

Exploring the impact of a mental skills training curriculum with elite university student-athletes: A qualitative case study

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Abstract:

University courses for mental skills training (MST) and performance enhancement have been developed by sport psychology faculty and professionals to provide training for university student-athletes (Curry & Maniar, 2004). The integration of MST into both academic and sport settings can support the development of mental resilience, psychological well-being, and athletic performance in student-athletes, making it highly relevant for physical education programs. These interventions have also shown potential to enhance academic performance and coping skills while reducing anxiety. However, literature supporting the psychological and performance benefits of classroom-based MST courses remains limited, particularly in comparison to traditional sport training environments. This qualitative case study explored the effectiveness and experiences of a 16-week university MST course offered through a Movement Sciences department and designed specifically for elite student-athletes. Six participants across various sports engaged in semi-structured interviews conducted during the semester to assess their perceptions, challenges, and applications of MST both in and out of the classroom. Using transcription and thematic coding, 560 meaning units were identified and categorized into subthemes, themes, and two major dimensions: learning and high-performance mindset. The learning dimension encompassed themes such as applying MST, overcoming barriers, and a desire for self-improvement, while the high-performance mindset focused on student-athletes' expectations, perceptions, and limitations related to their sport. This study highlights the potential of classroom-based MST courses to enhance performance and psychological skills in student-athletes both in the classroom and in their sport. Findings provide practical recommendations for integrating MST into physical education curricula, emphasizing its role in fostering resilience and holistic development in both academic and athletic domains.

Keywords: applied sport psychology, qualitative research, interviews, academic, holistic athlete development

Exploring the Impact of a Mental Skills Training Curriculum on NCAA Division I Student-Athletes: A Qualitative Case Study

Psychological factors have a considerable influence on sport and performance success. Mental skills training (MST) such as goal setting, relaxation, self-talk has been a widely used within sport psychology professionals to enhance athletic performance, cognitive function, and quality of the sport experience (Glynn et al., 2013; Vealey, 1994; Weinberg & Williams, 2014). The integration of MST into educational settings, particularly physical education and sport science programs, provides an opportunity for student-athletes to develop psychological skills that complement their physical training. These mental skills have also enhanced performance for a variety of individuals including high-risk populations such as law enforcement, military, firefighters, and surgeons (Adler et al., 2015; Anton et al., 2017; Page et al., 2016). Research exploring the effectiveness of MST continues to improve the current sport and performance psychology literature and may benefit other subdisciplines within Kinesiology or Sport Sciences. For example, several detailed reviews and meta-analyses have supported MST effectiveness suggesting moderate to large positive performance results in traditional sport contexts (Meyers et al., 1996; Thelwell & Greenlees, 2003; Weinberg & Comar, 1994). However, while traditional settings such as athletic teams and individual consultations have been extensively studied, less attention has been given to the integration of MST within academic environments, particularly in university-level physical education programs. This gap in research highlights a need to explore the unique potential of classroom-based MST programs to foster both academic and athletic growth.

MST intervention packages combine strategies to create a more robust and individualized program. Multiple frameworks to implement MST programs exist, and considerable variability in implementation strategies are practiced by sport psychology professionals (see Aoyagi et al., 2017; Poczwadowski et al., 2004). Poczwadowski and colleagues (2004) reviewed many frameworks of sport psychology service delivery and categorized them into five commonly utilized models: (a) psychological skills training (PST) models, (b) counseling models, (c) medical models, (d) interdisciplinary sport science models, and (e) supervisory consulting models with an integrative approach. With many methodological approaches, criticism regarding the extent to

which the interventions are responsible for athletic improvements have become more prevalent (Holliday et al., 2008). Research suggests the need to review methodological concerns to demonstrate effectiveness of these MST interventions and to establish further evaluation of treatment effects on performance (Barker et al., 2020; Von Guenther et al., 2010).

Holliday and colleagues (2008) suggested that lack of long-term adherence and overall program effectiveness to MST programs may interfere with the program's effectiveness. Specific reasons include (a) boredom of participation within the MST program; (b) failure of athletes to systematically practice the skills; (c) athletes perceived demanding schedules of MST that may seem burdensome or overwhelming; (d) performance fluctuations that can lead coaches and athletes to think MST is not effective; (e) lack of individualization of the MST program; and (f) lack of built trust and rapport with the coaches and athletes. It has been suggested that MST should: (a) be entertaining and interesting; (b) include accountability for practice of the skills; (c) be integrated; and (d) be consistent (Holliday et al., 2008). These recommendations are achievable to counteract concerns within MST models in structured academic settings.

Sport psychology-related curriculum (i.e., MST) in the classroom is being taught to students at the high school (Gilbert, 2017; Rockwood, 2009) and college levels to provide enhanced performance in sport and exercise populations (Brunzell et al., 2016; Chu, 2022; Horn et al., 2011). In the academic setting, university courses for mental training and performance enhancement have been developed by sport psychology faculty and professionals hired through athletic departments to provide performance enhancement and improved well-being for university student-athletes (Curry & Maniar, 2003; 2004). These courses have been designed and approved by university processes and provide structured mental skills training to the student-athletes. Results of these MST interventions in the classroom have also suggested enhanced academic performances and coping skills, while decreasing anxiety in student-athlete populations (Firth-Clark, et al., 2019; Fogaca, 2021). Student-athletes face considerable challenges, including balancing academic demands, athletic performance pressures, and personal development. These challenges necessitate innovative approaches to supporting their holistic development. University courses designed to teach MST offer a structured and systematic way to deliver psychological skills training, providing athletes with tools to manage stress, enhance focus, and develop resilience. Limited research, however, has evaluated the effectiveness of such courses in non-traditional, classroom-based settings. This lack of empirical evidence creates a significant gap in understanding how MST can be applied to academic settings and its impact on student-athletes' performance and well-being compared to more traditional settings such as athletic departments or teams (Curry & Maniar, 2003; 2004).

