

# Identifying Coach and Institutional Characteristics That Facilitate the Development of NCAA Wheelchair Basketball Programs

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**Background:** Despite national and institutional policies, American colleges do not currently provide student-athletes with disabilities equal access to sports opportunities. Disabled youth who wish to pursue their academic and athletic dreams in college thus have prohibitively limited options, even with popular American sports such as basketball.

**Purpose:** The purpose of this study was to identify characteristics and factors that may facilitate the development and perpetuation of collegiate wheelchair basketball programs in the United States.

**Methods:** Five qualitative interviews were conducted with coaches and/or program administrators of established college wheelchair basketball programs. Interviews were coded and analyzed to explore common themes.

**Results:** Thematic data analysis uncovered five common themes important to the development and maintenance of these programs: a) coach characteristics, b) actions to recognize and address equity, c) boosters, d) institutional barriers, and e) network effects.

**Conclusion:** These common factors are important in the development, sustainability, and longevity of college wheelchair basketball programs and should be considered by those interested in starting similar programs.

**Keywords:** adaptive sport, collegiate sports, NCAA, wheelchair basketball

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## Introduction

Sport participation has been linked to numerous physical, emotional, and psychological benefits (Habyarimana et al., 2022; O'Donovan et al., 2010; Macera et al., 2003). For people with disabilities, access to sport at any competitive level can be difficult and limited due to a variety of physical, social, and environmental barriers. The benefits of athletic participation for people with disabilities are well documented, and include increased quality of life, reduced mood disturbances, and increased likelihood of being employed (Côté-Leclerc et al., 2017; Lundberg et al., 2011). However, more than half of individuals with a disability in the US are physically inactive (CDC, 2007). Sedentariness and physical inactivity are associated with many adverse health conditions and comorbidities including noncommunicable diseases such as Type 2 diabetes and cardiovascular disease as well as decreased mental health and social wellbeing (Lee et al., 2012). There is a higher prevalence of these health conditions in people with disabilities (Borland et al., 2020; Murphy et al., 2008; Rimmer & Rowland, 2008). Adaptive sport has the potential to make the benefits of sport more accessible to individuals with disabilities.

The US has a longstanding tradition of supporting youth disability sports, with more than 700 organizations annually serving more than 60,000 participants under the age of 18 (Cottingham et al., 2015). At the elite level, leading up to the Paralympic Games, there are also opportunities for athletes to compete: there are 11 Paralympic training sites nationally (Team USA, 2021). However, while there are many opportunities for participation at the youth and Paralympic levels, competition opportunities in between those two—at the collegiate level—are comparatively limited (Cottingham et al., 2015). Currently, there are more than 35,000 non-disabled students competing in basketball at more than

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1,000 U.S. colleges and universities (Team USA, 2021). In contrast, there are no NCAA-sanctioned adaptive sports, and only 12 men's and six women's intercollegiate wheelchair basketball (WB) programs (NWBA, n.d.). When combined with intramural programs, these programs only support a few hundred American collegiate student-athletes annually.

Colleges are expected to provide students with “an equal opportunity to participate in athletics, including intercollegiate, club, and intramural athletics” (U.S. Department of Education, 2013). However, for student-athletes with disabilities who wish to pursue their academic and athletic dreams in college, options are prohibitively limited, despite the importance of college for social development and physical wellbeing (Beacom & Golder, 2015). Physical activity for people with disabilities declines during adolescence, with the most rapid decline during the college years (Yoh et al., 2008). Providing adequate and accessible sport opportunities for college student-athletes with disabilities is therefore critical in promoting physical activity opportunities for this frequently disregarded group (Yoh et al., 2008).

The present study focuses on wheelchair basketball given the fact that it is an established adaptive sport in the US. The National Wheelchair Basketball Association has the most teams of any adaptive sport, supporting more than 200 teams and 30,000 participants at various competitive levels (NWBA, n.d.).

Previous studies have shown that certain strategies can be leveraged to successfully develop WB as an NCAA “emerging sport,” yet little is known about how adaptive sports successfully develop in collegiate settings (Larkin et al., 2014). This study explores coaches' knowledge, attitudes, and beliefs about athletes with disabilities as well as the characteristics of athletic programs and campuses, and aims to identify practical factors that may contribute to current program proliferation, while also calling attention to hindering factors that may prevent new programs from starting. As such, this study is primarily applicable to sport administrators, including athletic directors.

## Materials and Methods

Four coaches and one program director of competitive collegiate WB programs participated in structured, in-depth interviews, representing five of six programs purposefully selected from a pool of 12 collegiate WB programs. To identify these programs, a panel of three researchers with experience in international adaptive sports selected six programs to represent the overall U.S. WB landscape. Selection was based on program characteristics such as geography, college and athletic department size, and athletic conference membership.

