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Perceived Effectiveness of Study Skills Training for Division III College Athletes: A Pilot Program

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ABSTRACT

College athletes experience high levels of stress, and academics is one of the primary causes. This study was designed to evaluate the effectiveness of a study skills training workshop designed around the theory of Multiple Intelligences. The pilot workshop was developed with minimal resources, tailored to college athletes, and focused on helping them adopt personally meaningful active study strategies. An inductive, naturalistic evaluation approach was used to analyze the qualitative responses of 55 athletes who participated in the workshop. Findings showed that those who adopted active study strategies experienced benefits in the areas of decreased stress, perceived effectiveness, perceived efficiency, greater variety of options for how to study, and academic benefits. While benefits to active studying far outnumbered barriers, participants did identify some challenges including time, lack of applicability to all classes, and the challenge of learning something new. The results of this study provide support for utilizing individualized study skills training that empowers students to capitalize on their personal learning strengths. Such programs can be built into the academic support structures delivered by academic advisors and learning specialists, with potential benefits in the areas of both mental health and skill development to support academic success.

Keywords: academic stress, multiple intelligences, student-athletes, study skills

Many college athletes experience high levels of stress related to their combined academic and athletic responsibilities. Although academic stress is common amongst all students (American Psychological Association, 2020; Kottler & Chen, 2011; Paule & Gilson, 2011), the stress upon college athletes often is compounded by an intense schedule and unique pressures. This stress can have a negative impact on physical and psychological health, as well as academic outcomes (Akgun & Ciarrochi, 2003; Felsten & Wilcox, 1992; Kottler & Chen, 2011; Lloyd et al., 1980; Shields, 2001; Struthers et al., 2000; U.S. Department of Health and Human Services [USDHHS], 2021). The current national focus on mental health has increased the imperative to examine and address all sources of college athletes' stress, including academics. The NCAA Student-Athlete Wellbeing Survey, which included college athletes across Divisions I, II, and III, highlights the importance of understanding college athlete perceptions around academics and their relationship to mental well-being (National Collegiate Athletic Association [NCAA], 2022).

Athletic departments support athletes by providing various academic supports such as tutoring, study halls, academic advisors, and learning specialists. Learning specialists have brought attention to a more holistic approach to helping students develop independent learning skills, engage in their own learning process, and reach their maximum potential (Kirby & Amason, 2021). From the learning specialist's perspective, effective academic support programs are not "one-size-fits-all" (Coffin et al, 2021; Cooper et al., 2017; Kirby & Amason, 2021). Academic supports should be designed to meet the unique needs of college athletes, with the goal of helping them develop skills that increase their competence and confidence in academics and prepare them for success beyond the college classroom.

One potential, yet relatively unexplored approach to supporting college athletes' academic pursuits and stress management, is through study skills training. This study was designed to pilot-test and evaluate the effectiveness of a study skills training workshop designed around the theory of Multiple Intelligences (MI) and implemented with athletes at a Division III institution (Gardner,

2006). The intervention was tailored to college athletes and focused on helping them adopt personally meaningful active study strategies. The findings of this study can provide a new tool for providing support to athletes that is both tailored to specific students' needs and feasible to implement. The specific aim of this study was to examine college athletes' use of active study strategies and their perceptions of academic stress and academic outcomes after participating in an individualized study skills training workshop based on MI theory.

Review of Literature

Impact of Academic Stress

Humphrey and colleagues (2000) reported that many college athletes were stressed by academic pressures, intensified by athletic travel. In their sample of college athletes, 95% of males and 86% of females reported being stressed by academic pressures. They found that one of the primary stressors was caused by the demands of preparing for tests, including the time required, while also participating in physically and mentally demanding practices and games. Other researchers also have confirmed that college athletes experience stress from multiple sources, including time constraints, increased numbers of athletic and academic responsibilities, insufficient sleep, pressures to perform, perceptions of workload, and academic self-perceptions (Bedewy & Gabriel, 2015; Paule & Gilson, 2010; Wilson & Pritchard, 2005). In a study of Division III athletes specifically, Hodges (2022) found that athletes experience challenges balancing their athletic, academic, and social lives, and those challenges lead to increased stress and anxiety. The athletes who participated in focus groups for the study recognized their lack of skills necessary to achieve a healthy balance.

Students who have unmanaged stress are at risk for numerous adverse physical and psychological conditions (Kottler & Chen, 2011; USDHHS, 2021). Recent suicides among college athletes have drawn attention to the pressures experienced by college athletes, calling for the NCAA to address stress and mental health issues more intentionally (Hensley-Clancey, 2022). A study of Division III college athletes conducted by Wilson and colleagues (2022) draws attention to the strong relationship between stress, anxiety, burnout, and depressive symptoms. Thus, managing stress can be an important component of mental health and wellness for all college students, especially athletes.

In addition to the mental and physical health implications, academic stress repeatedly has been shown to have a negative impact on grade point average (GPA) and other measures of academic performance, adding to the pressures faced by college athletes (Akgun & Ciarrochi, 2003; Felsten & Wilcox, 1992; Lloyd et al., 1980; Shields, 2001; Struthers et al., 2000). Fortunately, research has shown that the negative impacts of academic stress can be mediated. Resourcefulness, time management, problem-focused coping, and improved thinking skills and learning techniques all have been positively linked to academic stress management among college students (Akgun & Ciarrochi, 2003; Kausar, 2010; Misra & McKena, 2000; Struthers et al, 2000). Akgun and Ciarrochi (2003) found that students who were resourceful experienced just as much stress as students who were not but were able to better handle the stress and thus, demonstrated higher academic performance. The authors concluded that highly resourceful students use their learned resourcefulness skills to minimize the negative effects of academic stress.

Similarly, developing time management skills and better learning techniques have been shown to help students manage stress associated with academic workload (Kausar, 2010; Misra & McKena, 2000). More specifically, students can better handle higher academic workload when they use practical coping strategies, such as time management and problem-solving, as opposed to avoidance or distracting coping strategies (Kausar, 2010). Brouwer and colleagues (2022) found that college athletes recognize the importance of time management to their academic success, as well as the value of academic support. Hassanbeigi and colleagues (2011) showed that a higher GPA was positively correlated with seven different measures of study skills, including concentration and memory, study aids and note-taking, and organizing and processing information. They concluded that teaching study skills to students, with an understanding of individual differences in cognitive characteristics, can provide benefits for students' academic outcomes. Thus, supporting students in developing effective study habits is one obvious way to

help manage academic stress, including the stress associated with poor performance (Kottler & Chen, 2011).

