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The Use of DISC Behavioral Profiling and Training: An Innovative Pedagogical Strategy to Enhance Learning and Future Career Opportunities Through Sport Management and Sport Coaching in Higher Education Classrooms

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Abstract: Implementing effective training and education programs is of critical importance for sport management and sport coaching academic education programs. This exploratory research examined the implementation and effectiveness of DISC behavioral profiling in sport management and sport coaching classrooms at the university level. Over four academic years (eight semesters), pre- and post-tests were collected from multiple samples of sport management and sport coaching students (N = 216) at two universities in the United States. Students received a personalized DISC behavioral profile and educational activities were used to enhance the value of the behavioral profiling initiatives. Using pre- and post-activity surveys of the knowledge and skills gained during in-course activities, paired sample t-test showed positive and significant results for 11 of 16 measured areas. The findings suggest that behavioral profiling tools and activities within sport management and sport coaching curricula can enhance student's self-awareness and help develop leadership skills which will prepare for future career opportunities. Limitations and opportunities for future research are also presented.

Keywords: classroom activities, communication, behavioral profiling, sport education, leadership, self-awareness

Learning and Sport Management in Higher Education

Leadership, self-awareness, emotional intelligence, and interpersonal communication skills are recognized as critical areas for future sport managers to learn and develop (Welty Peachey et al., 2015). According to the National Association of Colleges and Employers (2019), these types of skills and abilities are competencies that U.S. employers seek from recent graduates for entry-level positions. Sport management and sport coaching students will graduate into an increasingly interconnected global world, and as a result, sport management programs need to help

students become more self-aware of their skills and competencies (Weese, 2020). Yet, according to Reed (2019), there is a huge gulf between students, academics, and business leaders regarding the level of career readiness of recent graduates.

In the midst of a global pandemic and the cancellation of entire athletic seasons, the world of an intercollegiate athletic administrator is ever more complex. As such, it is essential for higher education programs, i.e., those who prepare future intercollegiate athletics staff members to, explore new curricular elements and pedagogical practices. However, Comeaux (2013) indicated that innovations cannot simply be applied without analysis. He called for these academic programs to, “engage in a very deliberate process that requires them to develop, interpret, and implement new ideas in their own way and likewise to consider the challenges associated with these new activities” (p. 284). As such, this initial study sought to explore the impact on students’ self-awareness using DISC behavioral profiling and related activities in the classroom as well as spark further research.

Researchers have explored multiple pedagogical activities and experiences that sport management and sport coaching students can undertake to develop and enhance important leadership, self-awareness, emotional intelligence, and interpersonal relationship skills. These activities and experiences include experiential opportunities, internships, and practica (Jones et al., 2008; Jowdy et al., 2004); course embedded projects (Cohen & Nite, 2019; Kosnik et al., 2013; Light & Dixon, 2007; Williams & Parker, 2016); service learning activities (Bennett et al., 2003; Bruening et al., 2010; Light & Dixon, 2007); and traditional educational techniques (de Haan & Sherry, 2012; Masteralexis & McDonald, 1997). One area not examined in sport management education research that has received limited attention in other disciplines is the use of behavioral profiling tools by faculty members (Furlow, 2000; Keogh et al., 2019; Renaud et al., 2012).

The use of the Dominance Influence Steadiness and Conscientiousness (DISC) profile is growing in university settings, but research exploring its effectiveness as a tool in classrooms is limited. Given the paucity of research on behavioral assessment tools in sport management education research, the purpose of this initial, exploratory study was to understand the value of DISC behavioral profiling in sport management and sport coaching classes. Specifically, the authors explored whether the use of DISC assessments, coupled with specific learning activities and assignments, enhanced student’s understanding of their personal behaviors in ways that can be leveraged for a career in the sport industry.

Development of DISC Behavioral Profile

William M. Marston is credited with creating the original model that has evolved into the modern DISC behavioral assessment. Marston’s book (1928), *The Emotions of Normal People*, presented four primary human emotions used to understand differences in how people behave (Jones & Hartley, 2013). Originally labelled as dominance (D), inducement (I), submission (S), and compliance (C), over time these four emotions have been further developed and explicated (Jones & Hartley, 2013). Marston was a physiological psychologist who had little interest in the theoretical concepts of personality and temperament (Merenda, 1987). It was one of his graduate students, Walter V. Clarke, who developed the first assessment based on the four DISC emotions. In 1948, Clarke operationalized his four-factor personality theory through the creation of a vector

