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Exploring Adaptive Intercollegiate Athletics Program Structures: An Application of Open Systems Theory

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The purpose of this study was to explore adaptive intercollegiate athletics program structures in the United States. As athletics programs can be seen as open systems, an open systems model of sport organizations was used to guide the study. Semi-structured interviews were conducted with seven organizational leaders associated with adaptive intercollegiate athletics programs. A qualitative description design was used to gain a foundational understanding of program structures based on a variety of factors. Findings suggest adaptive intercollegiate athletics program structures are highly varied and complex systems that are functioning parallel to traditional collegiate athletics programs despite not being supported by the National Collegiate Athletics Association. Program leaders have developed and maintained these programs using a vast array of resources within and external from their institutions. This study offers foundational knowledge about existing program structures that can be used strategically for those interested in developing new adaptive intercollegiate athletics programs. Implications for future research and practice are discussed.

Keywords: adaptive intercollegiate athletics, adaptive sports, parasport, disability sport, program structures, open systems

Introduction

In recent years, the number of degree-granting institutions of higher education in the U.S. with enrollment of students with disabilities of 10% or more has consistently increased, from 102 institutions in 2010 to 431 in 2021(National Center for Education Statistics, 2023a). In the 2019-2020 academic year, about 21% of undergraduate students and 11% of postbaccalaureate students reported having a disability

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(National Center for Education Statistics, 2023b). However, there is a discrepancy between the number of students with disabilities enrolling in colleges and universities and the number of students who register with campus disability centers (Postsecondary National Policy Institute, 2023), so these numbers are likely under-representative of the actual body of students with disabilities in postsecondary education. Among all disability types reported, specific learning disabilities and attention-deficit/attention-deficit hyperactivity disorders are the most prevalent (36% and 26%, respectively) among many others, with just 3% of students reporting a mobility or orthopedic condition (Raue & Lewis, 2011). Although the number of students with disabilities entering postsecondary education has increased, increased enrollment does not automatically result in greater degree completion. As more students with disabilities enter postsecondary education, an opportunity arises to intentionally support these students in their persistence to graduation (Belch, 2004).

Tinto (1975) proposed there are two main factors that impact student persistence to graduation: academic integration and social integration. Academic integration includes one's grade performance and intellectual development; while social integration includes informal peer group associations, semi-formal extracurricular activities, and interaction with faculty and administrative personnel within the college. Substantively, social integration appears as structured social engagements, university clubs or organizations, and friendships that tend to form as a result of engaging in such opportunities (Tinto, 1975). Increased access to social integration opportunities for students with disabilities can potentially lead to increased rates of persistence and retention. Adaptive athletics programs fall into the category of social integration, as these opportunities provide social engagement outside of the academic realm, like many other campus athletics activities such as club or varsity sports (Artinger et al., 2015; Belch et al., 2015; Dyk & Weese, 2019; Hall, 2006).

U.S. federal action has been specific in its recommendation that schools develop new opportunities to increase access to sport and recreation for students with disabilities. This directive is found in a Dear Colleague Letter (2013) from the U.S. Department of Education that was distributed after data from the Government Accountability Office (GAO) indicated students with disabilities were far less likely than their peers without disabilities to engage in athletic extracurricular activities (Ashby, 2010). More generally, the Rehabilitation Act of 1973 and the 1990 Americans with Disabilities Act (ADA) also contribute to this understanding, as they both aim to curb discrimination towards individuals with disabilities (Cottingham et al., 2016; Jones, 2007). Comerford (2017) argued that improvements in access and opportunities have occurred because of the GAO report and the Dear Colleague Letter, but that those improvements have been concentrated at the high school level and work should also be focused on developing opportunities at the collegiate level.

Adaptive Intercollegiate Athletics

Adaptive intercollegiate athletics are the highest level of competition in the postsecondary setting and are not new. The first adaptive intercollegiate athletics program began in the 1940s at the University of Illinois with a goal of enabling individuals with disabilities to get a college education (Savitz, 2006). In the eight de-

cades since then, additional institutions have established adaptive athletics programs parallel to traditional National Collegiate Athletic Association (NCAA) aligned athletics programs; however only a handful of institutions are known to have active adaptive athletics programs in comparison to the number of institutions with NCAA sanctioned sports (McCarty et al., 2023; Whaley et al., 2023). From the information available online about existing adaptive intercollegiate athletics programs, about 20 institutions have such programs offering up to three sports (wheelchair tennis, wheelchair basketball, and adaptive track and field), though not every institution offers all three. McCarty et al., (2023) explored this more rigorously and found 16 institutions met their inclusion criteria. Comparatively, there are 24 NCAA sanctioned sports available to more than 500,000 student-athletes at about 1,100 U.S. institutions (National Collegiate Athletics Association, 2024). Again, from available online information, there is great variability in the structures of adaptive intercollegiate athletics programs. While this variability is visible from the exterior, little is recorded about why programs exist where they do and what other factors contribute to the structure of adaptive intercollegiate athletics programs (Shapiro & Pitts, 2014). Recent work, however, has provided some insight into existing programs.

Whaley et al. (2023) explored the perceptions of NCAA Division III (DIII) athletic administrators towards adaptive collegiate athletics programs. Findings revealed administrators had little knowledge about adaptive athletics, how they would implement these programs, and where the resources would come from to support them; yet they all had positive perceptions of the impact these programs would have on the diversity and inclusive nature of their campuses. Practical recommendations were made such as developing a guidebook for development of programs and conducting ADA compliance audits.