Academic Supports for College Athletes

Recognizing the unique challenges faced by college athletes, it is standard for colleges and universities to offer academic support services for athletes, typically within an athletic academic advising department. These support programs vary depending on the size and type of institution and include services such as tutoring and study halls (Rubin et al., 2022; Wolverton, 2016). While there is a dearth of research comparing the resources provided across Division I, II, and III schools, there is a wealth of common knowledge that Division I schools, especially those in the Power Five conferences, have far more resources for their athletes than schools in other divisions. Yet, the proportion of students at Division III schools who are athletes (1 in 6) far exceeds the proportion of students who are athletes at Division I institutions (1 in 23) [NCAA, 2022]. It is important to note that Division III is built on a philosophy considerably different from that of Division I and II, featuring a holistic approach to the collegiate experience where academics, athletics, and the social experience all are equally important. As such, Division III schools typically devote far fewer financial resources toward their athletic programs than Division I and II, though there is a significant disparity even among the different types of Division III institutions (Katz et al., 2015).

A recent trend among NCAA Division I institutions has been to add a role generally referred to as learning specialist. Learning specialists are hired within athletics academic advising departments with a focus on providing “individualized skill development and learning strategy instruction to college athletes who are identified as academically underprepared” (Steinberg et al., 2018, p. 92). These positions grew by 70% from 2012 to 2015 (Wolverton, 2016), and this trend has no doubt continued. Although learning specialists supplement the work of academic advisors, working predominantly with athletes identified at-risk academically, the tools they utilize to help athletes achieve success could very likely help all college athletes.

Individual institutions are responsible for evaluating their own athletic-academic support programs to comply with NCAA requirements (NCAA Guidelines, 2009). Research evaluating the effectiveness of academic support services for college athletes typically uses measures such as GPA, Academic Progress Rate (APR), and Graduation Success Rate (GSR), as these are athletic eligibility requirements mandated by the NCAA (Grandy et al., 2016; NCAA, 2021). Despite the positive outcomes reported by the institutions, traditional academic support resources offered through these programs, such as tutoring and academic coaches, do not always meet the specific needs of all athletes (Cooper et al., 2017; Grandy et al., 2016). The National Association of Academic Advisors for Athletics (N4A) published Best Practices for Promoting and Maintaining a Culture of Student-Athlete Success, Accountability, and Academic Integrity in 2013, revised in 2019, to provide general guidelines by which colleges and universities could develop their own policies and practices for athletic academic advising, while adhering to “the core values of student engagement, personal development, academic rigor, and integrity” (N4A, 2019, p.1). The document is not prescriptive and includes general practices such as documenting and annually reviewing policies, collaboration between academic support staff and advisors, and including athletes in advising conversations, resulting in considerable variability in how colleges and universities of different sizes and with different resources implement such programs.

Grandy and colleagues (2016) evaluated specific, evidence-based learning support tools for at-risk college athletes including study tables, general academic advising meetings, outcomes-based learning (OBL; Yang et al., 2014), and points of contact (POC) with academic advisors, tutors, professors, and others. Findings revealed that OBL and POC predicted increases in athletes' GPA, while study tables and general academic advising meetings did not, reinforcing the importance of working with students to develop specific skills and strategies for academic success (Coffin et al., 2022; Cooper et al., 2017; Hassanbeigi et al., 2011; Kirby & Amason, 2021). Brouwer and colleagues (2022) similarly found that athletes had mixed feelings about the value of study tables but recognized the importance of seeking help from academic advisors and professors. More research exploring specific academic support tools in the Division III setting, where funding and resources are typically less plentiful, is needed.

Multiple Intelligences Theory

MI theory is one of many learning styles theories suggesting that individuals have multiple different cognitive abilities and ways of processing learned information. MI categorizes intelligence into eight distinct groups: linguistic, logical, spatial, kinesthetic, interpersonal, intrapersonal, musical, and naturalist. All people have a full range of intelligences, but each person has a unique intelligence profile with strengths (both natural and learned) in specific areas. Exposure to information through a variety of formats, that appeal to a diversity of intelligence areas, can enhance learning. According to Gardner (2006), understanding of new concepts improves when an individual is presented with the information repeatedly and in multiple different ways.

In an academic classroom setting, most students are exposed to predominantly linguistic and logical intelligence styles of instruction such as lectures, PowerPoint presentations, discussions, and written materials (Abenti, 2020; Armstrong, 2017). However, research indicates that many students, particularly athletes, have predominant learning strengths in areas other than linguistic (Hus et al., 2011; Sevinc & Siktar, 2016). While the research does not consistently support any one common MI strength amongst college athletes as a group, it does demonstrate that linguistic intelligence often is one of the weaker areas, and that athletes learn in different ways. This highlights the importance of thinking about academic supports for athletes through a lens that incorporates more than simply reading, hearing, and speaking information.

MI research predominantly focuses on how instructors have used this theory to adapt their pedagogy. MI-based instructional methods have been shown to have a positive impact on academic achievement in elementary, middle, and high school settings (Al-Balhan, 2006; Campbell & Campbell, 1999; Douglas et al., 2008). In a study of adult literacy education, teachers found that adult students initially were resistant to some MI-based pedagogical techniques that seemed juvenile, but overcame that resistance by learning about MI (Kallenbach & Viens, 2004). They ultimately found that MI-based strategies helped them become more effective learners. Additionally, teachers discovered that by utilizing MI in their instruction, students found the content to be more meaningful and relevant to their lives. Barrington (2004) made the case that while it is not the norm, universities could utilize MI to help their faculty better reach a diverse student body and favorably improve student perceptions of their learning environment.

MI-based instructional strategies align with the concepts of differentiation or adapting materials or instruction to meet specific student needs, and universal design for learning (UDL; CAST 2022). UDL is a framework for designing instruction to ensure that all learners can access the content and engage in the learning process; it provides an equitable learning environment for students of all abilities, backgrounds, and learning differences. UDL, by its nature, encourages the development of inclusive practices, which supports the fact that cultural experiences create variability in the ways that students learn. For the past decade, researchers and educators have been working to extend UDL to more explicitly incorporate cultural competence (CAST, 2022; Chita-Tegmark et al., 2011/2012). While the UDL guidelines extend beyond the scope of this paper, the clear premise is that it is the teacher's responsibility to provide flexibility in the why, what, and how of learning. Both MI-based pedagogy and UDL allow students to have choices in their learning and capitalize on their strengths and experiences, thus becoming more confident and self-directed learners. However, implementation requires extensive education and practice on the part of the educator, and most professors are ill-prepared to effectively differentiate instruction or deliver instruction based on MI theory (Abenti, 2020) or UDL (Edyburn, 2010; Israel et al., 2014).