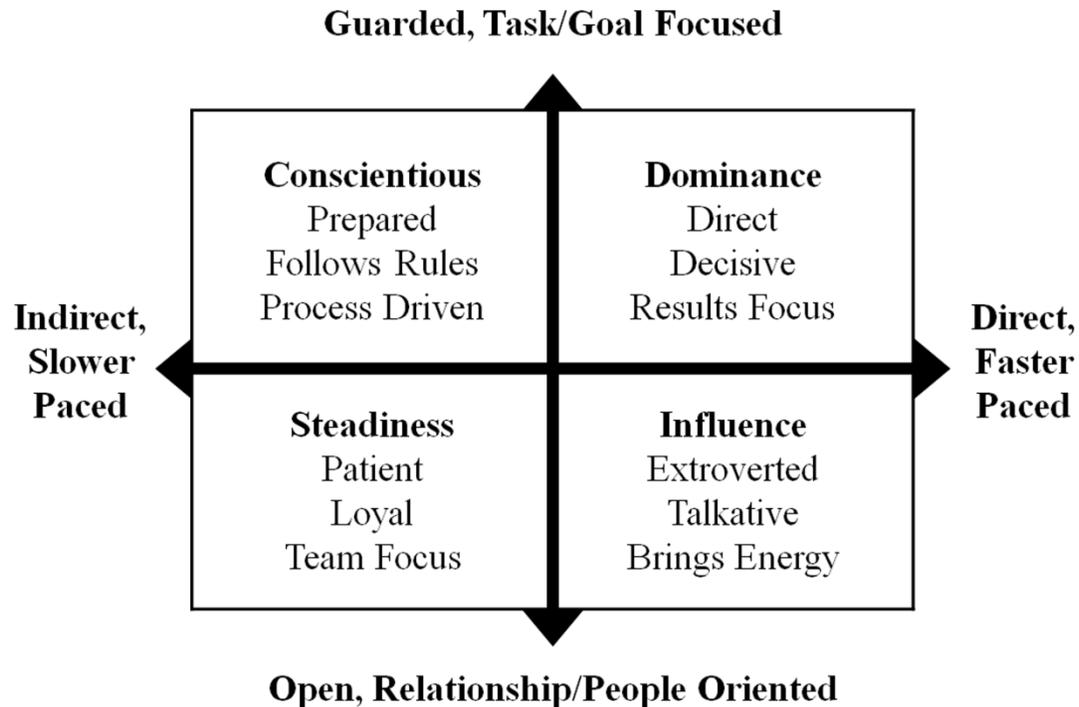
analysis for use with adults in business and industry. The foundation of modern-day DISC assessments is based on this research (Merenda, 1987). Marston did not patent his intellectual property; consequently, there are numerous versions of DISC profiles available today, including offerings from the Wiley Group, TTI Success Insights, Thomas International, Axiom Software Ltd., and Assessments Business Centre. While some paper-based surveys are still in use, most are now electronic, and organizations use them under the general belief that it is critically important for individual, team, and organizational success (McKenna et al., 2002). According to Motley and Hartley (2005), despite the enormous number of choices of four-quadrant assessments and the many different names, there are minimal differences in concept and/or information provided between these different instruments.

The DISC Model and Learning

While Marston's and Clarke's models used slightly different labels, modern versions of DISC profiles are consistent in their use of the terms Dominance or Drive (D), Influence or Interactive (I), Steadiness or Stability (S) and Conscientious or Compliance (C). The four-quadrant model shown in Figure 1 displays descriptors and information about the behavior of individuals with high measures of D, I, S and C (Athlete Assessments, n.d.).

Individuals with a high level of Dominance (D) are direct and faster-paced (x-axis), guarded and goal focused (y-axis), and their behavior is described as direct, decisive, and results-focused. Someone with a high level of Influence (I) is direct and faster-paced (x-axis), open and people-oriented (y-axis), and their behavior is described as extroverted, talkative, and energetic. Those with high levels of Steadiness (S) are indirect and slower-paced (x-axis), open and relationship-oriented (y-axis), and their behavior is described as patient, loyal, and team-focused. Individuals with high levels of Conscientiousness (C) are indirect and slower-paced (x-axis), guarded and task-focused (y-axis), and they are described as prepared, process-driven, and rule followers.

An individual completes a DISC assessment survey based on self-perceptions of their behaviors within a certain context or environment. For example, individuals are first asked to think about themselves in a particular role (e.g., sport manager, sport coach), and then answer questions based on that role. The DISC assessment survey is used to measure the behavior preferences of the individual and the intensity and frequency of each behavioral style, and reports a score for each of the D, I, S, and C. While the description of the model highlights the behaviors of highly measured preferences in each of the DISC styles, the understanding and application of a low score in each style is also important. DISC profiles provide insight into preferred styles of interaction with others and their environment: their assertiveness, responsiveness, and approach to decision-making; all of which can be extended to aid the development of learning, leadership, conflict resolution, and communication effectiveness (Jones & Hartley, 2013).

Figure 1*Depiction and Descriptions of the DISC Model*

Note: Figure adapted from Athlete Assessments (n.d.) and used by permission

DISC Profiling in Sport

Athlete Assessments, an Australia-based company, released a DISC profile specifically for athletes called the AthleteDISC Profile in 2007. This was the result of collaboration between founder Boden J. Hanson, a four-time Olympic rower for Australia, and Tony Alessandra, CEO of the Alessandra Group which administers DISC assessments. Shortly thereafter, Athlete Assessments released the CoachDISC Profile, which was specifically for sport coaches and trainers, and in 2012, the Sports ManagerDISC Profile for non-coaching sports professionals was released. Identical in almost every way, except for the focus of each report (e.g., as an athlete, coach, or manager), these three DISC profile reports represent the initial documentation provided to those who complete the assessment. All three versions produce a 44-page DISC profile report that contains three parts and 22 separate sections (see Table 1).