Therefore, the purpose of this qualitative case study was to explore the experiences of a 16-week university mental training course specifically designed for elite collegiate (i.e., NCAA Division I) student-athletes. To address this gap, semi-structured interviews were conducted with six participants across multiple sports disciplines to assess their perceptions, challenges, and applications of MST both in and out of the classroom. Using a pragmatic qualitative approach, transcriptions and thematic coding analysis identified two major dimensions: learning and high-performance mindset. The specific research questions grounding this study were (1) What are the benefits and challenges of learning psychological skills training in a classroom setting? (2) What are the students' perceptions (i.e., experiences) about the course? and (3) What are the students' perceptions of psychological skills training in and out of the classroom? This study seeks to expand the knowledge base on integrating MST into physical education curricula and provide practical recommendations for enhancing student-athletes' psychological and performance outcomes in both academic and athletic domains.

Methods

Philosophical Paradigm and Framework

This study aimed to explore the participants' understanding of their experiences of a mental skills training class in the context of their sport and academic experiences using consensual qualitative research (CQR; Hill et al., 2021). CQR is ontologically relativist as experiences can be dynamic and contextually specific (Hill et al., 2021). Epistemologically, CQR is nested within constructivism and post-positivism which allows the researcher to be involved in the shared interaction with the participants while stating that individuals construct their own reality (Hill et al., 2021). Our research is also nested within the social context of constructivism, where we recognize that knowledge is shaped from the bottom-up (i.e., individual perspectives) and social interaction (Savin-Baden & Howell-Major, 2013). Thus, the researchers used a pragmatic approach to bridge the gap between knowledge construction (i.e., reality) and the individuals' experiences. Pragmatism, with origins in the work of Peirce (Burch, 2022) and James (Goodman, 2022), was used to ground the study, while providing practical solutions based on the experiences of the individual and is a common approach within the field of sport psychology (Giacobbi et al., 2005). This approach allowed the researcher to abandon the forced dichotomies of post-positivism and constructivism (Creswell & Clark, 2011). Thus, seeing the process of understanding as an active and cooperative conversation between the researcher and the participants, while accepting that each person's knowledge is uniquely created by their own experiences. In CQR, the researcher is seen as a trustworthy reporter to uncover what the person truly believes rather than engaging in co-constructing meaning with the participant (Hill et al., 2021). As such, although an interview protocol was used for each participant, the conversation allowed for the exploration of the individual experiences.

Participants

Upon approval from the University's Institutional Review Board, a pragmatic qualitative case study design was conducted using a convenience sample of student-athletes in a 16-week university mental training course. The class roster included eight total student-athletes, however for the purpose of this study, only six NCAA Division I (five males and one female) with an average age of 21 years ($SD = 1.0$) participated. Two student-athletes missed the last part of the semester due to health-related absences, so they did not participate in the interviews. A description of the participants is provided in Table 1. The instructor of the course was included as an integral participant of this course. At the time of this study, the instructor was a doctoral student in their final year of studies with five years of higher education teaching experience practicing under the supervision of a pioneer of sport psychology with over 40 years of teaching, researching, and supervising consulting experiences. The instructor was also a mental performance consultant who has over six years of consulting experience with collegiate student-athletes and is a Certified Mental Performance Consultant (CMPC®) with the Association of Applied Sport Psychology (AASP). This course had been taught in four separate iterations from this instructor, with the interviews of this study conducted in the fourth iteration.

Table 1. Participant demographics

Participant ID	Age	Gender	Ethnicity	Year in School	Sport
1	22	M	White/Caucasian	Junior Undergraduate	- Basketball
2	21	M	White/Caucasian	Junior Undergraduate	- Golf
3	21	M	Pacific Islander	Junior Undergraduate	- Football
4	22	M	Pacific Islander	Senior Undergraduate	- Football
5	20	F	White/Caucasian	Sophomore Undergraduate	- Swimming
6	21	F	White/Caucasian	Junior Undergraduate	- Soccer

Course Structure

The course content evolved across over three decades of applied peak performance practice and curriculum that was developed by the co-author. Content and teaching methods has evolved equally based on current research, student feedback, pedagogical training, and science-practitioner best practices. The current instructor's teaching orientation was based on athletic, coaching, academic teaching, and mental performance consulting experiences. The course instructor was a Doctoral candidate and Certified Mental Performance Consultant (CMPC) with over seven years of experience consulting with athletes, teams, and coaches.

The course was held in person twice a week, with each session lasting 75 minutes. This structure aimed to balance traditional lecture-based learning with the applied practice of mental skills training. Each week, the course content was divided into two components: (1) psychoeducation, which introduced mental skills concepts through lectures, and (2) applied practice, which involved reflection, discussion, experiential learning activities, and individualized goal-setting exercises. This structure allowed student-athletes to immediately apply what they learned to both their sport and academic lives, providing opportunities for real-time practice and feedback.