In addition to the practical challenges associated with instructors adopting their pedagogical methods to embrace MI theory, there are other barriers. The learning styles hypothesis, which states that individuals learn best when instruction is tailored to their preferred learning style, has been debated in terms of its utility within the educational setting. Pashler and colleagues (2008) conducted a comprehensive review of literature and concluded that there was very weak evidence to support the learning styles hypothesis, specifically the meshing hypothesis, which claims that instruction and presentation of material should match, or mesh with, a student's learning style strengths. Based on their findings, there is not sufficient compelling evidence to justify the cost of trying to match learner preferences to classroom teaching methods. However, they did recognize

individual differences in how learners prefer to receive information, how they respond to instructional methodologies, and their aptitudes for processing different kinds of information.

Sternberg and colleagues (2008) presented evidence in support of understanding and utilizing learning styles to help students thrive. They examined empirical evidence in support of both personality-based and ability-based styles and concluded that learning styles theories have implications in support of differentiated classroom instruction, when possible, as well as student responsibility to utilize their learning strengths. Similarly, research on adult learners has shown that students who learn about and reflect on their MI profile have greater confidence and positive feelings about their strengths as learners (Kallenbach & Viens, 2004). Consistent with the principle of student ownership of learning, the current study was designed to evaluate a program that encourages college athletes to think metacognitively about their own strengths as learners, and to develop active study strategies based on that self-awareness. This enabled them to, as Sternberg and colleague's (2008) stated, "learn both how to capitalize on strengths and to correct or compensate for weaknesses" (p. 504).

Approaching MI from a study skills perspective acknowledges the reality of the limited effectiveness of the meshing theory, coupled with limited pedagogical training for college faculty, and calls attention to the potential for students to play a more active role in their own learning. This also reinforces the abundant evidence that supports problem-focused coping and improved thinking skills and learning techniques as important strategies for reducing perceptions of academic stress (Akgun & Ciarrochi, 2003; Kausar, 2010; Misra & McKena, 2000; Struthers et al, 2000). Thus, the purpose of this study was to evaluate the effectiveness of a study skills intervention on perceptions of academic stress and academic outcomes.

Method

Sample

The sample for this study consisted of 55 undergraduate college athletes at a small, mid-Atlantic, Division III, liberal arts college. Recruitment and retention of subjects occurred in three phases. Initially, all 479 athletes enrolled at the participating college were invited to participate in a pilot study-skills program during the final two weeks of the 2019 fall semester. Of those, 323 (67%) consented to participate and completed the pre-assessment survey. Participants represented every athletic team on the campus and every class year. The 323 athletes who completed the pre-assessment were randomly divided into a control ($n = 194$) and intervention group ($n = 189$). The 189 athletes selected for the intervention were invited to attend the study skills workshop during the first week of the spring 2020 semester. Of those invited, 102 participated, thus comprising the original intervention group. The week after midterm in spring 2020 (approximately six weeks post-intervention) all athletes in the intervention group were asked to complete a qualitative assessment about their experiences incorporating active study strategies into their academic life and 35 responded.

The final phase of the project was to collect post-test data from all participating athletes at the end of the spring 2020 semester. However, the research project was interrupted by the COVID-19 pandemic when all students were sent home and the semester was completed virtually. Upon return to campus in fall 2020, a modified version of the study was resumed.

All returning athletes from the intervention group were invited to participate in an online booster study skills session and 42 attended. In November 2020, exactly one year after pre-assessment data collection, they then were invited to complete a final qualitative post-assessment. Ultimately, 55 athletes in the intervention group completed the study and comprised the final sample. The sample included 27 male and 28 female athletes. Demographic identification consisted of 73% white, 10% black, 4% Hispanic (Latino), 4% multiracial, and 2% unknown. They represented 19 different varsity sports at an NCAA Division III institution. In the second year of the study, 27% were sophomores ($n = 15$), 29% were juniors ($n = 16$), and 33% were seniors ($n = 18$). They were enrolled in a mean of 14.56 credits ($s = 1.58$) during the fall of the first year of the study, and 15.19 credits ($s = 1.51$) in the fall of the second year of the study.

Intervention & Instruments

The intervention consisted of a pre-survey, a 40-minute study skills workshop to instruct the athletes on active study strategies, a brief booster workshop after the COVID-19 disruption, and a post-assessment. The pre-survey took place in November 2019 and included quantitative measures of perceived academic stress, a demographic questionnaire, and a comprehensive multiple intelligences [MI] inventory.

Perceived academic stress was assessed with Perceptions of Workload and Examinations Subscale from the Perceptions of Academic Stress Scale (Bedewy & Gabriel, 2015). The Perceptions of Academic Stress Scale is an 18-item instrument with strong content validity (89% agreement among a 12-person expert panel) and reliability (Chronbach's alpha = 0.7). The specific subscale was a validated, four-item measure (Chronbach's alpha = 0.6) selected to specifically assess perceived stress associated with academics at the point in time when they took the survey. Ratings were on a 5-point Likert scale with 1 representing low perceived stress and 5 representing high perceived stress. The quantitative data was confounded by the COVID-19 pandemic, thus it only was used to provide context for the qualitative analysis.

The MIDAS MI inventory was used to determine each athlete's MI profile (Shearer, n.d.). This is a 106-item self-report questionnaire. Participants completed the inventory during a team meeting organized by either their coach or team captains. Incomplete inventories were flagged in the online data collection system and participants were notified and given a chance to complete the inventory or were excluded from the research study.

The study skills workshop was facilitated by the researchers during the second week of the 2020 spring semester. During the workshop, each athlete received their personalized MI inventory results with a brief explanation about how to interpret them. They then were led through a series of activities designed by the researchers that instructed them on how they could apply their MI strengths to a variety of active study strategies. The workshop also included a very brief overview of general academic stress and time management strategies. This helped frame the active study strategies within the broader context of college success and differentiate where and how it can best be applied (e.g., MI-based active study strategies are more helpful for memorizing concepts for a test than for writing a creative essay). The theme of the workshop was "study smarter, not harder."

Differentiated instruction during the workshops included 3–4-minute video presentations created by the researchers for each intelligence area, as well as individual reflective activities and group brainstorming of related strategies. For example, the video for interpersonal intelligence included strategies such as participating in a study group to actively brainstorm together and quiz one another. Table 1 provides a brief definition of each intelligence area and examples of learning strategies included in the corresponding video.