Each DISC profile report includes a personalized narrative based on the individual's responses to the survey. Additionally, each profile has a specific data set and narrative tailored for the role of an athlete, a coach, or a sports manager. Part I of the reports detail the personalized narrative of the individual DISC profile results; Part II provides further background and application of DISC profiling, including building an understanding of how best to communicate and work with others of different DISC styles; and Part III has the verbatim feedback from others when the 360-degree observer feedback capability of the assessment is utilized.

Table 1*Contents of the DISC Profile Report for Athletes, Coaches and Managers*

Part I: Understanding you in your role
General Behavioral Characteristics
Your Strengths: What You Bring to Your Role
Your Motivations: Wants and Needs
Ideal Working Environment
Your Behavior and Needs Under Stress
Communication Tips and Plans
Potential Areas for Improvement
Summary of Your DISC Style
Your Personal Review Comments
Your Personalized DISC Graphs
Word Sketch: Adapted Style
Word Sketch: Natural Style
The 12 DISC Sub Pattern
Your Behavioral Pattern View
Part II: Application of DISC
Application and Putting into Action
Overview of the Four Basic DISC Behavioral Styles
How to Identify Another Person's Behavioral Style
What is Behavioral Adaptability?
How to Modify Your Directness and Openness
Tension Among Behavioral Styles
How to Adapt to the Different Behavioral Styles
Part III: Feedback from Observers
Observer Comments

DISC Assessments in Sport Management and Coaching Programs in Higher Education

Though the research is limited, the use of behavioral assessments with athletes appears to show numerous benefits, including self-awareness and identification of personal strengths and weaknesses (Tkachuk et al., 2003). While sport management and coaching education programs have diverse student populations, they often draw student-athletes (Schneider et al., 2010). As a result, conducting behavioral assessment activities with sport management and coaching students can provide holistic value to students across their multiple and intersecting identities. Athlete Assessments have utilized DISC profiling primarily within high-performance team environments (e.g., National Collegiate Athletic Association [NCAA] and National Governing Bodies) for a number of years, but in 2012 they expanded to include an academic (i.e., student) specific component for use within sport management, coaching, and sport science courses. As of 2019, the tool is being used by more than 50 universities in the United States, United Kingdom, and Australia.

The academic service and implementation of DISC is multifaceted and includes the use of the AthleteDISC Profile, CoachDISC Profile, and/or Sports ManagerDISC Profile. Additionally,

it provides access to an online student handbook which includes the theory and application of DISC in sport, a live video conference guest lecture by Boden J. Hanson, and a variety of in-class activities and projects. The video conference lasts between 60 and 90-minutes and includes: (1) a discussion of the profile, including what it means for a student to measure high in one of the (D, I, S and/or C) behaviors; and (2) a series of tasks and hands-on activities that allow students to better understand their own profiles and that of their classmates using an active learning approach. Two of the most popular activities are the group task of building a house of cards only using the non-dominant hand; and using a mirror, held by another group member, to trace a path through a maze.

The purpose of discussing the various DISC profiles is to help students better understand their own behavioral patterns and tendencies (i.e., the contents of each individual's Sports ManagerDISC or CoachDISC profile report), and gain important self-awareness of their communication styles. For example, the *House of Cards* activity demonstrates the challenge of adapting one's behavior, and tracing the maze path with a mirror showcases the communication skills required when teamwork and behavioral adaptation are essential.

Literature Review

DISC Assessments and Organizational Efficacy

As previously noted, DISC assessments originated with Marston in his 1928 book *Emotions of Normal People*. One of the most important postulations noted in Marston's book is that human psychology is both observable and measurable, and one's psychology and expressed emotions could be analyzed and linked to behaviors before being used to categorize people (DISCProfile.com, 2021). After numerous decades of use and refinement, sectors in business, government, and education now use DISC behavioral profiling in professional development, skills trainings, leadership development, recruitment and job matching, and other human resources areas to improve personal and team performance (Bauer et al., 2006). Jones and Hartley (2013) approximated that DISC assessments have been completed by more than 50 million people worldwide and have been translated into 35 different languages, which indicates a significant growth in its use from the time Russell's (1994) study reported 30 million administrations of the tool. Concurrent with the expanded use of DISC assessments around the globe, organizations have increasingly come to rely on behavioral and personality assessments during their employee recruiting, hiring, training, and retention phases (Brundage & Koziel, 2010; McKenna et al., 2002). In academia, studies exploring the benefits of DISC profiling have only occurred in a few areas, such as medical, dental, and nursing training and leadership programs (Corning, 2002; Furlow, 2000; Russell, 1994; Scarbecz, 2007); engineering education (Kim et al., 2008); information systems programs (Pollock, 2009); and workplace safety courses (Sutalaksana & Anatasia, 2016).