Another recent study identified coach and institutional characteristics that facilitated the development of collegiate wheelchair basketball programs (Rutland et al., 2022). These include coaches who are knowledgeable about adaptive sports due to personal experience, who could recognize institutional disparities around athletics and act on them. The authors also described boosters as being vital to the success of adaptive athletics programs. Boosters are champions and supporters of the adaptive programs, and could include a strong leader (i.e., program director and/or coach), institutional supports that have influence and reach, and, of course, donors and alumni who often provide significant financial support to programs. Institutional barriers were also discussed as a primary focus of the experiences of program directors and coaches. These barriers included a lack of sustainable fundraising, the complexities and cost of traveling a large group of individuals with disabilities around the country, a lack of dedicated resources (e.g., staff, facilities, and scholarships), and institutional differences or limitations in support of the adaptive athletics program. Lastly, authors indicated there are limited resources available to start new programs, and that coaches described a small network of people who all talk to each other and share information to help new programs start.

While helpful in providing insight into the characteristics of a variety of adaptive intercollegiate athletics programs, these studies did not offer detailed information on the structures of existing programs using a systematic approach and offered limited

recommendations that could be used to develop new programs. An exploration of this nature is a first step in making the endeavor of adaptive intercollegiate athletics program development more accessible to postsecondary institutions. Therefore, the purpose of this study was to explore adaptive intercollegiate athletics program structures at institutions of higher education in the U.S. For this study, adaptive intercollegiate athletics is defined as competition where student-athletes with disabilities compete in team and individual adaptive sports against student-athletes with disabilities from other postsecondary institutions.

Open Systems Model of Sport Organizations

To better understand the factors that make up adaptive intercollegiate athletics program structures, an open systems model (Soucie & Doherty, 1996) was utilized to dissect the who, what, and where of existing program structures. A macro level perspective was necessary to explore this topic because little published foundational knowledge of adaptive intercollegiate athletic programs exists. Open systems theory originated in the field of biology (Von Bertalanffy, 1950), and was applied to social sciences shortly thereafter (Miller, 1955; Parsons, 1951). Relevant to this study, open systems theory has been used as a lens to investigate municipal parks and recreation departments, nonprofit organizations, and arts and cultural organizations (Jung, 2012, 2017; Jung & Vakharia, 2019; Starnes, 2001; Thibault et al., 1999). While there is a lack of empirical evidence applying open systems theory to the context of sport organizations, one conceptual model has been proposed. Soucie and Doherty (1996) illustrate an open systems model of sport organizations that provides a macro level overview of sport organizations (see Figure 1). Each factor within the model is an independent factor unto itself, but it is important to recognize that each factor has the potential to impact and be impacted by the other factors within the model (Scott, 1987).

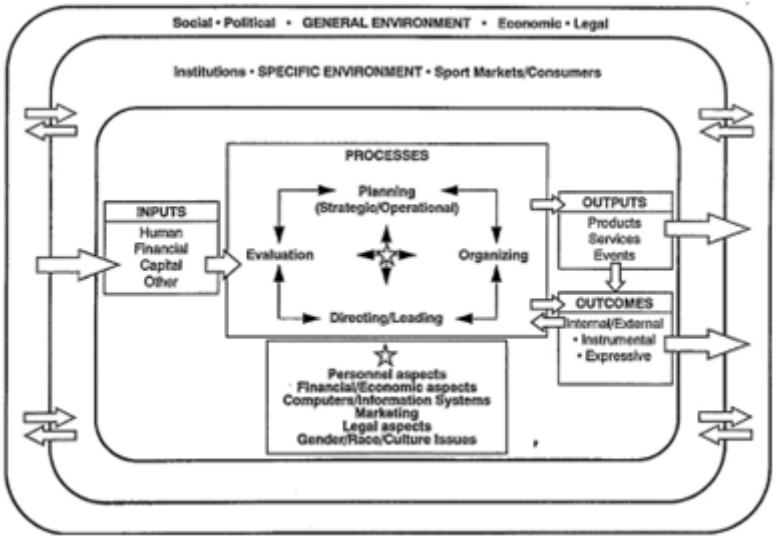
Methods

As the aim of the study was to produce a descriptive summary of the structure of adaptive intercollegiate athletics programs, the research took a qualitative description approach. Qualitative description is a useful tool for exploring "the who, what, and where of events or experiences" (Sandelowski, 2000, p. 338). This approach has been used previously in sport research to explore phenomena that lack a high degree of foundational understanding, like perfectionism and inspiration in sport (Figgins et al., 2016; Gotwals & Spencer-Cavaliere, 2014).

Participant Recruitment

Purposive sampling was used to obtain a sample that closely aligned with the study's purpose (Patton, 2015). Selection criteria were limited to individuals who held positions as program directors, program coordinators, or head coaches at the time of data collection at existing collegiate adaptive athletics programs that offered

Figure 1
Open Systems Model of Sport Organizations



Note: From 'Past endeavors and future perspectives for sport management research,' by D. Soucie and A. Doherty, 1996, *Quest,* 48, p. 496.

competitive, intercollegiate wheelchair basketball, wheelchair tennis, and/or adaptive track and field. Following Institutional Review Board approval, one representative of the highest possible rank was contacted via email at institutions that met our criteria (i.e., institutions of higher education that offered adaptive intercollegiate athletics programs with an active roster available online). At the time of data collection, this resulted in 12 universities, although there are now more universities with adaptive intercollegiate athletics programs. Contact information was collected from program websites and through the professional network of the coauthors.