Table 1
Multiple Intelligences and Corresponding Learning Strategies

Intelligence	Definition	Learning Strategies
Interpersonal	Learning through relationships and communication with other people	Participate in a study group Quiz or teach a friend
Kinesthetic	Learning through moving, creating, and doing	Associate terms or concepts with movement Build, make, or create something to represent or explain a concept
Intrapersonal	Learning through personal reflection and experiences	Connect new concepts to your own past experiences or things you already know Journal about new concepts learned in class to identify gaps in understanding
Logical	Learning through reasoning analysis to solve problems	Organize notes into numbered outlines, charts, or graphs Use deductive reasoning to develop rational arguments
Naturalist	Learning through observing, exploring, and studying in the natural environment	Study outside or near a window Associate key facts or concepts with things in the environment
Linguistic	Learning through reading, writing, and hearing words	Rewrite your notes by hand and/or make flashcards Use word association, memorable acronyms, mnemonic devices and storytelling to study
Musical	Learning through sounds, rhythms, melodies and rhymes	Turn class notes or concepts into songs Use rhymes to help you remember facts or concepts

Each participant watched the specific videos that matched their top two or three learning strengths, completed an individual reflection, and participated in discussions with other athletes who had similar strengths, thus creating a customized learning experience. The objective was to help athletes understand their personal MI-profile and then to maximize the effectiveness of study time by integrating active study strategies that were consistent with their strongest intelligences. Participants also were provided with printed resource guides specific to their learning profile to take with them as a reminder of how to capitalize on their personal learning strengths. While some MI-based study strategy resources exist online, they are almost exclusively linguistic in format and accessing them requires an informed and motivated student. The study skills workshop utilized for this research project was created by the researchers with the intention of making the resource guides user friendly (video and written format), easily accessible (electronically or in print), and multi-dimensional for diverse learners (utilizing multiple intelligences in delivery of the information). The study skills workshop and associated videos were developed by the research

team based on their pedagogical training and expertise in MI theory. They were designed to have broad applicability to a diversity of academic majors and utilized college athletes as actors. The workshop and associated resources were designed to be replicable and user-friendly for any learning specialist or academic coach to be able to implement.

During the second week of classes in fall 2020, following the initial COVID disruption, the college returned to in-person instruction, and all returning students in the intervention group were invited to participate in a brief, 20-minute virtual booster session facilitated by the researchers. During the session they were reacquainted with their MI profile and reminded of the active study strategies they learned in the spring. They also were given continued access to the instructional videos and resource guides. Final data collection occurred in November 2020, exactly one year after pre-testing. Qualitative questions asked at both six-week and one-year follow-ups included:

- Describe how you have utilized the study strategies you learned at the workshop.
- What successes or challenges have you had trying to use the new study strategies?
- How has your studying changed or stayed the same since learning about multiple intelligences?
- Describe how you think using the multiple intelligences-based study skills has affected your stress levels related to academics and/or your academic outcomes.

Recognizing that the pandemic could have affected students' levels of academic stress, an additional quantitative question was added at the one-year follow-up:

- How has COVID impacted your stress related to academics?

Analysis

An inductive, naturalistic evaluation approach to data analysis was utilized for qualitative analysis following the six recursive phases of thematic analysis (Braun & Clarke, 2006). Two researchers independently familiarized themselves with all the qualitative data through repeated reading and noting initial ideas. This was followed by generating initial codes, searching for themes by collating codes, reviewing themes, defining and naming themes by refining and generating operational definitions, and producing the report with compelling examples to illustrate themes. Data analysis was designed to minimize the possibility that any values were advantages or disadvantages in the process of program evaluation and to ensure fairness of analysis (Lincoln & Guba, 1986). When conflict between researcher interpretation of codes or themes arose, the value systems represented were discussed, recommendations were negotiated, and a third party was consulted when necessary.

Initial open coding uncovered multiple broad themes related to strengths and challenges associated with the intervention. During phase three of data analysis (reviewing themes) the researchers came together to review the initial themes and sought consensus. Broad themes were only retained if they had been initially coded by each member of the team. Refining themes and generating operational definitions occurred over several meetings and utilized a constant comparative method, requiring consensus before moving to the next stage of analysis. The process of independent coding followed by comparison helped to ensure intercoder reliability (Creswell, 2009). The iterative process of peer discussion and debriefing assured trustworthiness. After extensive deliberation, the researchers collaboratively selected three defining themes to represent the data: changes in study habits, benefits of active studying (with five sub-themes), and barriers to active studying (with three sub-themes).

Nvivo software was used to analyze the qualitative data. This project was approved by the participating institute's Institutional Review Board, protocol number 19-014.

Results

Quantitative indicators related to perceived stress at the time of the pre-test are included to provide context from which to interpret the qualitative findings. When asked "how hard do you perceive your coursework overall to be this semester," 76.3% (n = 42) responded that it was somewhat or extremely difficult. The mean response to their perceptions of academic stress was 2.65 (s = 0.82) on the Perceptions of Academic Stress Scale, representing average amounts of stress. The number of hours they reported spending preparing for a test was a mean of 4.29 hours (s

= 2.08). At the time of post-test, participants were asked how the COVID-19 pandemic had impacted their academic stress. More than 75% (n = 37) of athletes who responded reported more stress related to academics because of COVID. The results of this question are summarized in Table 2 below.

Table 2
Reported Impact of COVID-19 on Academic Stress

Response	n	%
Less stressed	2	4.1
Same amount of stress	10	20.4
More stressed	37	75.5

Note. N = 49. Six athletes did not respond to the question.

The multiple intelligences strengths profile of the sample was: 65% interpersonal, 53% kinesthetic, 47% intrapersonal, 40% logical, 31% naturalist, 22% linguistic, 18% musical, and 11% spatial. Percentages do not total 100% because participants were instructed to examine their top three MI strengths relative to their entire MI profile.

Qualitative data indicated that many participants (n = 39, 71%) reported they did change the way they studied based on what they learned at the study skills workshop. This included three people who initially reported no change in their studying at the six-week follow-up but had incorporated active MI-based study strategies at the one-year follow-up. Athletes who reported they had changed their study methods were asked to give examples of their new study strategies. Most examples given fell into the linguistic category (n = 17), followed by interpersonal (n = 14), kinesthetic (n = 11), and intrapersonal (n = 9). Table 3 lists each intelligence with examples of strategies that participants reported using. With two exceptions, the frequency of examples given mirrors the predominance of that intelligence strength within the sample, as shown in columns two and three of Table 3. One exception was that musical intelligence had one more example (n = 6) than naturalist intelligence (n = 5), however naturalist was a more common intelligence strength than musical. The other exception was related to linguistic intelligence, which made up the greatest number of study strategy examples (n = 17) but was one of the least common learning strengths (sixth out of eight).