Though the use of DISC profiling in sport education and the sport industry has increased in recent years, there is a dearth of research that has explored its effectiveness. Kollock (2020) explored whether there were significant differences in DISC profiles between college football players based on their positions. In another study, Christy (2018) found that the use of the DISC profile amongst one volleyball team had a positive impact on interpersonal communication and team interactions. While those studies used the DISC as an assessment tool, neither explored whether participation in a leadership development program enhanced self-awareness of their own behavioral tendencies. For example, the National Collegiate Athletic Association (NCAA)

currently offers DISC assessments through their Leadership and Development Program, and the NCAA states on its website that “DISC assessment reports are important resources that some schools and conference offices use to learn more about themselves as individuals and as teams; their strengths and challenges; and their behavioral styles” (National Collegiate Athletic Association, n.d., para. 1). When activities such as those conducted by the NCAA and other sport organizations expand, it is incumbent on researchers from sport management and coaching programs to examine the efficacy of these programs.

Research on DISC and Other Assessments

In their study on Sport Education in Australia, Eather et al. (2019) called for sport programs to “build capacity of a more diverse range of students to aspire to careers as professional sports people” (p. 10). One way to do that is to embed behavioral profiling into the curriculum of sport management programs. Using behavioral profiles and assessments, however, should not be assumed to be a magic elixir; rather, they should be used based on evidence that they are successful at achieving curricular goals (Comeaux, 2013).

As an example of the positive outcomes of utilizing DISC assessments, McKenna et al. (2002) were able to identify commonly held beliefs in management such as (a) the superior effectiveness of groups composed of individuals with diverse behavioral styles over non-diverse groups, (b) the improved communication and morale when people are aware of and respect different behavioral styles, and (c) the increased satisfaction when an individual’s work environment is aligned with their behavioral style. The authors further argued that despite the widespread acceptance in management of these commonly held beliefs, little empirical evidence and robust research exists to support those beliefs. McKenna et al. noted, “It appears that many proponents of behavioral style assessment base their enthusiasm for the process more on subjective perceptions than on documented results” (p. 314).

Furlow’s (2000) research on nursing students examined how the DISC assessment helped students gain self-awareness, prepare for careers, and match their skills to jobs in the field. In their study exploring leadership and communication in continuing education classes for nurses, Keogh et al. (2019) found that nurses who lead teams seemed to benefit from understanding how their DISC style differences could reduce potential intra-team conflicts. DISC and other behavioral and personality assessments were also compared in Jones and Hartley’s (2013) study. The aim of the research was to minimize duplication of effort and benefit from complementary aspects of the different instruments when used over time (Jones & Hartley, 2013).

Furthermore, after reviewing published personality and behavioral assessment research, Jones and Hartley (2013) also noted the MBTI has received the most substantial attention, due in part to its inclusion in popular business textbooks. Recent research has been conducted on MBTI’s use in multiple academic contexts and with diverse student populations, including student leaders in military education programs (Roush & Atwater, 1992), engineering students (O’Brien et al., 1998; Felder et al., 2002), hospitality and tourism management students (Horton et al., 2005), and teacher education programs (Rushton et al., 2012). While a few scholars listed above have explored the benefits of using DISC in learning environments, there remains a paucity of research on its efficacy.

As a result of the research gap, its growing use of the instrument in sport management education programs, and heeding Comeaux's (2013) call to thoughtfully analyze innovative pedagogical practices, this exploratory study sought to examine the effectiveness of DISC assessments with sport management and sport coaching students in higher education. Additionally, we hope this first step will encourage other researchers to replicate and improve on the limitations of this study in the future.

In order to begin to measure the effectiveness of the use of DISC assessments with students in the context of higher education classes, this research incorporated (1) pre-tests intended to identify a baseline of students' self-awareness and knowledge of themselves and their skills; (2) assignments and activities designed to help students gain self-awareness, understanding of numerous aspects of their behavioral profiles including strengths and weaknesses, and improve their knowledge and skills; and (3) post-tests used to measure any improvements or changes in students' self-awareness and knowledge of themselves and their skills. Other areas that were measured during both the pre- and post-tests include motivations, effective communication strategies, effective conflict resolution strategies, and behavioral adaptations. In summary, the authors of this initial research sought to address the following research question: Does using the DISC assessment and related activities in sport management and sport coaching classes enhance students' self-awareness of their behavioral tendencies?

Methodology

Instrument

In order to answer the stated research question, it was first necessary to develop an instrument for data collection. Three academic researchers with expertise in research methodologies, in collaboration with Athlete Assessments, reviewed the contents of the DISC profile reports (see Table 1). Through this review process, 16 important areas on which the DISC profile reports contained a manifest focus were identified. For example, the first section of the DISC profile report is titled "General Behavioral Characteristics." This section provides a two-page narrative of the individual's primary behavioral characteristics. The researchers agreed the information provided in this section was related to, and could be measured by, an item asking respondents about how well they know themselves (e.g., How strongly do you agree with the following statement: "I know myself"). Through further review and a reconciliation process, 15 additional statements were created to measure 15 topical areas on which the DISC profile report provided extensive information. When disagreements between the three researchers arose, majority voting was used to resolve any issues. Subsequently, one statement for each of the 16 identified sections of the report was created that could be used to measure the corresponding section within the DISC profile report.