Data Collection

Data collection took place in the fall of 2019. Each participant engaged in a one-on-one interview via Zoom. The interviews followed a semi-structured interview protocol developed by the research team and based on five main factors and 14 subfactors of the open systems model of sport organizations (Soucie & Doherty, 1996). The protocol contained 24 questions, including: *Where is your program housed within the university setting? What led to your program being housed where it is?* (Specific Environment factor) *What roles exist in your program management structure? What are the coach's or program director's responsibilities?* (Processes and Human Inputs factors) and *What facilities does you program have access to, and how did your relationship with those facilities come to be?* (Capital Inputs factor). Both closed- and open-ended questions were utilized. Closed-ended questions were

used to elicit specific pieces of information, while open-ended questions allowed for more details to be shared based on the participants' experiences (Merriam & Tisdell, 2016). Probing questions were also used to gain clarity and detail in participant responses. All interviews were audio and video recorded via Zoom and using a handheld audio recorder. Interviews were transcribed verbatim by the principal investigator (PI). Interviews lasted an average of 38 minutes.

Data Analysis

The PI employed a two-step analysis process. First, data were sorted into a priori categories and sub-categories defined by the open systems model of sport organizations (Merriam & Tisdell, 2016). During this deductive sorting, the PI remained open to the potential for inductive themes to emerge from the data as there could be factors pertinent to the participants that were not reflected in the conceptual model (Andrew et al., 2017). Second, within each a priori category and sub-category, the PI used open coding to further sort and make sense of the descriptive data (Creswell & Creswell, 2018). To increase trustworthiness, the data analysis plan and outcomes were reviewed by other research team members to ensure agreement in the qualitative findings (Creswell & Creswell, 2018). Additionally, the PI engaged in reflexive journaling and maintained an audit trail throughout data analysis to allow for greater trustworthiness and reliability in data interpretation (Merriam & Grenier, 2019).

Findings

Seven participants from seven different adaptive intercollegiate athletics programs consented to the study, leading to a response rate of 58%. Two participants were program directors, and five participants were head coaches. Participants represented a variety of programs around the U.S., in various stages of establishment or development, with most having been in existence for 40 years or more (see Table 1). The open systems model of sports organizations was used to organize study findings. Six categories and 11 sub-categories were established based on the conceptual model. No inductive themes emerged from the data related to the purpose of the study.

Specific Environment

The first category addresses factors that participants described related to the specific environment they exist within. Within the university setting, participants reported being housed in various units, including athletics, campus recreation, academic departments, and disability services. One participant indicated their program is a collaboration between two departments. Participants' perceptions of why programs are housed in their respective locations reflected several issues encountered in their start-up phases including alignment with missions and visions, institutional stakeholders' understanding of collegiate adaptive sports, existing relationships between stakeholders and program leaders, and institutional resources. For example, one participant stated: "I think it had to do with just… the mission and vision of the college, and it just so happens our strongest relationships just happened to be from

Table 1
Participant and Program Demographics

Participant	Role in Program	U.S. Geographical Region	Institutional enrollment #s	Year program established
1	Head coach and program director	Northeast	4500	1985
2	Program director	Midwest	44087	1948
3	Program director	West	33778	2018
4	Head coach and program director	South	39714	1976
5	Head coach and program director	North	2500	1969
6	Head coach and program director	South	31764	2009
7	Head coach and program director	Midwest	29866	2004

there" (Participant 3).

Many participants described moving from unit to unit, sometimes over a period of decades, before finding find a final resting place.

> When the program was founded [in 1976, they put it under campus rec]… they came in as a sport club. Then in 1989, they were given their own budget including scholarships, and that kind of took it out of sport club mode and put it into some kind of weird nether land, where it wasn't really a sport club, but wasn't really intercollegiate athletics. [But then] the university recognized the athletes as student-athletes by the athletics advisory council. So that made our nether land even stranger because we've been recognized by athletics, we're budgeted through student affairs, and we operate through campus rec facilities. – Participant 4

> The program started in '85… It was housed originally in the office for students with disabilities; upon my arrival it was put into campus recreation. Our student athletes did not care for the fact that I was trying to coach five different sports [traditional rec sports and adaptive]… So, they went to the athletic director and the vice president and said we want this moved to athletics and [him to] be treated like a full-time head coach…. So [the move] was student driven. – Participant 1

Participants listed several pros and cons they associated with their respective housing locations. Both participants housed in athletics described perceived benefits as-

sociated with their housing location: ease of access to training resources, support in marketing the program, and access to funding.

> They view it as intercollegiate sport…. That was one of those things that really helped, with gym time, helped with funding, helped with pretty much everything else in the sense of supporting the program. – Participant 5

> Our student-athletes are recognized as every other student-athlete in the department is whether it be men's and women's basketball, football, wrestling… whatever the sport we're looked upon as equals. So, we have access to the training room… the weight rooms… the same type of budgets or similar budgets as other sports here. We travel on charter buses, the same as every other department does and that's a part of the ongoing budget process. We offer scholarships. – Participant 1

Participant 1 highlights the drawbacks, however, of being housed in athletics, as they are required to comply with NCAA standards as well as those of the National Wheelchair Basketball Association (NWBA; the governing body of collegiate wheelchair basketball), even though the NCAA does not sanction collegiate adaptive athletics programs.

Of the two participants housed in campus recreation, both reported the perceived benefit of access to sport facilities and storage space, while one described other benefits such as visibility within the general student population.

> Physically it's convenient. We have our own gym space and locker rooms in the building next to the recreation center. We have access to the recreation center. Our guys work out at the recreation center. I think it's important for our athletes to be mingling with just the general student population because it draws attention to our program, and it represents what people with disabilities can do. – Participant 4

One participant housed in campus recreation detailed perceived drawbacks to include no external marketing or development support and the existence of budget constraints. The other participant housed in campus recreation did not identify any drawbacks.