Table 3*Multiple Intelligences Strengths and Utilization of Corresponding Study Strategies*

Intelligence ^a	Athletes with strength in that intelligence		Frequency of use of corresponding study strategy ^b		Example quotes illustrating how the intelligence was used for studying
	n	%	n	%	
Interpersonal	36	65	14	36	<p>“I have practiced studying with other people and also have taught some of my roommates my material.”</p> <p>“I get together with one or two friends and ‘teach’ each other the material.”</p> <p>“I used to sit at a desk for hours but now I move around and try to talk it out with other people.”</p> <p>“I began explaining my assignments to my boyfriend while I study.”</p>
Kinesthetic	29	53	11	28	<p>“I utilized these strategies by exercising before I do my homework and moving around when I study, especially for tests and quizzes.”</p> <p>“It has changed by incorporating activity into my studying.”</p> <p>“I try to exercise before study sessions to better focus.”</p> <p>“I used to sit at a desk for hours but now I move around and try to talk it out with other people.”</p>
Intrapersonal	26	47	9	23	<p>“My studying has changed through studying by myself in a good learning environment.”</p> <p>“I’m using connections through objects or movies to help me better understand what I am learning.”</p> <p>“I remember things by connecting it to myself and other people.”</p>
Logical	22	40	8	21	<p>“I organize my notes in outlines.”</p> <p>“Using diagrams help me to memorize things, lists help me to remember.”</p> <p>“I try to think of things in a list form, I memorize stuff in small chunks and come back to it.”</p>
Naturalist	17	31	5	13	<p>“I study in rooms with big windows or out in my hammock.”</p> <p>“I now sometimes use nature as a means of tying in things for me to remember.”</p> <p>“I learned to study in or around nature. Since then I go to a window in the library and study.”</p>

Linguistic	12	22	17	44	<p>“I have put more effort into writing out my notes.”</p> <p>“I make sure I have a place to study where I can talk out loud and write material down.”</p> <p>“I’ve been reading my notes out loud to study and writing them out on chalk boards.”</p> <p>“I learned through writing things down and creating sayings to memorize the material really helps.”</p>
Musical	10	18	6	15	<p>“Using a rhythm to memorize things.”</p> <p>“I have made remixes to my favorite songs to help me learn material for my harder classes.”</p> <p>“I learned to study more with music, it helps me focus.”</p>
Spatial	6	11	2	5	<p>“I take notes on my laptop then rewrite them in different colors to study.”</p> <p>“Repetition with pictures was another way for me to study.”</p>

Note. N = 55.

^aIntelligences are listed in descending order of frequency among athletes.

^bReflects the number and percentage of participants who provided examples of using specific study strategies aligned with a specific intelligence (n = 39).

In addition to giving specific examples of active study strategies they had incorporated into their academic life, multiple participants talked about how they were benefiting from using multiple strategies in combination, based on what they had learned about their full MI profile. For example, one athlete explained: “I have utilized the exercising before [studying] strategy and the studying by myself before meeting with a group study session because my traits were interpersonal, intrapersonal, and kinesthetic.”

Although there were many examples of athletes using the active study strategies, not all athletes reported a change in study habits because of attending the study skills workshop. Almost one-third of participants (29%, n = 16) stated they had not changed the way they study. This includes two athletes who reported using some of the newly learned strategies six weeks after the workshop, but then at one-year follow-up reported they had reverted to their old ways of studying. One of those athletes put it this way: “I have tried to implement strategies that I learned but I still revert to my past study techniques as they were effective for me.” Many athletes simply stated that they were not using any new study strategies and did not explain why. Among those who did explain, the most common reason (31%, n = 5) was that they were already using active learning strategies that worked for them, primarily the same strategies that were taught in the workshop. The sentiment of those athletes was captured in quotes like this: “Many of the study skills that were suggested to me are study skills that I was already utilizing. It did give me some further insight as to why I learn the way I do and how to take advantage of certain situations.”

Benefits

The benefits of using active study strategies far outnumbered the barriers described by participants, which reflects the fact that 71% reported they did change the way they study based on what they learned about their MI strengths. Benefits described by the participants fell into five major categories, in order of frequency of mention: decreased stress, perceived effectiveness, perceived efficiency, greater variety of options for how to study, and academic benefits; see Table 4. One athlete summarized the benefits in this way:

[My stress] has decreased because I am making every second useful when studying and not wasting as much time trying to start or think through work. I am also not getting as overwhelmed with homework and readings (since those take me the longest) because of these interpersonal, intrapersonal and kinesthetic study skills that I am using. My academics are improving and I am more on top of my time management and study habits with these skills.

Table 4
Benefits of Active Studying

Benefit	n	% of total sample	% of those who adopted new study strategies
Decreased stress	35	64	90
Perceived effectiveness	27	47	60
Perceived efficiency	19	35	49
Variety of options	18	33	46
Academic benefits	15	27	38

Note. N = 55 (39 participants adopted new study strategies).

Participants were specifically asked to comment on how the study strategies had affected their stress levels related to academics. Among the entire sample, 35 participants (64%) reported a decrease in stress, while 20 (36%) said they had no change in their stress after attending the study skills workshop. When looking at only those who reported using the active study strategies, 90% (35 of 39) described a reduction in academic-related stress. Multiple athletes elaborated about their reduced stress, explaining that it was due to “feeling more prepared,” having “more efficient ways of studying,” and having better ways to “retain the information.” Some participants explained how they were using specific strategies to help manage their stress, such as: “I feel more calm right before I go into the test while reciting the chant I have memorized.” Others noted that they felt less stressed because for the first time they had learned active study methods, not just “rereading notes.” For example, one athlete stated: “[I have] decreased my stress level because I know more effective studying strategies and I don’t have to come up with them on my own,” while another said, “It makes the week before tests less stressful because I know how to study.” Another word participants often associated with less stress was a sense of calm. As one athlete put it: “I believe it has helped me calm down and realize that I will study and understand content better if I just play to my strengths.”