To ensure face validity, after the initial 16 statements were created, they were confirmed by Athlete Assessments' staff as the most important and measurable information included in the DISC profile report. Additionally, two expert methodologists, familiar with but not part of this research team, examined the face validity of the original items. In consultation with multiple authors of this research, the four individuals undertook a process of amending the text of several items to ensure they properly measured the areas of focus included in the DISC profile report. In the end, all four individuals agreed all 16 statements satisfactorily measured the intended topics

contained in the DISC profile report. The 16 statements were organized in a pre-test and post-test together with basic demographic information and four open-ended questions.

Sample

Due to the importance of evaluation and assessment of classroom activities in sport management classrooms, faculty at two separate universities participated in the data collection. The data collection occurred in eight sequential semesters over the course of four academic years. Table 2 displays the semester and total number of students that participated in the data collection each semester.

Table 2

Total Number of Students Participating in the Data Collection

Semester	Number of University A Students	Number of University B Students	Total Number of Students
2013 Fall	18	26	44
2014 Spring	31	25	56
2014 Fall	12	23	35
2015 Spring	22	22	44
2015 Fall	23	25	48
2016 Spring	26	0	26
2016 Fall	18	0	18
2017 Spring	19	22	41
Total	169	143	312

The total sample (N = 312) comprised of 169 students attending University A (a large private university in the northeast United States) and 143 attending University B (a small private university in the southwest United States). Both undergraduate (n = 161) and graduate (n = 151) students participated, 69.6% of respondents were male and 30.4% were female, and the mean age of respondents was 21.3 years (standard deviation = 1.8, range = 18 - 27 years old). Overall, 221 students completed the Sports ManagerDISC assessment and the related educational activities while enrolled in sport management-focused classes, while 91 students completed the CoachDISC assessment and same educational activities while enrolled in sport coaching-related classes.

At University A, the DISC activities were utilized in introductory-level sport management and sport coaching courses, taught at both the undergraduate and graduate levels. These classes were all taught by the same faculty member over the entire four-year duration of the data collection. The use of DISC assessments and related activities was virtually identical in all classes. Students also completed the normal coursework for the class, including weekly lectures, case study activities, quizzes held about every other week, and a final exam on all the non-DISC related materials covered in class.

At University B, the DISC activities were conducted in a senior level class titled “Leadership for Sport Professionals.” The class was taught by the same faculty member all four

semesters data were collected and the faculty members from University A and B had numerous conversations to ensure they employed the same DISC assignments and activities. In addition to the use of the DISC tool, University B students completed two exams, presented two research articles, and worked all semester on a team project that was presented at the end of the semester. Teams for the projects were not assembled using the DISC profile results, but they did sit together in the classroom all semester. Having team members discussions about their communication and behavioral strengths and weaknesses was an essential element in helping the teams develop their own cultures.

Procedures and Methods

Within the first week of class, students completed a pre-test, either by paper and pencil or online. The survey asked students to respond to the 16 statements using a 10-point rating scale (1 = Do not agree at all, 10 = Totally agree). After completion of the pre-test, students took the initial DISC assessment survey, received their 44-page DISC profile report, and read it with other reference materials. Approximately one month into the course, students participated in a DISC-specific video conference and educational activities. Examples of the video-conferencing and educational activities involved discussion of what it means to measure high in D, I, S and C behavioral styles, individual and small group activities that provided more in-depth knowledge about the results, and how applying the information can lead to improved performance.

In addition to the video conference and active learning tasks, students were given a Microsoft Word template with questions corresponding to each of the 22 sections in the DISC profile report (see Table 1). All students were required to utilize, fill-in, and complete the template as a homework assignment. For example, students first copied and pasted results from each section of their DISC profile report to the document. Then, they were required to critically evaluate their results for each section by writing a short essay for all 22 sections of their DISC profile report. The combination of (1) completing the initial assessment (approximately 15-minutes), (2) reading the DISC profile report (approximately 30-minutes), (3) participating in the video-conference and activities (approximately 90-minutes), and (4) writing their self-reflective report (approximately 240-minutes) equated to at least 6-8 hours to complete in-full.

Finally, near the conclusion of the class, students completed the post-test. Subsequently, results from students that completed both the pre- and post-test were matched in a database in order for statistical testing and comparisons to be undertaken. Paired samples t-tests with the pre- and post-test data were completed to measure any changes in students' perceptions of their behavioral tendencies between the administrations of both tests.

For a variety of reasons, i.e., adding the class late, dropping the class early, or not completing either the pre- or post-test, there were missing data. In order to utilize paired sample t-tests, results from students who only completed either the pre- or the post-test (not both) were excluded from the analysis. As a result, the final analyzable sample ($n = 216$) with data from both collections was smaller than the total sample collected ($n = 312$). Finally, due to the missing data ($n = 96$) and to minimize any concerns about sampling bias, one-way analysis of variance (ANOVA) was conducted on the 16 pre-test items analyzing the mean scores for the sample population who completed both the pre- and post-tests ($n = 216$) to those who only completed the pre-test ($n = 28$). The same ANOVA tests were conducted on the 16 post-test items analyzing the

mean scores for the sample population who completed both the pre- and post-tests ($n = 216$) to those who completed only the post-test ($n = 68$). For all 32 tests, no significant differences were found at or above the $p < 0.05$ level. This finding indicates the pre- and post-test questions were answered similarly by all respondents.