Of the programs housed in an academic department or disability services office, two participants described benefits of having support from professional employees. One participant perceived not having to comply with athletic department rules, regulations, and reporting (assumed to be NCAA-related) as a benefit. Flexibility in budgeting was also discussed as a benefit of existing in disability services offices, as the provision of those services are often mandated by federal and/or state legislation, thus making budget constraints less of a concern. For example, one participant stated:

> While we do have a set budget, if we do end up going over budget, it's ok because the office of accessibility has to be able to offer services to any individual with a disability…. I think if we were housed in a different unit, like with the rec department where we would be seen as a club sport, there'd be more budget constraints with us. – Participant 6

Similarly, another participant stated:

> We are part of the bigger whole of disability services, [and those services are] mandated…. So, we've never really had the fear of our program going away because it's how it started. Our disability services program [broadly] was rooted in adapted athletics and recreation. – Participant 2

A common drawback of being housed in an academic department or disability services shared by two of the participants was the lack of infrastructure to support athletics programs in non-athletic units. Specifically, participant 3 stated: "It's basically an athletics program [in an academic unit], so you need storage, you need places for coaches' meetings and just different things like that, which you know, the school didn't necessarily have." In a more unique situation, however, one of the participants in this housing location had been able to acquire dedicated facilities that the university's athletics department moved out of upon building new facilities.

> So, we have… the old basketball court that the men's and women's team played at before they moved to the new arena 10 years ago. So, when they moved out, we were able to move in. The basketball court is ours, we practice, we play there, the men's old locker room is our team locker room. And then we've got a separate dedicated strength and conditioning room…a separate dedicated athletic training room, and… just acquired another locker room within that building that we'll convert into a women's locker room. – Participant 6

Every participant reported external on- and off-campus relationships that were necessary to educate stakeholders as well as develop, sustain, and grow their programs. Regardless of where they were housed, on-campus relationships were developed and maintained with academic departments, disability services, athletics and campus recreation departments, and financial aid, development, housing, registrar, and veteran services offices. A new program director described his efforts to build relationships with campus units as he started the new program at his institution:

> As soon as I got onto campus officially, the [first months] were heavy with just meeting a lot of the different departments. I met with career services, with housing, student ability success center, different directors of the college of health and human services, as introductions to the program, met with admissions, met with different internship sites. So, it was just a lot of meeting people to kind of create new relationships. – Participant 3

Many participants also described relationships with academic units for research purposes. For example, Participant 2 said: "We collaborate with research projects with engineering, with industrial design, with education, with kinesiology, and community health." Additionally, most participants described having external relationships with off-campus equipment sponsors, national sport governing bodies, community adaptive sport organizations, local schools, state and federal governments: *"*We partner with the State Department, and we bring emerging leaders in from around the world as part of the global sports mentoring program" (participant 4).

Inputs

The second category addresses the resources or inputs participants reported in relation to their adaptive intercollegiate athletics programs. Findings aligned with the four sub-categories of inputs within the conceptual model: human, financial, capital, and other. While some participants listed a greater quantity or diversity of inputs compared to other participants' programs, every participant identified inputs in each of the four sub-categories.

Human Inputs

In the sub-category of human inputs, participants recounted a variety of individuals who held responsibilities within each program. Every program described having internal professional employees who were salaried and whose primary responsibility related to the adaptive intercollegiate athletic program. This included directors, coordinators, trainers, and head and assistant coaches. Some participants from more established programs listed up to five internal professional employees; others identified only one (e.g., a participant from one of the newest programs).

> So, I'm the program coordinator and then I have three coaches, one for track, and then one for men's basketball, one for women's basketball. And I have an athletic trainer, we have a full-time physical therapist, and we have three graduate students each work with each of the programs. So, we have one who works with track, one works with men's basketball, one who works with women's basketball. And then we also have an assistant to our track coach and that is covered through the US Paralympic training site for track. So, we have another person who works with track because the track program is quite large. – Participant 2

Additionally, every participant reported having external professional employees who were salaried, but whose primary responsibilities lay outside of the adaptive intercollegiate athletic program. This included team doctors, student services, athletics department, and campus recreation staff. For example, one participant whose program is housed with the athletics department stated the following: "We also get the athletic trainer. So, some programs don't have access to the athletic trainers that the athletic department has. So, we get that as well" (Participant 5).

Every participant also described human inputs specific to the roles of nonprofessional employees and student-athletes. The former being volunteers, student employees, graduate assistants, and student interns; the latter being adaptive track and field, wheelchair basketball, and wheelchair tennis student-athletes. For example, one participant stated:

> We do have some volunteers to help with that who are students, some student managers. Obviously, they're not planning it, they're just kind of showing up and I'm saying, hey you're going to do filming, you're doing the clock today when it comes to game day. – Participant 5

Financial Inputs

In the sub-category of financial inputs, participants reported annual operating program budgets that ranged from $0-$500,000 which reflects diverse funding ap-

proaches. One participant shared their program is entirely reliant on fundraising and donations. The other six participants had established funding streams from program housing locations, state budgets, student fees, and class fees from courses taught by program employees, fundraising, donors, or endowments. While all programs described funding to include university money, donations, fees, and fundraising, three participants described receiving funding from state budgets:

> The primary funding source is the state… besides my salary and benefits, it covers our buses to and from competitions, about 90% of our officials and hotels and meals, and…about 100% of all our equipment we purchase, wheelchairs, tubes, tires, casters, the whole nine yards, uniforms. – Participant 1

> Well, all of the full-time individuals are… on the state funding now. It used to be soft money; we are now finally on state funding…. There is state funding for our graduate students as well. – Participant 2

> Well, the whole program is state funded. We also have some funds come from student fees, and then generated revenues. So, those are like the three areas. – Participant 7

Six participants stated the paid staff positions within their programs were funded to some degree by their respective program housing locations or state budgets. One participant stated their position was the sole paid position within the program and was funded in the following way: "We had a very generous donor donate half of my position and [the university] matched the other half" (Participant 3).