The second most common benefit of using active study strategies related to feeling that the strategies were a more effective way to study. This was mentioned by nearly half of all participants (n = 26, 47%; 60% of those who used the active study strategies). One athlete put it simply: “I know what strategy works best for me so I don’t waste time doing things that aren’t helpful anymore.” This was a sentiment repeated numerous times in various ways. Effectiveness was captured by the athletes expressing feelings of preparedness, confidence, and competence. Numerous comments about feeling more prepared are exemplified by this one: “My studying has changed because I have found a definite way that works for me and I know that I need to conduct these strategies every time or I will not be prepared.”

Other athletes expressed a general sense of confidence in their ability to learn and succeed academically. For example, one participant said: “I am able to learn the material more and actually understand most of it,” while another said simply: “I have confidence in my studying.” Finally, some talked about a new-found feeling of competence in certain subject areas and a sense of understanding class material in a deeper or more meaningful way. For example, one participant said:

I have had a great amount of success because I can build the connections on my white board that I might not have been able to see in my notes. I can also find weak points in my notes that need further explanation or just a few more definitions to help me better understand that concept.

All three sub-themes of preparedness, confidence, and competence captured the common sentiment that athletes appreciated having more active ways of studying that felt more effective and thus improved their attitudes or self-perceptions related to academic preparation and success.

The third benefit described by approximately a third of participants (n = 19, 35%; 49% of those who used the active study strategies) was the efficiency of their studying with the personalized MI-based strategies. Efficiency specifically was mentioned by 12 athletes and focus by another five; both focus and efficiency were mentioned by four. While efficiency and focus are not identical concepts, the way they were described by athletes in this study mirrored each other and were sometimes used synonymously, thus they were combined for this analysis. Efficiency was represented in comments about making better use of time, getting studying done faster, and being able to accomplish more in a shorter period of time. For example, one athlete stated: “I know what strategy works best for me so I don’t waste time doing things that aren’t helpful anymore.” Another athlete said they’d had success with “having more energy when I was studying and being able to not fall asleep while reading, studying or trying to remember big information.” Efficiency also was described in relation to using specific MI-based strategies, such as: “I have gotten homework done a lot faster when I have gone outside.” Others talked about being able to focus for longer periods when they use more active study strategies, captured simply in the sentiment of one athlete who said: “I am able to focus and study for longer periods of time.”

A fourth theme described by another third of participants (n = 18, 33%; 46% of those who used the active study strategies) was the benefit of learning more options for how to study, moving beyond more passive study methods such as reading over notes. Their comments often related to using different strategies to help with retention of material, especially more difficult concepts or when one way was not working for a particular topic. For example, one athlete said: “I study some of the same ways I used to but it definitely opened up my mind to other ways especially when studying more difficult material.” Another stated: “It gives the individual options for different studying methods so you can change it up if you hit a mental block.” Associated with the theme of having more options for how to study was the idea that more personalized, active study strategies were more engaging. Four athletes commented specifically that the new study strategies they were using made studying more “fun” or less “dreadful.” As one athlete explained: “I do not feel like I’m trapped or can’t do specific work because I have strategies that I can pull out of my head to try when I get unmotivated or frustrated with a topic.”

The final benefit of using active study strategies was improved academic success, described by 15 participants (27%; 38% of those who used the active study strategies). These athletes specifically referenced improvements in quiz and test scores, course grades, and/or more positive feedback from their professors. They independently made the association between their new study strategies and quantitative improvements in their academic outcomes. One athlete said that because of the change in how they study, “my grades have been positively affected by the study skills.” Another shared: “my grades have increased dramatically since last year.” These comments reflect the breadth of comments made related to academic benefits.

Barriers

Despite the many benefits associated with developing new, active study strategies, both athletes who reported changing their study habits, and those who did not, described challenges that they faced. For some, those challenges were inconveniences that were worth overcoming, for others they resulted in athletes not adopting the new, more active, and personalized study strategies. Barriers to using the active study strategies fell into three major categories: time, practicality, and learning curve; see Table 5.

Table 5
Barriers to Active Studying

Barrier	n	%
Time	12	22
Practicality	11	20
Learning Curve	5	9

Note. N = 55.

Time was the most reported challenge, mentioned by 12 participants (22%). They all noted that the active study strategies they learned in the workshop would, “take more time.” Some athletes found this barrier insurmountable, even if they saw the benefit. This sentiment was captured by one athlete who said that the challenge was “time management and energy to write all notes.” However, the majority (66%) of those who stated that the time commitment of more active studying was a challenge took the time to use the strategies despite that challenge. For example, one participant summarized it this way: “Challenges come from me not giving enough time to get into the strategy, but when I sit for a while it works.” Another athlete said they were using the strategies, but that “the only challenge I’ve had is making sure to set aside enough time to use the strategies effectively.” These comments reflect the initial investment of time to learn the new study strategies, and the recognition by most that the benefits are worth the time.

Another barrier, mentioned by 11 athletes (20%), was an awareness that the active study strategies they learned were not always practical or applicable. Some athletes (n = 5, 9%) correctly identified that the study strategies are not designed to help with every academic assignment, such as writing papers. One athlete stated that the challenge was, “accepting that they don’t work for every class.” More frequently, participants mentioned how specific active study strategies that worked for them in general were hard to apply to all content areas. For example: “Using nature was sometimes difficult, as sometimes it is a stretch to connect every aspect of a subject to nature.” Also: “Using chalk isn’t always applicable, I can really only use it for one class,” and “It’s hard to put the content that I am learning to a rhyme or rhythm.”

The final barrier was the learning curve, mentioned by some athletes (n = 5, 9%) who stated they did not use the new study strategies because of the challenge associated with learning something new, and the discomfort that created. One athlete stated: “Sometimes it is hard to implement new strategies when you have been doing something a certain way for a long amount of time.” Another talked about the time required because of the learning curve associated with adopting something new, stating: “It does take time to perfect the skills and sometimes even though [my current method] takes longer in the long run I just don’t have time to slow down and try a new technique.” Another athlete shared that sentiment, but also recognized the benefit of trying a new strategy, as they stated: “It took me out of my normal routine and comfort zone, which took a little bit of adjustment, but I believe the strategies helped me understand content to a further and deeper extent.” This mirrors the earlier sentiment that for some athletes, the benefits of learning and adopting the active study strategies outweighed the barriers.