Each week, the psychoeducation portion of the content often began with an icebreaker activity, leading into reflection and discussion questions based on the required reading assignment. The course content was then covered using a variety of effective teaching practices (e.g., supplemental videos, athlete examples, and experiential learning; Coumbe-Lilley & Shipherd, 2020).

The MST course was structured over 16 weeks, with each week focusing on a specific mental skill. The course design was carefully crafted to balance theoretical content with practical application, ensuring students could directly apply mental skills in both their sport and academic environments. Early in the semester, foundational concepts such as goal setting, self-awareness, and focus control were introduced to give students a base for their mental training. As the semester progressed, more advanced topics such as imagery, stress management, and resilience were covered. Each weekly theme aligned with the mental skills being taught and the practical needs of the student-athletes.

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Throughout the course, students engaged in classroom discussions, reflective journaling, and practical exercises such as guided imagery, self-talk tracking, and mindfulness activities. By the end of the course, students had developed personal mental skills training routines, which they presented as part of their capstone projects. The final weeks focused on long-term integration of MST techniques into daily routines, preparing students to use these skills beyond the classroom and into their athletic and academic lives.

The objectives of the course revolved around: (a) learning various mental skills to incorporate into sport and daily living, (b) provide at-home exercises for skill acquisition, and (c) developing a personal plan of action to integrate the mental skills to enhance performance both in and out of sport. The course included key requirements for the purpose of knowledge evaluation, however, they were strategically implemented to enhance student participation, retention, and application (Coumbe-Lilley & Shipherd, 2020). Those requirements included class participation and group discussion, various practical assignments and readings, in-class open-ended response quizzes, and a comprehensive capstone project. A detailed description of the specific content areas is beyond the scope of this paper. However, a course outline can be found in Figure 1 of an approximate order of the semester progression.

Week	Theme	Topics Covered	Example Activities & Exercises
1	Introduction to MST & Goal Setting	Overview of MST, Importance of Goal Setting	Personal introductions and sport goals; Goal Setting Exercise
2	Self-Awareness Focus	Building Self-Awareness, Attention Control	Reflection activity on recent performances, identifying moments of distraction; Focused breathing exercises.
3	Confidence & Self-Talk	Productive vs. Unproductive Self-Talk, Confidence	Self-Talk Awareness Log (students track their internal dialogue during training); Confidence-building affirmations.
4	Imagery & Visualization	Mental Imagery Techniques	Guided imagery practice (students visualize successful performances); Create personal imagery scripts.
5	Stress & Management	Arousal Managing Anxiety	Progressive muscle relaxation, breathing techniques for arousal control, discussion on pre-competition routines.
6	Resilience & Coping with Adversity	Building Resilience, Overcoming Setbacks	Group discussion on handling failure, reflective journaling on personal setbacks, resilience-building exercises.
7	Attention Concentration	Improving Concentration, Managing Distractions	Concentration grid activity (practical task to build focus), mindfulness-based exercises to stay present during games.
8	Mid-Semester Reflection	Reviewing MST Techniques	Mid-semester check-in: Students share progress on goals and challenges; Group reflection on mental skill development.
9	Relaxation & Recovery	Importance of Rest & Stress Management	Guided relaxation techniques, recovery planning, discussion on the balance between physical and mental recovery.
10	Integrating MST into Daily Routine	Applying MST Outside of Sport	Creating daily routines incorporating mindfulness, goal-setting, and relaxation; Student presentations on MST use cases.
11	Team Dynamics & Communication	Building Effective Team Communication	Role-playing communication scenarios, active listening exercises, group discussions on improving team cohesion.
12	MST in Competition Settings	Mental Strategies for Game Day	Simulated competition with focus on mental strategies; Pre-performance routines; Managing in-game pressure.
13	MST for Academic Performance	Applying MST in Academic Settings	Techniques for managing academic stress, time management, exam preparation using mental imagery, and relaxation.
14	Maintaining Motivation & Focus	Long-Term Goal Setting, Motivation Strategies	Goal review and adjustment; Students develop long-term plans to stay motivated and focused in sport and academics.
15	Final Project Capstone	MST Review, Application Plan	Students present final capstone projects, and how they will apply MST after course..
16	End of Semester Reflection	Reflection on Growth, Future Application	Final reflection activity; Group discussion on key takeaways from the semester and plans for ongoing MST practice.

Figure 1. Example course outline that includes topics, activities, and exercises

Data Collection

Informed consent was collected from each participant before the interview process. Each participant was assigned aliases to ensure confidentiality and took part in semi-structured interviews at Week 12 of the semester with the instructor to assess perceptions, experiences, and challenges during the semester. For ethical considerations, the interview was voluntary, and participation was not included in course grades or evaluations. Interviews were recorded using Zoom video recording (Zoom Video Communications, Inc., 2021) and transcribed using Otter transcription software (Otter.ai, 2021). An interview guide included questions that covered perceptions of their performance mindset, and perceptions of the classroom. Based on their responses,

probing questions (e.g., “Tell me more about that”), and requests to clarify answers were used to ensure the content was accurate and detailed, and to gain more in-depth reflection to certain topics. Four interview questions were asked including: (1a) Tell me about your mindset in your sport? (1b) What are some challenges that you experience in your sport? (2) What have been your experiences of the class? and (3) How have you applied psychological skills outside of the class? Interviews lasted approximately 60-90 minutes, with an average length of 70 minutes.

