards to convergent and discriminant validity under the Data Analysis section under Methods.</p>
<p>9. Revise the tables by following the APA publication manual 6th edition.</p>	<p>The tables were reformatted for APA Style.</p>
<p>10. When you report the results, follow also APA publication manual 6th edition. Just give an example, on page 8 authors reported “Department Attitude had a significant positive correlation ($r = .620, p \leq .000$) with...” It should be changed to ($r = .620, p < .001$)</p>	<p>We corrected this.</p>
<p>11. The main analysis for this research is regression. So include regression table.</p>	<p>Please see response #12.</p>

<p>12. So based on the results, the only significant predictor of stereotype is department attitude. This is a perfect example why development of hypotheses are important. Considering the nature of multivariate statistics in social science area, pre-determined (or expected) theoretical relationships between the variable should be established before conducting multivariate statistics to prevent “fishing”. Another potential reason why only department attitude is a significant predictor could be found in the study design. In my opinion there is a design flaw in this research. The reason the authors used contact theory to examine the academic advisor-student athlete relationship seems like “if the academic advisors are more involved then they may have less stereotypical perception of the student athlete”. If that is what the authors want to find out, authors should’ve examined the “involvement” as a moderator here. For this research (since it uses regression analysis) the authors could divide the academic advisors into two groups based on the involvement level (high vs low) and conduct two separate regression analyses. If the results of the two analyses are significantly different, there is a moderation effect of the academic advisors’ involvement on stereotype perception.</p>	<p>We must have not been clear on the findings. Hopefully switching to hypotheses will help with this. The regression indicated this but the correlation matrix shows the higher the NCAA Understanding score the lower the Stereotype and also the higher of Athletic Department Involvement the lower the Stereotype. This led us to split attitude into two groups (high and low) and conduct t-tests to see if there were any differences. Those results did show a relationship between involvement and stereotype. That information was added under Results. We opted for this approach rather than regression analysis.</p> <p>We greatly appreciate your thoughts on how to make our paper stronger. We hope we met your expectations. Thank you for the opportunity to revise our manuscript.</p>
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