Discussion

College athletes who participated in this study generally agreed that their workload was difficult and that their academic stressors caused moderate to high stress. The pretest measures of perceptions of academic stress (taken before COVID) indicated that athletes had a clear need for strategies to help them manage their stressors related to academics. This is consistent with previous literature that states academics are among the major sources of stress for college athletes (Akgun & Ciarrochi, 2003; Felsten and Wilcox, 1992; Hodges, 2022; Lloyd et al., 1980; Shields, 2001; Struthers et al, 2000). The results of this study indicate that personalized study skills training based on multiple intelligences strengths is an effective way to help college athletes

develop more active study strategies that reduce their perceived academic stress and potentially improve academic outcomes. Based on participant responses, it appears that most athletes (71%) who were exposed to the study skills training did use what they learned. Of those who utilized the learned study strategies, the vast majority did in fact experience positive outcomes; some of the benefits they described included reduced academic-related stress, improved efficiency and effectiveness of studying, and improved academic outcomes.

These results have implications within the context of academic support services and measures of academic success among college athletes, beyond eligibility. The NCAA requires institutions to measure and report specific academic measures for all athletes, including GPA, Academic Progress Rate (APR), and Graduation Success Rate (GSR) [Grandy et al., 2016; NCAA, 2021]. While demonstrating that athletes are in good academic standing and making adequate progress toward their degree are important for athletic eligibility, they do not necessarily represent a complete picture of student success (Kirby & Amazon, 2021; NCAA, 2022). Thus, a qualitative examination, as was employed in this study, can provide athlete voice into a deeper understanding of the impact of academic support services on other aspects of student development and success. Our results showed that when athletes used active study strategies, many found their studying efforts became more effective and efficient, they were more focused and confident, and some athletes were more motivated and engaged in their studying.

According to Kirby and Amason (2021), these outcomes may be more promising and longer-lasting measures of success than GPA. In their study, students reported that effort, work ethic, and meeting personal goals were important elements of success. Given that the study skills modules developed for this project were designed to promote and facilitate the development of independent learning skills, and that athletes reported positive outcomes related to motivation and engagement, this additional dimension of benefits has the potential to extend beyond the college classroom. This is also supported by previous research, which showed that students who used effective, problem-focused coping as opposed to emotion-based coping were more motivated, performed better academically, and experienced less stress (Struthers et al., 2000).

In addition to the broader benefits of providing academic support by teaching active study strategies, this research reveals many interesting findings related specifically to linguistic intelligence. Previous research indicates that most faculty members teach using primarily a linguistic or logical style; however, not all students have learning strengths in this area (Barrington, 2004). This holds true for many athletes in this study. Of the 55 athletes surveyed, only 12 (22%) showed relative strengths in linguistic intelligence. While linguistic pedagogical style is appropriate in most classroom settings, students must be able to capitalize on their personal learning strengths when it is time to study information individually and commit it to memory (Sternberg et al., 2008). Despite this, linguistic was one of the most common intelligences that athletes pulled from when developing new active study strategies. In fact, linguistic intelligence was mentioned the greatest number of times when participants were asked to provide examples of how they study after attending the workshop, but it was one of the least common learning strengths (sixth out of eight).

One possible explanation is that students have more experience with linguistic learning strategies because that is the primary style they have been exposed to in their formal education, thus they are most likely to mimic those (Abenti, 2020; Armstrong, 2017; Kallenbach & Viens, 2004). Given the learning curve associated with developing new strategies, which was a commonly mentioned barrier, students may tend to revert to what they know or have some experience with rather than devoting time to learning new strategies that more closely align with their learning styles. This notion is supported in the literature, where adult students were initially resistant to MI-based pedagogical techniques but developed increased confidence when they learned how to learn in more individualized ways (Kallenbach & Viens, 2004). Thus, exposing students to learning strategies that align with their individual intelligence strengths, and providing opportunities for practice and modeling, is valuable.

It is important to note that all of the linguistic strategies given as examples by participants represented active learning strategies, not passive re-reading of notes. So, while they were incorporating a study strategy that was not necessarily the best fit with their learning profile, they were improving their studying by actively working with the material. As one athlete stated, I now study by “not just reading through my notes but making sure to say them out loud.” The most

common linguistic strategies mentioned were rewriting notes ($n = 13$) and using flash cards ($n = 6$); one or both methods were mentioned by everyone who gave an example of linguistic study strategies. Additionally, in many cases, the linguistic strategies they adopted overlapped with their identified learning strengths, such as spatial (e.g., visual flashcards, color-coded notes) and logical (e.g., reorganized outline style notes). One important implication of this finding is the recognition that some athletes may need more support to practice and learn new strategies that align with their learning styles when the natural tendency is to revert to what they know or have seen. This could be a worthwhile focus for academic support programs targeting at-risk or struggling athletes. It also highlights the advantage of active study strategies over more passive ones, regardless of which learning style they align with.

One final finding worth exploring is the contrast between those athletes who stated that the more active MI-based study strategies were more efficient (a benefit) and those who said it took more time (a barrier). Time spent studying and preparing for class, when measured objectively, is a significant factor in academic success (Gyllen et al., 2019; Junco & Clem, 2015; Rawson et al., 2017). Some students, namely those who perform lower academically, tend to overestimate the amount of time they spend studying (Gyllen et al., 2019). Time constraints are also noted as a cause of stress, specifically for college athletes, and they recognize the importance of time management in academic success (Brouwer et al., 2022; Bedewy & Gabriel, 2015). Utilizing more active, personally relevant study strategies should naturally lead to more efficiency in studying, as well as more enjoyment, which can help negate the burden of time spent. Some participants noted this exact phenomenon.

However, regardless of the long-term benefit, learning something new, including new ways to study, does require an initial investment of time. One participant admitted the barrier of the learning curve and described the active study strategies as taking them outside their “comfort zone,” but ultimately realized the benefit of gaining a deeper understanding of the content. This experience is supported by theory and research that suggests active learning strategies enhance learning, application, and transfer of knowledge (Fiorella & Mayer, 2016), as well as academic outcomes such as GPA (Hassanbeigi et al., 2011). Thus, while learning new study strategies may initially require additional time, the investment may improve efficiency and ultimately result in a more positive learning experience and reduced perceptions of academic stress, if not also time savings.

Implications

The findings of this study offer practical implications for athletic administrators and academic support staff at the Division III level. As college athletes strive to balance their academic, athletic, and social demands and to manage the stress associated with each, it is contingent upon those who support them to provide innovative and effective ways to help them succeed. Active study strategies training appears to be an excellent resource to provide individualized support for college athletes that has benefits for academic skill development, outcomes, and stress management. Academic advisors, learning specialists, faculty athletic liaisons, and others who work with college athletes can support their academic development and stress management by providing them with personalized, active study skills training. Utilizing technology-based training modules, such as the ones developed for this study, is both feasible and scalable for use in resource-limited situations with large numbers of students, while still maintaining a customizable approach. This is particularly important for supporting Division III college athletes where there may not be any staff exclusively devoted to academic support, thus a pre-built, easy to implement study skills program with evidence of effectiveness has added value for minimal cost. Given the wide disparity in resources and expenditures for athletic programs among different types of institutions, even within the Division III level, this could further support the unique purpose of Division III, to foster personal development and academic success beyond eligibility to compete (Katz et al., 2015).