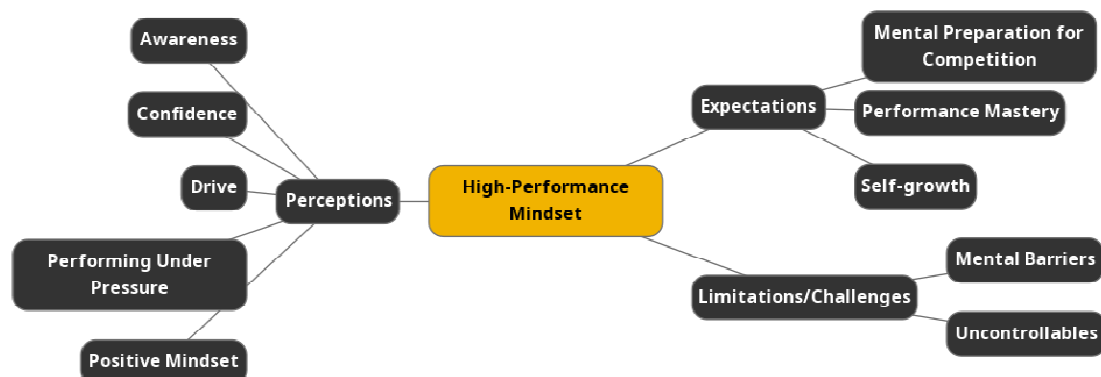
Data Analysis

Prior to conducting the interviews, the primary researcher participated in a bracketing interview with an expert in qualitative methods to help recognize and set aside biases toward MST and instructing the class (Savin-Baden & Howell-Major, 2013). It is recognized that when an intervention is conducted by an individual that is also involved in data collection, that bias can occur (Savin-Baden & Howell-Major, 2013). However, there are also benefits of these dual roles. For example, the researcher may add value and unique perspective by being the interviewer and instructor of the course especially when the rapport and relationships built with the students throughout the semester is taken into consideration. Interviews were conducted remotely via a recorded Zoom meeting and transcribed verbatim producing a total of 48 single-spaced pages. Transcriptions were read several times by the researcher following the interviews to gain a strong sense of the participants’ experiences. This process was conducted with a doctoral graduate assistant to provide consistency of how the interviews were transcribed. No changes or additions to the transcripts were made. The researcher then analyzed the data using descriptive thematic analysis to code the interview transcripts to develop categories. The thematic analysis steps were as follows. First, meaningful quotes, phrases, and sections were grouped together and organized into a total of 560 meaning units. Next, those meaning units were then classified (i.e., coded) into common themes that corresponded later into two major categories while subthemes and categories provided more robust findings (Savin-Baden & Howell-Major, 2013). These themes were combined into the broadest of the categories (e.g., two higher order themes). To establish rigor in the data, member reflection was utilized, where participants were given an opportunity to reflect with the interviewer, in this case, the instructor; to discuss the answers in a reflective dialogue to discuss reactions and additional insight to the data (McGannon et al., 2020). In addition to member reflection, the trustworthiness of the thematic analysis was strengthened by incorporating inter-rater reliability checks. A second researcher independently reviewed a subset of the coded data to ensure consistency in theme identification. Any discrepancies were discussed and resolved through consensus. Furthermore, data triangulation was employed by comparing participant responses with course-related documents (e.g., reflections, assignments) to validate the emerging themes, enhancing the overall credibility of the findings (Savin-Baden & Howell-Major, 2013). No changes or additions to the transcripts were made. Lastly, a detailed and reflective audit trail was used by the researcher throughout the research process to enhance rigor and trustworthiness of the data (Carcary, 2009).

Results

Two higher order themes emerged from the data analysis of interviews, each with their own subthemes and categories. The first theme was *high-performance mindset* with three subthemes: (a) expectations, (b) perceptions, and (c) limitations and challenges. The second theme was *learning in the classroom* with three subthemes: (a) application of MST, (b) desire to learn, and (c) challenges and barriers. A visual depiction of the thematic structure is provided in Figure 2 and 3.

Figure 2. Organizational framework of the *high-performance mindset* dimension.



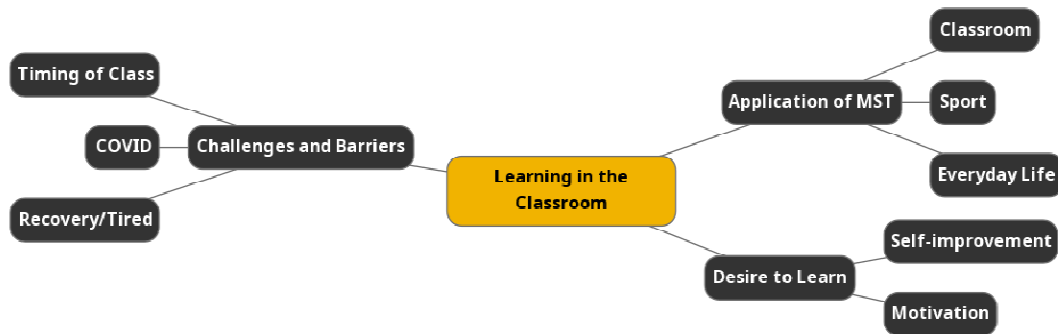


Figure 3. Organizational framework of the *learning* dimension.