Every participant described financial resources dedicated to providing student-athletes monetary aid. Scholarships and aid described stemmed from program housing location budgets, fundraising, state vocational rehabilitation programs, disability services offices, university academic scholarships, out of state tuition waivers, and endowments. Participants described being able to support athletes financially in some way, but not completely. For example, one participant said:

> It would be wonderful if we were able to have scholarships that were a little bit more readily available or covered a little bit more. So, our athletes currently, if they come from out of state and it's someone that we've recruited, we can offer them an out-of-state tuition waiver. So, they would have to figure out how to make up the in-state purchase of that. It's about a $3000 difference that we can assist them with…we don't have any assistance for housing and on this campus, housing is almost more expensive than in-state tuition. – Participant 2

Capital Inputs

In the sub-category of capital inputs, participants described facility, equipment, and supply resources relative to their programs. Participants specified a spectrum of facilities their programs used: sport courts and tracks, weight training and cardio rooms, athletic training spaces, locker rooms, storage, research labs, media rooms, video rooms, and offices. Six participants reported using athletics or campus recre-

ation facilities to practice and compete; another participant reported having a facility solely dedicated to their program. Those with programs housed within athletics or campus recreation expressed greater ease of access to, and scheduling of sports facilities compared to those who exist outside of these departments. For example, one participant whose program is housed in an academic department stated:

> We also have access to… our campus recreation facility and that's where the basketball teams practice… We also host our tournaments in that campus recreation facility as well, but we're limited on when that's available. – Participant 2

Although this participant's program shared space for practices and competitions with campus recreation, they and one other participant reported having weight rooms and cardio space in their housing location dedicated to their program. For example: "Our sperate spaces, our locker room, weight room, strength room, athletic training room, that's completely ours. Nobody else has access to those spaces" (Participant 6).

While every participant reported capital inputs of sport wheelchairs, the means of acquiring chairs differed. Some participants stated their programs do not purchase sport chairs for student-athletes, but they offer access to sport chairs at a discounted rate and support student-athletes in writing grants to acquire sport chairs. Other participants stated their programs do purchase sport chairs for incoming student-athletes, but it may come with stipulations like the following: "We have our guys measured and we will pay for a chair for them…. But it remains property of the university" (Participant 7).

Lastly, participants described having apparel for competitions, practice, and travel. Some participants conveyed inclusion in their university's sport apparel contracts. For example, one participant said the following:

> Typically, we keep uniforms for like five years, until they are in really bad shape… but, now with the opportunity to collaborate with athletics and inclusion of us in their Nike deal, then we've been able to order them a little bit more frequently than five years. – Participant 2

Other participants described a desire to be included in their university's sport apparel contracts but indicated they had been denied access.

> We do fundraising for our apparel. The university started a contract with Under Armour… last year. And we found out about it, and we asked if we could be at the table for that conversation. Like how great would it be for Under Armour to be providing apparel for adapted [intercollegiate] athletics. So, we did get to go to the meetings. But when the agreement was done, we weren't part of the agreement. – Participant 4

Other Inputs

In the sub-category of other inputs, every participant spoke to some type of value, mission, or philosophy that influenced their adaptive intercollegiate athletics program. Participants conveyed a desire for their programs to benefit their campus or community, to ensure students with disabilities had opportunities to earn degrees, and to care for student-athletes as students, athletes, and individuals. One participant

described their program's desire to ensure athletes maintain their wellness after they graduate from the university.

> [The athletes work with our physical therapist], and it's focused on wellness, so she works with them on… posturing and does range of motion and, you know, all of those physical therapy side of things. But… when they leave, she wants them to be able to continue… participating in health and wellness so she helps them… design a program that is good for them, that they can continue when they leave here. – Participant 2

Processes

The third category addresses actions participants and their programs manage to transform inputs into outputs. Many of the processes participants shared were common among some or all of the programs; however, there were differences in who was responsible for which process. For example, managing travel was designated to program coordinators, head coaches, or athletic trainers. The following paragraphs outline the four sub-categories of processes: planning, organizing, leading, and evaluating.

Planning

In the sub-category of planning processes, participants described developing long-term program goals and how they chose to utilize financial resources to work toward said goals. Program goals related to increasing the size of their teams, adding new sports, developing new student-athlete supports, and adding internal professional employee positions. Participants characterized strategies they had developed to align their resource utilization with their long-term program goals. For example:

> We're still developing that right. Like do we want an athletic training position, do we want strength and conditioning officially, do we want to pay the coaches. – Participant 3

> But, the direction we've gone with athletic scholarships, is we created a scholarship endowment and the thinking behind that is, if there are any budget cuts to the university as a whole, if we had a budget for scholarships and the budget cuts happen, then they cut that budget, then the scholarship that I offered up to you I may have to take back and that's not something that we wanted to do. So, we created an endowment that generates interest and it's that interest that we can offer up so that the $10,000 that you donate to our program goes into the endowment, generates interest of 4% and then we can offer that $400 that we know we have year over year. Whereas if you were to donate $10,000 to us and I turn around and give it to an athlete, the next year I've got to fundraise $10,000 to come up with that additional $10,000 for the athlete. So, when we created the endowment, it was looked at more as a long-term plan, understanding that we may miss out on some student-athletes now. – Participant 6

Organizing

In organizing tasks managed by participants and their programs, every participant reported they recruited prospective student-athletes to join their programs through traveling to junior league events, word of mouth, hosting summer sports camps, or using existing relationships between program alumni or current student-athletes. Five participants also spoke about recruiting other human inputs including graduate assistants, student workers, interns, and volunteers. For example:

> Because I'm part of the school, it's been very sort of easy to tap into the internship program, to talk to the athletic training folks, to talk to the… students and sort of get them involved whether they're volunteers or interns or undergraduate and graduate assistants, helping out with programs. – Participant 3

Every participant stated that their programs organized student-athlete supports, including scholarships, and academic, disability-related, social, mental, and physical health supports. Some supports were accessed through pre-existing on-campus resources (i.e., tutoring and mental health services):

> Tutoring is first off free through our academic support programs, through the library…. Every student coming in here whether they're a student-athlete or not, is assigned a student success coordinator and their primary focus is to make sure that they, that the student has all their [academic needs met]. – Participant 1

> Once they're in the program they have access to all of the services a student with a disability who registers with our services has access to. We have academic coaching… We have counseling services for mental health services that they are welcome to access as well. Then we have, through our local hospital, we have a relationship with one of the doctors there. They do our physicals in the beginning of the year and then work with us on acute injuries, that kind of thing throughout the year, set up through our athletic trainer. And then, they have like we have an accessible bus system, so they're able to use the buses. – Participant 2

Conversely, some participants described developing and maintaining various supports within their program boundaries rather than utilizing existing university resources.

> I host these check-ins with the athletes just to check-in with how everybody's doing… mentally and just the overall wellbeing on campus. – Participant 3

> As a program we have study hall that we do twice a week…this is a time for you to kind of get away from everything, get in our tutor center and just study and do homework and different things and what not. Like I said, usually I'm the first person they call if they have an issue, like "hey coach, I have something going on, blah blah blah", and I'll say "I gotcha no big deal". If a player has to go to the emergency room, they don't have a car,

> they call me, at odd hours of the night I'm driving them to the emergency room or taking them to the doctor…taking them to the airport. – Participant 5

Every participant reported organizing facility usage for training, practice, and competition. This task involved coordinating with the athletics department or campus recreation facility managers to reserve space in advance of the date it was needed. For example, Participant 1 stated, "There's a form in place that… we're required by our department guidelines to send our team calendar up [to athletics] in usually July, sometimes as early as June, for the next season."

Additionally, participants described organizing the acquisition and management of apparel, sport chairs, equipment, and supply inventories; sport chair management; and laundry. For example, one participant stated the following: "Then the repairs, if it's something that happens while being a part of our program, we'll replace tires, tubes, casters, spokes, upholstery, welds, whatever maintenance needs to be done" (Participant 7).

Every participant noted the task of organizing program travel, including travel to and from competition sites, food, and lodging: "He [the athletic trainer] puts together the entire itinerary for the trip. So, when the bus is picking them up, when they're leaving, when they're eating" (Participant 2).

Leading

In the sub-category of leading processes, participants characterized actions they took to guide individuals toward program goals. Most commonly, this was related to coaching during team activities. For example, "I'm responsible for the day-to-day activities of the team. Whether it be practice, individual shooting sessions, one-on-one meetings, team meetings" (Participant 1).

Program directors had different leadership responsibilities that were less coaching focused. For example:

> First and foremost, I make sure that everyone is doing what they're supposed to be doing. For the athletics programs, I arrange all the travel… with the bus companies or with airlines. I make the hotel reservations and then when they return I do their [budget reconciliation]…I'm a little bit involved in recruiting…. I also do like all the acquisition of apparel and all the I mean just the basic day to day running of an office with five people. – Participant 2

Similarly, participants described leading in the context of bringing awareness of their programs to campus and community stakeholders to increase opportunities for student athletes with disabilities. Given the participants in this study were either the program directors or head coaches functioning as program directors, these examples of leading their programs speaks to their vital role as program leaders.

> I mean, really, it's from an awareness standpoint. Like if I'm talking about like the organizations in the community, we just wanted to make [them aware] of what we were doing. To be frank, not all of them have been like, "oh hey, we're working toward the exact same goal", or "here's how we

> could collaborate". It's been more of like, okay, they have that going, maybe down the line there may be an opportunity to do something right. Because a lot of people still don't know what our program is, what it can do, how our students involved, how do coaches get involved and things like that. – Participant 3

> To be able to get our name and our brand out there to help people within the university and people within the community. A lot of times when I'm meeting with people in the athletic department, they think I'm coming to them because I want money from them. And while that's brave and I would love to have it, to me it's important to have that relationship and that partnership because it'll help increase our exposure and increased exposure will allow more people to be aware of our team, more people to be aware of the sport, more people to be aware of adapted sports. And then if money comes as a result… then that's a win too. – Participant 6

As an extension of developing awareness, participants described leading by advocating for their programs for the purpose of increasing graduate assistants, gaining greater recognition for their student-athletes, being included in university apparel contracts, and improving marketing and developing efforts. For example,

> Why do we have separate and unequal treatment on campus, why don't we get marketing and development support for our program? Especially when we were starting the girl's program, making sure they were aware that there were Title IX issues.... I think this mirrors the social justice movements that are out there like civil rights in the '60s, women's movement in the '70s. How does our movement mirror those and build to the point where it's part of the natural thought of a college or university to include disability as part of that conversation? And that takes a lot of time. – Participant 4

Evaluating

Four participants reported evaluating and recognizing the academic and athletic achievements of their student-athletes with end-of-season banquets. Some participants stated they were included in their university's varsity athletics banquet, others stated they recognized student-athlete achievements separate from athletics. For example:

> We also are recognized during honors banquets whether it be for academic honors or for on court honors. So, you know we just had our first basketball player put in the [university] Hall of Fame, athletic department Hall of Fame this past year. – Participant 1

> We are included in the athletics end of year awards banquet, where our guys get academic awards and are recognized for their accomplishments at the same time as the traditional athletes are. – Participant 4

Star

The fourth category addresses factors participants shared related to the star portion of the model including financial/economic aspects, marketing, and gender/race/culture issues.