Additionally, active study skills training programs should employ the basic tenets of UDL and inclusive practices to empower athletes by offering materials and strategies that address varying strengths and preferences for diverse learners. Colleges and universities are striving to incorporate culturally competent practices into every aspect of their functioning, including academic support services for athletes. While this transition is a slow process, individualized, self-selected active

study strategies can give students the opportunity to personalize the way they interact with and learn the content that is presented in their classrooms. This does not eliminate the need for institutions to focus on developing culturally competent and universally inclusive pedagogy, however it does build upon a framework that has culturally inclusive principles at its core. UDL is a pedagogical approach that provides flexibility in the learning environment and improves access to the curriculum for diverse students (Capp, 2017; CAST, 2022). However, it has not been explored as a framework for supporting and empowering students to take a more active role in the learning process outside the classroom. Thus, the study skills training program developed for this study introduces a new contribution to the field of academic support for college athletes. The technology-based modules gave athletes a variety of options from which to choose the study strategies that best fit their personal learning strengths and, at least qualitatively, athletes perceived improvements in the learning process. These positive results are consistent with previous research examining UDL provided by the educator, but further exploration is needed to examine UDL and active studying applications in the area of academic support (Capp, 2017; Reyes et al., 2022).

Limitations

The conclusions of this naturalistic evaluation of a study skills training program for college athletes must be interpreted with some caution. The data relied on self-reports regarding whether athletes implemented the study strategies that they learned in the workshop and their perceptions about how those strategies impacted them. It is possible that other life circumstances or academic support resources were also impacting their study habits during the time of the research and could have influenced their responses. We also had no way of verifying whether the athletes used the techniques, reduced stress, or improved academic performance. However, the athletes had no incentive to misrepresent their behaviors or feelings about the study strategies and in fact, some admitted to not using them or not finding them beneficial. Furthermore, the level of specificity in their examples of study strategies used indicates that they did in fact try them and that they were a product of what they learned in the MI-based study skills workshop. Thus, the validity of their responses, while not verifiable, is unlikely to be suspect. Future studies could employ quantitative measures of study strategies, academic success, and perceptions of academic stress, which would allow for triangulation of data and could help paint a more comprehensive picture of the impact of this type of intervention.

The most significant limitation of this study was the fact that it was interrupted by a global pandemic, which significantly affected the educational environment and stress experienced by college students (Healthy Minds, 2020; Lassiter et al., 2022; Sutton, 2021). In a survey querying college athletes' experiences during the COVID-19 pandemic, mental health and academic progress were rated as the number two and three concerns (Davies & LoGalbo, 2021). Thus, the results could reflect experiences that students ordinarily would not encounter during normal times. To account for this, we included a question in the post-assessment that asked participants to report if/how their academic stress changed because of COVID-19. The results confirmed what we suspected and showed that the pandemic did in fact affect their educational experience. More than 75% of those who responded reported experiencing more stress related to academics as a direct result of COVID. This was reflected in some of the qualitative data as well. Six athletes (11%) cited circumstances of COVID-19 as a direct barrier to implementing the study strategies. Comments such as: "I attempted the strategies but it became difficult to fulfill them during quarantine due to lack of motivation," reflect the general sentiment around motivation to learn that posed a particular challenge during the pandemic. Additionally, four of the six who specifically mentioned struggles related to the pandemic had strengths in interpersonal intelligence that were difficult to use because of remote learning and social distancing. While these comments relate to the challenges specific to COVID-19, other disruptions and life-altering situations that arise for college students, such as prolonged illness or injury, death of a family member, transfer, or relocation, could create academic disruptions and contribute to stress experienced by college athletes during "normal" times. Thus, the results are relevant despite the disruption brought on by the pandemic. Furthermore, 90% of athletes who used the new active study strategies reported that decreased academic stress was a benefit, despite the additional stress brought on by COVID-19. It

is possible, then, that having additional learning tools and strategies to draw from is even more important for managing stress during times of disruption.

Another limitation is the focus exclusively on academic stressors. The life of a college athlete is multi-faceted and complex, encompassing many stressors related to academics, athletics, and other life stressors (Bedewy & Gabriel, 2015; Paule & Gilson, 2010; Wilson & Pritchard, 2005). It is somewhat artificial to examine one stressor in isolation. However, the study skills workshop examined in this study was designed to help college athletes build skills specifically related to managing academic stressors. Thus, it was within the scope of the project to focus exclusively on that particular area of stress. The intention of the workshop was skill building that would have a lasting impact and could help to decrease perceptions of academic stress even when other stressors are present. These other stressors may include disruptive events such as COVID or other life traumas, and the daily life stressors associated with managing academics and athletics.

Conclusion

All college students experience stress from a variety of sources, one of which is academic stress. College athletes face additional pressures, and while colleges and universities have structures in place to support athlete success, a “one-size-fits-all” approach to this support has limited effectiveness. Moreover, there is currently no consensus on best practices for student-athlete academic support, beyond the general guidelines provided by the N4A. The intervention in this study offers an approach to academic support based on MI theory, that empowers students to take an active role in their own learning and develop individualized, active study strategies to make the learning process less stressful and ultimately improve academic success.

Previous research has shown that MI-based instruction can have a positive impact on student learning. Yet, most educators continue to deliver content using linguistic instructional strategies. It would be both resource-intensive and unrealistic to expect professors to attempt to match the learning styles of all students. Thus, this study provides an alternative avenue for college athletes to capitalize on their personal learning strengths while also developing independent learning skills that can improve student engagement in the learning process, decrease academic stress, and potentially improve learning outcomes. This approach shifts the responsibility from the teacher to the student, a strategy that has not been explored in the literature. Future research should continue to examine this approach to individualized study skills training for college athletes, thus answering the call for effective, individualized support structures delivered by academic advisors and learning specialists.

This study gives voice to college athletes competing at the Division III level where research is sparse. Division III athletes account for 37% of all college athletes and thus, research at this level is a valuable contribution to the literature. Future research should explore the generalizability across NCAA divisions and to other populations, such as first-year students and academically at-risk students. Finally, a broader exploration of factors impacting college athlete stress could place academic stress into context and would provide valuable insight into the college athlete experience in order to apply a more holistic approach to college athlete support.

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