High-Performance Mindset

Results from the interviews indicated that there were three central perspectives as to what having a high-performance mindset meant to the student-athletes. Participants explained their expectations, perceptions, and limitations of their own mindset in their sport that were reflected during the time in the course. Participants explained what allowed them to play at their highest level in sport as well as what limited them in achieving athletic success.

Expectations

Student-athletes' expectations related to assumptions they had about their own mindset and ability to perform at their highest level. The expectations of student-athletes' performance consisted of many different components and played a foundational role to establish how they perceived, thought, and evaluated their performance. In addition, many described components that were categorized into secondary subthemes including mental preparation, mastery, and self-growth. The student-athletes described their mental preparation as a key part of the process prior to competition and that included managing their own expectation to perform their best. For example, one athlete explained his process prior to his upcoming conference tournament,

Right now, I'm starting to pay attention to the conference golf course. What shots am I going to be seeing? ... But I'm under pressure and [in practice] I want to see what it feels like to hit that shot that I'm going to need in conference under pressure... And so, I'll probably just swing that shot.

This athlete also described his experience and how he spent hours working on components within his control such as the technical, tactical, and physical components of his sport, and establishing performance mastery became an expectation for high-level performance. He explained:

That's the fun part about golf is that your game is such a waterbed. You know, you're always moving and adjusting and fixing little things, and just in a constant flow. You just try to peak at the perfect moment.

Athletes seek to understand what it takes to perform at a high level, and some of these expectations influenced the chances of them becoming their best to achieve success. Additionally, the feeling of continuous growth and improvement in the student-athletes' sport was a commonality amongst the responses across all of the athletes. Participants described moving forward from past hardships and mistakes, "I'm no longer worried about those thoughts, I'm actually focusing on trying to imagine [myself] during my practices." The athletes knew that in order to continue moving forward with their abilities, self-improvement in their mindset and game must be an attitude and expectation they have.

Perceptions

The second theme was the student-athletes' perceptions of their own mindset within their sport. These perceptions were the qualities and characteristics that they had to maintain the mental fortitude needed for high levels of performance. The main perceptions that emerged highlighted enhanced awareness, self-confidence, one's drive or motivation, performing under pressure, and having a positive mindset. Awareness is a foundational component within applied sport psychology that consultants attempt to build within the athletes they work with. Enhanced awareness of thoughts, emotions, and arousal levels can dramatically improve the chances of controllable desired behavioral outcomes in sport. When athletes can bring awareness to issues that are enhancing or prohibiting high level performances, they have more chances of successful performances. For example, some participants described being aware of times that they performed well and had fun while playing, "Yeah, I'm just playing ... That's what I think I do so well on the women's practice squad because there's no imminent perceived danger. Like there's not anything, it's just to go out there having fun."

Confidence played a crucial role in the athletes' overall performance because they can have all the necessary tools (i.e., equipment, coaching, fitness), yet if they were lacking the fundamental belief in their ability to perform, they weren't likely to perform up to their potential. Some participants described their perceived

confidence and how it was impacting their game, “Right now I can feel the game is just really clicking and I’m certain to really run on all four cylinders.”

Additionally, motivation to pursue one’s sport goals was a cornerstone in the development of an athlete’s skill and reaching the goals they set for athletic success. The perceived motivation that an athlete had was said to influence their long-term goals, as well as short-term situations such as painful workouts, frustrating practices, or discouraging competitions. Many participants described their personal drive within their sports, and one athlete specifically expressed his drive to help his team build on their success despite being away from the team due to personal reasons:

Even though I’m not there, I’m still in the loop of everything. And I’m still excited for all the guys, if anything happens, and I’m still just a part of it... I can just show up and be like, you know, look, guys have been preparing, I’ve been practicing. And it’s time for us to go and just keep doing what we’ve been doing.

In addition, some mentioned how holding themselves to a higher standard in practice has been helping sustain motivation levels to continue towards the goals they set. One participant mentioned how holding himself to that high standard helps the younger players on their team with their motivation:

I want to set myself to a higher standard because he knows that I want to play football the next level, so I set myself at a higher standard like what my older brother did when he was here... Before I go to practice just, I just remind myself that this is, you know, this is what I signed up for and I know what my goals and aspirations are in the future and to achieve that I know that I have to perform well in order to go to the next level.

Handling high-pressure situations can be vital to successful performances in sport. The perceived control an athlete has in stressful situations may cause pressure, fear, or expectations and can be trained in practice settings to simulate those adverse conditions to overcome them when it matters most. For example, in practice situations the stakes are lower, and athletes can develop their ability to be in control (i.e., develop coping skills), and then use them in higher stake situations (e.g., competition). The student-athletes explained their experiences with their own performance under pressure situations that allowed them to be successful in their performance. Participants commonly described times that they performed well under pressure,

But that’s one time that under pressure I did perform well... I thought I was trying out for a practice player position, not an actual squad spot. So, I think being oblivious to that definitely helped because I didn’t realize the weight that those two hours held.