Results

In order to provide evidence about the effectiveness of using DISC profiling with a diverse range of sport management and sport coaching students, pre- and post-tests were completed before and after all DISC-related activities. The overall purpose of incorporating DISC profiling into sport management and sport coaching curricula was to increase self-awareness and knowledge of areas such as one's own strengths and weaknesses, motivations, effective communication strategies, conflict resolution strategies, and behavioral adaptations because all of these areas are increasingly more important to those working in the global sport industry (Eather et al., 2019; Farias et al., 2017; Tkachuk et al., 2003; Weese, 2020). Using the final analyzable sample, paired sample t-tests were conducted to compare the mean scores from both the pre- and post-test (see Table 3).

The results shown in Table 3 indicate that 11 of 16 measured statements had positive and significant differences between the two administrations. The results showed that for nine of the 10 items in the category in *knowledge of one's personal self*, students indicated positive and significant change from the pre to post assessment. The analysis indicated positive and significant results for two of the six items in the *social knowledge and skills* category. Finally, the results for five of the paired sample t-test results were not significant.

Table 3*Descriptive and Paired T-Test Results for the Pre- and Post-Tests*

Category	Item	Admin.	Sample Size	Mean	Std. Deviation	Sig. Level	Effect Size (Cohen's <i>d</i>)
<i>Knowledge of one's personal self</i>	I know myself	Pre-Test	216	7.85	1.56	p < 0.001	0.36
		Post-Test	216	8.34	1.13		
	I know my strengths	Pre-Test	216	8.02	1.47	p < 0.001	0.36
		Post-Test	216	8.49	1.11		
	I know what makes me successful	Pre-Test	213	7.93	1.40	p < 0.01	0.27
		Post-Test	213	8.28	1.24		
	I know what motivates me	Pre-Test	214	8.57	1.29	p < 0.05	0.16
		Post-Test	214	8.77	1.22		
	I know what I need to perform at my best	Pre-Test	214	8.01	1.55	p < 0.001	0.31
		Post-Test	214	8.44	1.25		
	I know what type of working environment is best for me	Pre-Test	216	7.89	1.66	p < 0.001	0.34
		Post-Test	216	8.40	1.37		
	I know my weaknesses	Pre-Test	216	7.55	1.75	p < 0.001	0.45
Post-Test		216	8.25	1.34			
I know how to adapt my behaviors so that I can be more successful	Pre-Test	215	7.63	1.72	p < 0.001	0.37	
	Post-Test	215	8.20	1.40			
I know the behaviors in my life which can be improved	Pre-Test	211	8.09	1.44	p < 0.001	0.39	
	Post-Test	211	8.61	1.24			
I know the causes of my stress	Pre-Test	213	8.00	1.50	N.S.	0.05	
	Post-Test	213	8.07	1.51			
<i>Social knowledge and skills</i>	I know the impact my behaviors have on others when I feel stress	Pre-Test	215	7.65	1.70	N.S.	0.11
		Post-Test	215	7.82	1.50		
	I know the causes of conflict between others and me	Pre-Test	216	7.45	1.73	N.S.	0.15
		Post-Test	216	7.70	1.63		
	I know how to reduce conflict and increase harmony with others	Pre-Test	216	7.96	1.64	N.S.	0.11
		Post-Test	216	8.13	1.44		
	I know how to effectively communicate with others	Pre-Test	214	8.11	1.56	p < 0.01	0.20
		Post-Test	214	8.40	1.38		
I know how others can effectively communicate with me	Pre-Test	215	8.19	1.38	N.S.	0.14	
	Post-Test	215	8.38	1.29			
I know how others perceive me	Pre-Test	216	6.58	1.86	p < 0.001	0.42	
	Post-Test	216	7.30	1.60			

Note: According to Cohen (1988), *d* around 0.2 indicates a small effect size, *d* around 0.5 indicates a medium effect size, and *d* around 0.8 indicates a large effect size.

Discussion

Though exploratory, this study does make important contributions. The reason to incorporate DISC profiling into sport management and coaching curriculum is to improve and increase students' self-awareness and knowledge of multiple personal and social areas, such as one's own strengths and weaknesses, motivations, effective communication strategies, conflict resolution strategies, and behavioral adaptations. As previous research identified, it is incumbent for sport management programs and faculty to better prepare students with the skills and competencies that they need to be successful in the modern workplace (National Association of Colleges and Employers [NACE], 2019; Tingle et al., 2016; Welty Peachey et al., 2015).

In their analysis of athletic administration graduate program syllabi, Comeaux et al. (2015) indicated that some of those who acquire intercollegiate athletics positions might not be adequately prepared to address the increasingly complex issues associated with athletic administration. One recommendation of their study was to consider innovative, student-centered pedagogical approaches that require students to reflect on and actively engage in experiences to prepare them for future roles in athletics administration. According to these preliminary findings, professors wanting to heed Comeaux et al.'s call can have students complete DISC assessments along with the subsequent self-analysis document and in-class activities. Utilizing DISC assessments and related activities changes the dynamic of the traditional "sage-on-the-stage" classroom by placing the learning foci on the students and recognizing there is no one perfect starting point or ending point.