Financial/Economic Aspects

Participants recounted the task of fundraising and how their programs' financial standing impacted their overall processes. Four participants reported fundraising as mandatory or vital for their program to flourish or even exist. "We have to raise about $15,000 a year to maintain a schedule that is competitive" (Participant 1). Another participant offered additional insight about the challenges of raising money for their program:

> … We do a lot of grant writing; we work with the development office on grant writing. Even though they tell us they're trying to get the big donors, …. We [sometimes lose them] to another part of the university…. So, yeah you know, it's a struggle every day to make sure that we have the funding as much as we can to treat our athletes like intercollegiate athletes. – Participant 4

Of these four participants, fundraising to purchase equipment and supplies was indicated in addition to fundraising to travel to competitions. The other three participants recounted fundraising as a less vital task, but something they did to upgrade the program's equipment or manage their respective universities' perspectives of their programs:

> We, by no means, have a lavish budget [from the athletic department, but] obviously, we have to work hard to fundraise to meet our budget, otherwise [the university] is gonna look at us and say "hey, you're costing us money" and stuff like that. – Participant 5

In addition to fundraising, participants reported ways in which their programs were impacted by financial pressures. Some programs conveyed some degree of contentment with their finances, while others shared operating with frugality due to the uncertainty of the future of their finances:

> So, our like travel funds, I'm very frugal. We plan ahead… We're very conscious of how we spend our money because we know that at any moment, you know, whatever could happen to those funds, you know, and then that's not there. – Participant 2

Marketing

Regarding marketing, participants reported managing websites, social media accounts, and interacting with traditional media outlets to communicate and promote their program happenings, even though for some, this is not their area of expertise. "Unfortunately, I do the social media posts, which I'm not too good at" (Participant 6). Another participant stated: "… I use [community outreach events] as part of our social media, and I use it as part of our message to the university on the value of our program as a community resource" (Participant 4).

Some participants described receiving external assistance with marketing from their housing locations, while others stated it was a task they managed internally. Another way participants reported interacting with the public was through outreach events such as speaking engagements and sport demos at local schools: "Within the community we've done a number of outreach stuff with schools in the area. Specifically, my kids' schools, going in and doing a wheelchair basketball demo at their schools" (Participant 6).

Gender/Race/Culture Issues

In the sub-category gender/race/culture issues, participants commonly spoke to their experience in working with student-athletes with disabilities and how those experiences can differ from student-athletes without disabilities. Four participants conveyed how their student-athletes' disabilities may affect aspects of their experience. Participants stated this could lead to providing individualized supports for student-athletes, assisting student-athletes in accessing academic accommodations, or maintaining professional relationships with on-campus resources, like the following: "In adaptive sports there's a lot of learning disabilities, so that's a lot of IEPs [Individualized Education Plans] and stuff like that as well. So, our disability resources here on campus, obviously that office and myself work closely together" (Participant 5).

Outputs

The primary output identified by participants was that of the existence of varsity-type intercollegiate athletics teams (as opposed to recreational or club sports) for students-athletes with disabilities on campus. Six participants said they had programs that compete in the NWBA collegiate wheelchair basketball division, with three participants doing so in a unique way to help facilitate growth and sustainability of smaller or newer programs: "So, right now we've got a co-ed wheelchair basketball team that participates in the men's division, the collegiate men's division of the NWBA" (Participant 6).

Men's wheelchair basketball was the most common sport reported. In addition, two programs had both women's wheelchair basketball and track and field teams. The one program without men's wheelchair basketball, which also was the most recently started program, reported only having a wheelchair tennis team. Another output that participants commonly mentioned, were events ranging from community outreach events, adaptive sport expos, and summer camps: "We started adult camps and veterans' camps and also… just an all-girls camp" (Participant 4).

Outcomes

In commenting on the outcomes that resulted from their program's outputs, participants reported increased public awareness and recognition of their adaptive intercollegiate athletics programs as a primary outcome: "But for us it's always been about building the exposure and having more people know about us who ultimately

may come to our games, follow our social media, support us during fundraising events, things along those lines" (Participant 6).

Participants also spoke to an outcome of increased public awareness regarding the skills and capabilities of people with disabilities. "And through adapted athletics and recreation, that's how [past program leaders] promoted the abilities and the possibilities of persons with disabilities" (Participant 2).

Discussion

The purpose of this study was to explore adaptive intercollegiate athletics program structures as an effort to offer detailed descriptions of existing programs. An open systems model of sport organizations (Soucie & Doherty, 1996) was used to systematically guide the study. Study findings suggest this model is applicable to understanding the structure of adaptive intercollegiate athletics programs, and these programs were complex and varied, had observable inputs, processes, and outputs, and were dependent on resources from their environments. These findings align with the broader understanding of social organizations as open systems (Miller, 1955; Parsons, 1951). This conclusion is important as, prior to this study, empirical application of open systems theory in the broad context of sport organizations did not exist. Scholars looking to systematically explore program structures, sport related or otherwise, can use this study as an example of an acceptable methodological approach to that end.

From a more practical standpoint, findings from this study offer the first in-depth description of how adaptive intercollegiate athletics programs are structured and sustained within their institutions. Little information of this nature is available in the body of knowledge (Shapiro & Pitts, 2014); thus, this study initiates much-needed work in this area that has long been called for (Fines & Block, 2021). Some insight into the broader understanding of how many programs exist (McCarty et al., 2023) and characteristics of coaches and institutions that facilitate development of these programs (Rutland et al., 2022; Whaley et al., 2023) have recently been offered. While helpful, these studies were not able to provide the necessary depth to understand how adaptive intercollegiate athletics programs exist and function within or adjacent to the traditional collegiate athletics model. Findings from our study provide this detail.