While this athlete was unaware of the impact that tryout had on him, he was able to focus on the components of his game that were important to his success.

Limitations and Challenges

The third theme was the limitations and challenges that the student-athletes perceived that prevented them from high-level performances. Participants reported that these obstacles blocked or prevented the productive attitudes and perceptions. The main limitations that emerged were categorized into mental barriers and components outside of one’s control (i.e., uncontrollables). For example, mental barriers were a limiting belief of one’s potential to perform their best and some athletes mentioned underperforming, struggling with nerves, and overthinking their technical skills. Some participants brought awareness to times that they underperformed when they were overthinking their game:

When I’m nervous in games. I’d say I just get so over I get so over analytical and myself. Like, I think oh my gosh, everybody’s staring at me. Oh, don’t mess up. Oh, you chose the wrong foot to pivot when you grab the ball. And then if I shoot it, I miss I’m like, oh, I should not have taken that shot. I should have passed. And then like just it just kind of like we’re talking about it’s just like a snowball effect of like, is definitely a red light situation.

The ability to identify what they could control, understand those components, and put focus on the controllable part of their performance was said to enhance their performance. Focusing too much on the things outside of their control could disrupt attention, enhance levels of stress, decrease confidence levels, and decrease performance outcomes. Many student-athletes indicated times that uncontrollables affected their ability to perform. For example, one participant described how the COVID-19 pandemic limited his ability to compete,

[Our tournament in March] was cancelled, and this weekend we are sending some guys that normally wouldn’t be playing. And it has not gone well. So that part kind of sucks. ... So we’ve all just been sitting in here, like, can’t do anything. Just garbage.

Additionally, another athlete mentioned how he was currently dealing with recovery from a concussion that was preventing him from practicing and competition: “I [got an] EKG to get back... I still felt a little lightheaded... And yeah, this [was] frustrating because that’s the main reason why I came back this semester [after COVID] was to play.” Not shown here were the responses to these uncontrollable situations where some athletes explained how they were dealing with those challenges within their control to continue moving forward with their training and daily life. For example, focusing on their training, getting support from teammates or family, and focusing on school were mentioned by a few athletes, but not enough to warrant their own subthemes.

Learning Within the Classroom

The next major theme focused solely on the affordances (i.e., benefits) and challenges experienced within the mental training class during the semester. The learning experiences described by student-athletes explored perceptions of the MST curriculum, what worked well, expectations of the class, and how they were implementing MST outside of sport and the classroom. Three subthemes emerged: (a) applications of MST, (b) desire to learn, and (c) challenges and barriers.

Applications of MST

Education, acquisition, and practicing topics within MST is important, however, implementation is crucial to transfer the skills to specific performance-related tasks. The researcher's consulting and teaching philosophy is that the application of knowledge leads to deeper understanding and learning. In addition to sport performances, one of the researcher's overall goals in the class was to encourage students to apply the psychological skills and knowledge learned in class to personal, academic, and professional development, and these themes emerged from the interviews. For example, one participant stated "...I want to know the mindset of trying to cope with [anxiety] and get better with it...Yes, the [class] is helping me become more confident." Student-athletes described using the mental skills learned on the course in their sport, when performing academically, and in their everyday lives outside of sport. Within sport, one participant explained how he had been using imagery strategies on the golf course to enhance his focus and stay present:

As I'm walking up there, I kind of already have a pretty good idea of what shot I'm going to hit, without even really starting to without even really paying attention to it. I'm imagining what that shot is going to feel like, as I'm going through the entire process of walking up to the green to figure out where I want to land the ball, and how it is going to roll.

Supplemental videos on relaxation, meditation, and guided imagery were provided to students in the class, and many stated that those videos were used before practice and games to help calm their nerves.

Additionally, implementing mental skills within academics was said to be beneficial for managing test anxiety, overcoming nerves during presentations, and overall academic performances. One participant realized that preparation for exams was very similar to preparation for sport competition and helped with increasing confidence. He stated,

Preparing more... But, for that exam I was pretty nervous about it, but I asked, 'Why am I nervous?' And I was like, I should probably prepare for this exam rather than just walking in confidently and not knowing things and hoping for the best.

This awareness of preparation enhanced his success within the classroom when he could expend the necessary effort and time into his studying and mental preparation. One athlete remembered a time that he used arousal regulation strategies such as meditation and mindfulness to recover effectively, "I'm definitely glad that I took advantage of the time that I did have [to relax] and to just kind of recharge the battery."

Desire to learn

As stated, this course was not a requirement for any of the student-athletes. A common category was their self-improvement within the class. Participants also mentioned their passion and motivation to learn more about the mindset of elite performers by explaining reasons for taking the class, and strategies they used to enhance their own learning experiences. The realization some student-athletes had regarding their self-improvement across the semester showed in their desire to learn more about the topics covered in class. For example, one participant stated:

As I've grown in college into my junior year, I've definitely gotten a lot less nervous playing in front of people. ... I'm still trying to [learn] and I've gotten better, but I'm still trying to figure that out. ... I want to learn the material more because I've watched videos on it, but I haven't really, like fully in depth learned it. So just writing down all the material in a notebook, so then I can look back on it when I need it. ... That's why I took your class to figure that out.