In a subsequent analysis of athletic administration graduate program web pages, Comeaux et al. (2017) challenged educators, "to focus more squarely on professional socialization" (p. 85). As it is a common practice for industry leaders to use self-evaluation tools to better understand one's skills, competencies, and behaviors (Bauer et al., 2006; Brundage & Koziel, 2010; Jones & Hartley, 2013; McKenna et al., 2002; Russell, 1994), embedding the use of the DISC profile and the associated assignments/activities is one way for sport management programs to begin the professional socialization process. Students well-versed in their own DISC profile may be better equipped to succeed during job interviews and to engage with co-workers in their first jobs. Previous leadership studies have highlighted that self-knowledge (MacNab & Worthley, 2012), excellent communication skills (Tingle et al., 2016), the ability to motivate others (Welty Peachy & Burton, 2011), and trust (Tingle, 2016) are foundational elements of good leadership. In this way, these findings are concurrent with Furlow (2000), who found the use of the DISC assessment helped students prepare for careers and matched their skills to job requirements by improving their levels of self-awareness. Additionally, they seem to reinforce Jones and Hartley's (2013) results, which showed how the use of DISC assessments provided insight into students' assertiveness, responsiveness, and approach to decision-making. All of which helps in the development of leadership, conflict resolution, and communication skills.

The use of the DISC profile and course activities is one way to both achieve the call of Comeaux et al. (2015; 2017) and build upon these important leadership facets. What the findings of this initial, exploratory study reveal are that intentional use of the DISC profile report and the associated activities described herein can be an important first step to help future athletic administrators develop an awareness of their communication styles and behavioral strengths. The

results from this study support those from Tkachuk et al. (2003), who found the use of behavioral assessments appear to improve self-awareness and identification of personal strengths and weaknesses. The profile's focus on cross-style communication strategies is one of its strengths and could be adopted by other academic programs focused on developing future intercollegiate athletic administrators.

The positive and statistically significant results for the nine items measuring knowledge of one's personal self are explored first. All Athlete Assessments' DISC profile reports contain substantial narrative information with sections of the report, including *Your Strengths: What You Bring to Your Role*, *Your Motivations: Wants and Needs*, and *Potential Areas for Improvement*. For example, information provided in the DISC profile report about one's strengths could include information such as: "You work hard for the team objectives and goals," "You are very people oriented and as a result, are able to talk with new people very easily in small or large groups," and "You are able to negotiate conflicts into win-win situations."

During video-conferencing and activities such as *House of Cards* and *Path Through a Maze*, discussions may be focused on how and why people engage in social behaviors (e.g., extroversion versus introversion), and how people can adapt their behaviors based on whether a situation or environment requires more or less sociability. Previous researchers have documented that people hailing from different countries or cultures may have different behavioral tendencies (Hofstede et al., 2010; Liu & Silverman, 2006). As a result, the discussions about how students behave and the factors impacting their behavior are important. In addition, during classroom exercises such as the activity involving students attempting to build a house of cards while only using their non-dominant hand, students often experience challenges working with others based on differences in their background, communication style, attention to detail, and leader/follower skills. Similar to the findings of Williams and Parker (2016), the myriad activities appear to be one beneficial way for students to learn how to improve their personal communication skills and how to better function in cross-cultural work teams.

Social knowledge and skills were also measured through questions about effective communication and how one is perceived by others, and both were found to have positive and statistically significant results. This deep level of self-awareness may be one way to heed Farias et al.'s (2017) call to explicitly teach students positive leadership strategies.

Through education activities, students may also be exposed to different perspectives on social skills. For example, some cultures may perceive opportunities to maintain and save face or to not appear weak (in the case of problems or failure) as extremely important to the promotion of healthy relationships. While in other cultures, being direct and not being overly concerned with hurting others' feelings might be more important (Hofstede et al., 2010). Through the understanding gained from the DISC profile reports and related educational activities, students can learn about multiple perspectives, become more conscientious of behavioral and cultural similarities, and become more aware of differences among people.

In terms of the results, the paired sample t-tests for five measurement items (see Table 3), while all increasing from pre- to post-test, were not found to be statistically significant. There are several rationales behind the lack of significant results beyond potential methodological issues

(e.g., sample size). First, several of these items put respondents in the position of attempting to discern how other people perceive or think about them. For many people, it is an extremely challenging task to see themselves from others' perspectives. Second, anecdotal evidence held amongst Athlete Assessments staff and the participating professors included discussions of the challenges of attempting to provide activities that would allow for direct discussions about what people think and feel about their classmates in a collegial environment. At the data collection sites, few educational activities beyond general discussions were manifestly focused on issues related to stress, conflict, and how others perceive communication. These findings reveal that more time and energy could be spent educating participants about how their results relate to stress, conflict, and communication with others. Potentially, case studies or role-playing activities could be added to more effectively help participants experience and understand their results for these five areas.