Findings from this study make it clear adaptive intercollegiate athletics program structures vary widely. To put it simply, there seems to be no one way to develop and sustain these programs. The most predominant factor that possibly contributes to the variety across program structures is the specific environment, or the location where the program is housed. Most programs were housed in an academic unit, the office of accessibility or disability resources, or within campus recreation. Because the NCAA does not sanction adaptive intercollegiate athletics, which has been discussed at length elsewhere (Fay, 2011; Larkin et al., 2014; McCarty et al., 2023), program leaders have had no choice but to align their programs with institutional partners who

are supportive of their efforts but who do not necessarily prioritize adaptive athletics. The lack of focus on athletics in these locations often resulted in inadequate allocation of resources for the adaptive athletics programs. Participants described struggles with accessing athletics facilities, purchasing equipment and supplies, having inadequate storage, and having budgets that are not comparable to traditional collegiate athletics budgets.

Some programs in our study were aligned with the traditional athletics department at their institutions, but it should be noted those institutions were smaller in size in terms of student enrollment than the other institutions. Institutional size could be a reason that housing these programs in athletics was the best approach at these institutions, but this level of detail was not explored in this study. Despite this seemingly ideal alignment, these programs still were not able to provide an equitable experience for their adaptive student-athletes. Recent work has begun to highlight the inequities in collegiate athletics opportunities for student-athletes with disabilities (Comerford, 2017; McGinniss et al., 2020; Mitsos, 2020; Watson, 2020; Whaley et al., 2023). These inequities are pervasive across all aspects of the collegiate athletics experience and are persistent despite federal legislation that supports the inclusion of student-athletes with disabilities in collegiate sports opportunities (Ashby, 2010; U.S. Department of Education, 2013). These inequities somewhat mirror the inequities female students experienced in their collegiate athletics pursuits in the Title IX era, that have likewise persisted despite federal legislation mandating equity in women's collegiate sports (Women's Sports Foundation, 2024).

Despite these challenges, program leaders have been entrepreneurial in their efforts to secure resources needed to build and sustain their programs. They described diverse funding approaches that included money from their state, their university, donors, and grants, with most relying heavily on their donors and other fundraising efforts. This diversity in funding structure mirrors traditional collegiate athletics programs (Brown, 2021), and in this sense, adaptive intercollegiate athletics programs are functioning similarly to traditional athletics programs despite most not being housed in those departments. Without full access to the development infrastructure that exists across institutions, particularly within the athletic departments, which would lead to more equitable financial support of and investment in these programs, the long-term growth and sustainability of adaptive intercollegiate athletics programs will continue to be compromised. Lack of program growth across the U.S. following the GAO's guidance for building programs in 2013 highlights this likely outcome. The existing few who have successfully developed and maintained their programs will continue to do so with shoe-string budgets, staffing, and resources in comparison, while new programs will struggle to emerge. While a major factor, finances are not the only factor contributing to the slow growth and sustainability of adaptive intercollegiate athletics programs. The lack of youth adaptive sport development pathways that provide equitable and comprehensive access to sports during the K-12 years is likely a significant contributor as well (Mitsos, 2020). This exploration was beyond the scope of this study but warrants significant attention.

Study Limitations

Only seven of the 12 universities with existing programs at the time of this study were represented. The variety of program structures evident from study findings suggests the remaining five programs likely had variation that differed from the study sample. There is potential that participants failed to provide details about their programs as the interview protocol neglected to ask questions about programs' general environments and star factors. These details could have further enhanced the understanding of each program's structure. Participants could have provided socially desirable answers to show their programs in a better light. Participants may have also misremembered happenings they were asked to report, especially as most participants were not the individuals who started the programs they were connected to. Researcher bias may have also impacted data collection and interpretation as the PI's experience in the first few interviews could have influenced probing during later interviews, resulting in the PI acquiring different details from participants.

Future Research and Implications for Practice

Further investigation into the relationship between program housing locations and resource acquisition is warranted as there is no standardized place within universities for adaptive athletics programs to be housed. Exploration into how program structures relate to program efficiency, and how programs navigate growth, stability, or decline is also needed. Lastly, while this study focused on adaptive intercollegiate athletics programs, structures of other types of adaptive sport opportunities would likely differ. It may be useful to apply the open systems model of sport organizations to other types of adaptive opportunities for college students with disabilities (Stanojevic et al., 2023; Townsend et al., 2024).

Future program leaders may utilize the perspective of study participants in determining the most feasible housing location for a prospective program, depending on existing professional relationships, the perception of the university toward the program, or alignment between the mission of the adaptive athletic program and the prospective housing location. Program leaders should also consider how each housing location may impact their access to resources, and work to develop on- and off-campus relationships to improve student-athlete supports, lessen the workload of internal professional employees, and support community needs. Lastly, regarding which sport teams new programs should develop first, one strategy is to start small. By limiting sport offerings in the beginning stages, future program leaders will need to acquire fewer human, financial, and capital inputs. Conscious growth of these inputs can then be a concerted effort over time which may allow for the addition of more sport teams.

Conclusion

The purpose of this exploratory study was to systematically explore adaptive intercollegiate athletics program structures. Findings indicate these programs are complex and dependent on relationships with their respective environments and various stakeholders. Findings contribute to foundational information about the structure and

operations of adaptive intercollegiate athletics programs. Future research is needed to better understand the complexity of these programs.

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