This commitment to self-improvement influenced the motivation to learn more, in addition to specific reasons for why they took this non-required class. Students acknowledged that there was more to learn, and each expressed wanting to continue their growth in learning sport psychology topics. Students were also motivated to continue learning. For example, one student-athlete mentioned:

There's still so much more that I haven't learned, or I haven't even heard about. So anytime that a new topic gets brought up. It's like, okay, obviously, I've never heard about this. And it's more just pay attention and listen and hear about what it actually is about.

While another described his reason for taking the class, "I want to learn skills that I can use to better my confidence and my [mental] outlook. The main reason I took this class is just to be more confident and to kind of fix my problems in basketball."

Challenges and barriers

The perceived challenges and barriers to successfully achieving learning objectives listed within the classroom MST curriculum are valuable for future instructors to understand when educating student-athletes

within this context. The student-athletes indicated common perceived challenges and barriers that prevented them from learning in the classroom and were categorized into timing of the class, COVID, and recovery-related issues. The course was scheduled to meet in-person, twice a week, for 16 weeks and some students expressed that it was hard to manage their time between other classes, strength training sessions, sport practices, and traveling for competition. However, some student-athletes expressed that they wanted more opportunities to learn. Mental training is most effective when treated as if it is physical training with more consistent repetitions. For example, putting in the repetitions and training to condition the mind in various aspects and topics of sport psychology. Many participants expressed interest to have the class offered three times per week:

I think the only challenge preventing me to do better in the class would be that it's on a Tuesday and Thursday. Because I think if it was on a Monday, Wednesday, Friday class schedule, it's a shorter class time. ... more activity time. And then just more talking and more like personal videos and like that you shared and stuff. I just think like having that three times a week rather than two would be a lot more beneficial. Because it would be more reps too.

Additionally, this class offering took place during the COVID-19 pandemic. The university where this course was offered had numerous course offerings that continued to implement in-person class instruction with smaller classroom sizes and safety precautions. However, even with these changes, the pandemic still provided many challenges. For example, one participant shared his thoughts on the COVID-19 pandemic where they missed a large portion of in-person activities and training because of this stay-at-home quarantine.

This whole COVID thing is a real piece of work ... So, my team had a kid test positive, who's my roommate. And since we all came in close contact, we had to do a seven day quarantine. And then after the seven day quarantine, I had to do a 10 day quarantine and then I tested positive.

Lastly, many student-athletes were juggling various tasks in their sport, academics, and everyday lives. Some student-athletes were working part-time jobs to supplement their income during college. Recovery (i.e., physical and mental) can be vital for an athlete's performance, but also in maintaining healthy lifestyles, stress levels, and overall health and well-being. Many student-athletes in class mentioned how recovery, or lack thereof, was preventing their ability to learn in the class. For example, some mentioned being tired from time to time during class, "Just being tired periodically. But that's in my own control, because I have five classes Tuesday, Thursday, so I go from eight to three those days."

Discussion

Research findings indicated enhanced expectations, perceptions, and awareness of limitations and barriers that student-athletes had for optimizing their potential within their sport performances. The results also suggested that student-athletes experienced struggles and challenges within their sport, but more importantly these athletes were able to bring awareness to these barriers on their own. This awareness can benefit the athletes by serving as a foundational skill of their mental and physical improvements in sport (Ravizza et al., 2020). The findings from this study highlight the importance of developing athletes' self-awareness, which can serve as a crucial step toward fostering mental resilience and improving both athletic and academic performance. Participation in this mental training curriculum within the classroom broadened the lenses of student-athletes and how they view high-levels of performance and what it means to have a high-performance mindset when striving to achieve athletic success. Additionally, the results indicated perceptions, experiences, and challenges that students have within the classroom environment when learning MST curriculum. By embedding MST into structured academic courses, student-athletes can develop psychological skills in a controlled, supportive environment, which may be harder to achieve in traditional athletic training settings. These findings contribute to the minimal body of literature on potential impact that implementing an MST model within a university classroom setting has on student-athletes (Chu, 2022; Curry & Maniar, 2004; Glynn et al., 2003).

From an applied perspective, the study provides valuable insights into how structured MST programs can be integrated into both physical education and sport science curricula to support student-athletes' psychological and physical development. However, while integrating MST into physical education curricula can enhance student performance and well-being, it is important to note that the administration of a full MST program should ideally be conducted by trained sport psychology professionals. Educators and coaches who are not specifically trained in MST can still incorporate certain key topics, such as goal setting, self-regulation, or mindfulness, to augment their existing curriculum. These topics, when introduced thoughtfully, can bolster classroom efforts and provide students with valuable psychological tools to complement their physical education. Many mental performance consultants and sport psychologists work within athletic departments and work directly with the athletes, coaches, and teams. Others are contracted as external consultants or work directly with individual athletes who seek mental training services. Educators can also collaborate with sport psychology consultants to ensure that these elements are introduced in an appropriate and effective manner. For educators and coaches working in physical education environments, MST can serve as a powerful tool to complement physical training, providing athletes with the psychological skills needed to thrive under pressure and maintain a growth-oriented mindset. This dual focus, integrating mental and physical preparation, reinforces the holistic development of student-athletes, addressing both immediate performance needs and long-term personal growth.