These findings seem to support previous studies that explored the value of using the DISC assessment in other settings (Corning, 2002; Furlow, 2000; Keogh et al., 2019; Kim et al., 2008; Renaud et al., 2012; Russell, 1994; Scarbecz, 2007; Satalaksana & Anatasia, 2016). As a result, faculty members and students would also benefit if DISC behavioral profiling is incorporated into the curriculum at institutions across the world. Some of the benefits include a deeper awareness of personal behavioral and communication tendencies, as well as how to flex or adapt those skills to maximize performance in team-based work. The National Association of Colleges and Employers (NACE, 2019) reported the top eight skills desired by employers: (1) written communication skills, (2) problem-solving skills, (3) ability to work in a team, (4) initiative, (5) analytical/quantitative skills, (6) strong work ethic, (7) verbal communication skills, and (8) leadership. According to our exploratory study, it appears that by using the DISC assessment and in-class activities, sport management programs can help students better understand, (a) their strengths in many of those areas, and more importantly, (b) how to articulate those desired skills to prospective internship hosts, job sites, or graduate programs.

Limitations

As with all research, there are a number of limitations. Most of the major limitations are based on methodological challenges. First, because participants hailed from two different universities in natural learning environments, it is impossible to ensure that precisely the same methods, activities, and information were used and conveyed in both locations. While all materials and activities were co-developed and shared between faculty at both universities and with Athlete Assessments personnel, it is possible slight variations in activities, explanations, and the personal experiences and backgrounds of faculty members existed. Over the course of eight semesters, differences may also have been present between classes at the same university. For example, the size, composition, demographics, or number of students in each class may have impacted the student learning.

Second, while often considered a strength of research, it should be noted that students with diverse backgrounds (e.g., geography, undergraduate/graduate, sport management, or coaching-focused) may also have impacted the results. For example, due to having likely received more extensive education and training, graduate students may have more understanding of themselves, their work environment, and the skills needed to be successful in the sport industry. As such, future studies could explore the differences between graduate and undergraduate students' interpretation and use of their DISC reports.

Third, while the data were collected over eight separate semesters, it may have been advantageous to also collect data from control groups in order to ensure the results were due to the use of DISC profiling and not some other factors. Without a control group or holding demographic variables constant (e.g., previous exposure to leadership development), factors other than the in-class interventions may have impacted the students' growth from pre to post-test. Because of the naturalistic nature of this data collection (e.g., collecting real data about activities in real life), control groups were not used.

A final limitation would include sampling issues. For example, data were collected from 312 participants, however, only 216 pairs of pre- and post-tests were analyzable. As noted previously, 68 respondents only completed the post-test, and 28 respondents completed only the pre-test. Anecdotal evidence suggests that these results are primarily caused by students enrolling in the respective class after the initial pre-test was conducted or dropping out before the conclusion of the class. In order to complete all coursework and DISC-related activities, pre-tests were administered during the first week of classes, during the period in which students were allowed to add or drop classes. In addition, some students who initially enrolled in classes dropped in the first week of the class; though it is important to note this lesser frequently, i.e., 28 students over eight semesters. Another related issue was sampling bias. Sport management and sport coaching students do not perfectly mirror the general student body, as the sport management population tends to skew male, and there may be other demographic (e.g., age) or geographic factors impacting the sample and potentially biasing the results. Therefore, data from more and diverse types of students should be collected in order to strengthen the evidence found in this research.

Future Research

The limitations detailed above provide meaningful opportunities for future research. Beyond some of the opportunities discussed above (e.g., more data collections, more universities included, more data and analyses on demographic groups, and the inclusion of control groups), it is important to acknowledge the exploratory nature of this study. Limited research has been conducted investigating the impact of DISC assessments when used in conjunction with sport management and sport coaching classes. It was also surprising to the authors that more research on the topic of behavioral (and personality) profiling in academic settings has not been undertaken. Perhaps there is, as prior research indicated (i.e., Jones & Hartley, 2013), an assumption that behavioral or personality profiling is a useful activity, so there is no need for scholarship to examine a concept which is already well-known. However, we agree with Comeaux (2013) and encourage more scholars to interrogate the impact of innovative pedagogical practices rather than assume they are effective just because they are new. Specifically, there is value in examining and attempting to understand questions surrounding whether DISC profiling activities are effective ways to teach students information, how the process works, and can be improved.

In recent years, mainstream media has lamented the lack of self-awareness in Generations Y and Z (Morrison, 2015). It is possible previous generations spent more time or had more opportunities to become more self-aware, so it may now be more incumbent on educators to include educational activities that enhance self-awareness and organize activities that improve the underpinnings of these important skills. Future research examining the open-ended responses could provide a richer understanding of how students perceived their learning and which educational practices were most effective.

Conclusion

This exploratory research is one of the first to examine the implementation and effectiveness of DISC behavioral profiling in sport management and sport coaching classrooms. The results, though not broadly generalizable, suggest that using the DISC profile and in-class activities in sport management and coaching classes may increase students' awareness of important skill areas, including: one's strengths and weaknesses, what makes one successful, personal motivations, what one needs to do to perform at one's best, what type of work environment may be best, how to effectively communicate with others, the behaviors in one's own life which can be improved, how others perceive them, and how to make behavioral adaptations in order to be more successful. Sport management and coaching programs need to ensure students are ready for the dynamic and ever-changing work environment and utilizing DISC behavioral profiling appears to be a useful and effective tool to enhance students' self-awareness and help develop leadership skills which will prepare them for future career opportunities.

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