The structured MST approach used in the classroom, which combines psychoeducation and applied exercises, can be translated into team workshops or individual training sessions. Techniques like goal setting, imagery, and relaxation exercises can be integrated into pre-performance routines, helping athletes develop mental resilience and enhance performance both in and out of the classroom. For physical education instructors, the incorporation of MST into curricula can also foster important life skills beyond sport, such as stress management, self-regulation, and effective goal setting. Practitioners should encourage regular practice of these skills, both in competition preparation and in day-to-day academic or personal challenges. Such practices may also contribute to the broader well-being of student-athletes by equipping them with tools to manage the mental demands of their multifaceted roles (Rose et al., 2023). This structured and reflective approach may foster long-term benefits, enhancing not only athletic outcomes but also overall resilience and adaptability.

In addition, the academic course structure provides a valuable framework for educators and coaches to implement MST in a systematic manner, ensuring consistency in skill development and application. University environments such as educational settings and academic departments differ in personnel while having different support avenues, policy, and regulations for student-athletes (Saffici & Pellegrino, 2012). However, the motivational climate created in the classroom is very similar to the culture and environment they experience in their sport (Gencer & Öztürk, 2018; Morgan & Kingston, 2010). This similarity highlights the potential for academic courses to simulate the pressures and challenges athletes face in their sport, allowing for mental skills to be practiced and refined in a setting that mimics competitive demands. An enlightening part of this study was the non-required nature of the class which proved to be a positive aspect due to the higher motivation (i.e., autonomy) to train the mental side of their sport. Instructors may see the benefits of MST emerge from the expectations that come with university coursework (e.g., due dates, assignments, structure) and students who are motivated to do well academically will strive to meet those expectations. Additionally, the academic course approach to deliver MST curriculum may provide individualized and systematic progressions to enhance student-athlete sport performance, adherence to programs (Holliday et al., 2008), along with health and well-being related outcomes (Chu, 2022). By integrating MST into academic courses, educators and coaches can create structured environments that allow for deeper reflection, consistent practice, and greater skill transfer to both sport and academic settings. Furthermore, these environments enable ongoing support and refinement of mental skills, fostering sustainable improvements in performance and mindset.

This study supports the idea that integrating MST into physical education programs can benefit students both inside and outside of sport, offering a valuable addition to the traditional physical education curriculum. It is recommended that practitioners explore new avenues for MST delivery that best fits their consulting philosophy and teaching delivery methods; and integrating these skills into the academic setting may be a viable option. Furthermore, educators should consider customizing MST programs to the needs of specific student populations, such as student-athletes in different sports, to maximize engagement and the long-term impact of mental training interventions.

Conclusion Limitations and Future Research Directions

The researcher recognizes limitations of the participant sample size ($n = 6$). However, 6-8 interviews have been suggested for homogenous sampling in qualitative inquiry, and in this case, all the participants shared were of the same population (i.e., student-athlete; Staller, 2021). An additional limitation of this case study was that the researcher was also the instructor for the mental training class. However, there have also been benefits for this dual-role relationship in intervention and interview research (i.e., therapeutic, rapport; Bourdeau, 2014). Moreover, considerable research has shown the importance of building relationships, rapport, and gain entry to mental performance consulting (Fifer et al., 2008; Petipas et al., 1999; Sharp et al., 2015). A graduate assistant was used to aid in the data analysis phase, but future research could use a co-investigator (i.e., teaching assistant) in the class to deliver the interview questions to manage bias in the data collection. Additionally, while the dual-role approach added depth to the researcher's understanding of participants' experiences, future studies could explore alternative methods to minimize potential biases. For example, independent facilitators or larger research teams could help ensure data triangulation and rigor in analysis. Lastly, future research should consider more robust data triangulation within its methodology to enhance the quality and trustworthiness of the findings (e.g., journal reflections, observations, focus groups), as well as integrating quantitative measures (e.g., pre- and post-intervention assessments) alongside qualitative data to better assess the impact of MST programs. Including validated psychometric tools could help establish a clearer link between MST interventions and measurable improvements in resilience, focus, and overall performance outcomes.

Continued research is needed in this area to clarify perceptions and experiences of student-athletes when implementing an MST curriculum within non-traditional settings (Brunzell et al., 2016; Curry & Maniar, 2004). Moreover, future research should include mixed method designs to include quantitative data using psychometrically validated instruments to measure sport-related topics at various time points during the semester (i.e., pre-, post-data) and compare qualitative reporting. This can provide more specific insights into how MST interventions evolve over time, tracking progress in key psychological areas such as resilience, self-confidence, and performance mindset. Further exploration of these areas could provide actionable recommendations for enhancing curriculum design and delivery, ensuring that MST programs are tailored to the evolving needs of

student-athletes. Additionally, there can be opportunities to ask more questions related to advantages and disadvantages of class structuring. Lastly, researchers and instructors who have the opportunity to teach the same course structure throughout their time at the university should consider longitudinal data points. Larger sample sizes, longer-term follow-ups, or multi-year interventions could provide deeper insight into the long-term impact of MST programs on student-athletes. For example, larger sample sizes for larger effect sizes or specific follow-ups with student-athletes after the class to check in on the overall effectiveness of the MST curriculum would be valuable. Future research should also explore how MST programs implemented in academic settings compare with those delivered in athletic environments, to determine the unique benefits of each context. Such comparisons could clarify whether classroom-based programs offer distinct advantages in fostering long-term psychological skills and overall well-being.

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