These six institutions were purposively selected so that a range of geographies, collegiate conferences, program duration, and program resources could

be explored. The rationale for selecting specific programs follows. Program A is the only one in the NCAA Division in the National Wheelchair Basketball Association (NWBA). Program B represents a more established program in its collegiate athletic conference. Program C represents an established program in a Football Bowl Subdivision (FBS) school. Program D was chosen for geographic purposes as it is the only school with a WB program in the Northeast. Program E was chosen because it is the only Football Championship Subdivision (FCS) school, and because it is geographically on the West Coast. Program F, which did not participate, was selected because it represents an established program in another FBS conference.

An interview guide was developed by a panel of four experts, two of whom had expertise in college sports and two of whom had expertise in qualitative research methodology. Interview items explored the history and evolution of the wheelchair basketball program, barriers, and facilitators to program expansion, growth, or institutionalization as well as stakeholder and institutional characteristics and contextual factors. Members of the multidisciplinary research team, including several health professional students, participated in various training sessions focused on the qualitative research process due to variability in team members' experience with conducting and analyzing qualitative research. Team training sessions included discussions on qualitative research theories, interview guide development, qualitative interviewing techniques, primary and thematic coding, iterative analysis, team consensus building, and interpretative summation of qualitative data (Gale et al., 2013).

Interviews were conducted over Zoom, recorded, and transcribed by hand. Transcripts were coded and analyzed by the research team using an inductive, thematic analysis approach. The team identified key concepts and common themes discussed by interviewees related to the startup and implementation of WB programs within American collegiate athletic departments. Five major themes emerged and served as analytic codes used to facilitate research team consensus and narrative building. Using a consensus list of analytic codes, four team members independently coded five interview transcripts. Each transcript was coded by two team members, and discrepancies were discussed and resolved with the larger research team.

Transcripts were comprised of coding segments ranging from 20–50 per transcript ( $M = 37.4$ ) and totaling 37,964 words. Following independent coding, codes were compared between coders. Interrater agreement was calculated across coders based on the presence of each theme in the transcripts. The mean percent agreement across pairs of coders was 83% (range: 77–88%), and the mean Kappa value was moderate ( $M = 0.50$ ) on an interpretative scale where 0.0–0.2 = no/slight agreement, 0.21–0.40 = fair agreement, 0.41–0.60 = moderate agreement,

0.61–0.80 = substantial agreement, and 0.81–1.0 = almost perfect agreement between raters (Cohen, 1960). Kappa values account for the likelihood that raters agree on coding by chance. However, Cohen’s kappa may be underestimated when there are not two identical raters across content and where one coder identifies more codes in given segments than their counterpart. In order to establish interpretive consensus beyond coding agreement, commonly occurring codes were discussed by the research team in order to create and refine coding definitions as well as to collectively identify exemplar quotes representative of the major thematic codes. The research team identified more themes than could be reported in this article and prioritized themes for presentation to audiences interested in learning from the experiences of these diverse wheelchair basketball programs. Given the exploratory nature of the study and modest sample, interpretations should be regarded tentatively.

Researchers presented analyses of preliminary findings at a sports medicine conference in the fall of 2019, and audience members’ experiences and suggestions for additional exploration bolstered the face validity and credibility of the current findings. Meeting notes taken throughout the research-teaching process also provide a thorough audit trail of decisions made by the research team.

## Results

We interviewed coaches from a purposeful sampling of schools representative of the wheelchair basketball landscape in the US. Table 1 provides descriptive characteristics for programs that participated in this study.

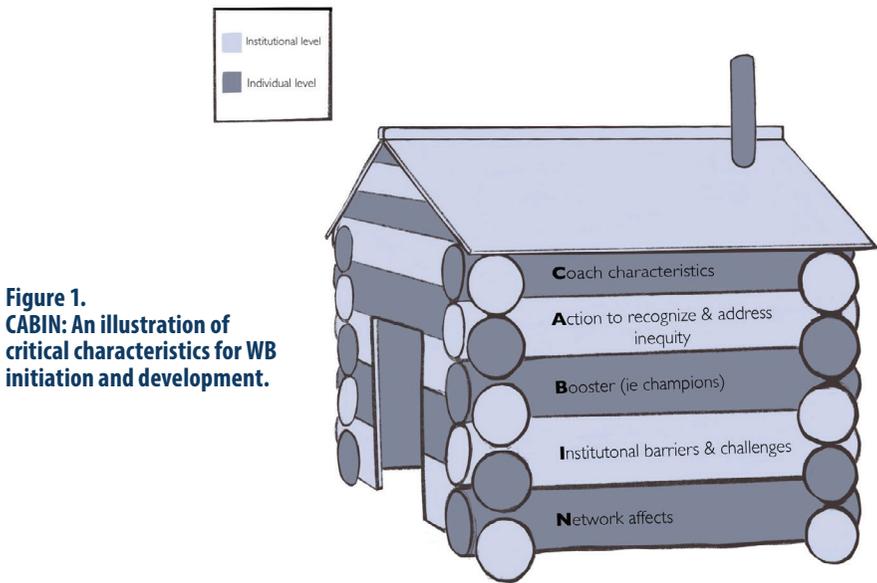
From a broader list of 13 commonly identified themes, five primary themes emerged as most important in the respondents’ discussion of their programs: a) coach characteristics, b) action to recognize and address inequity, c) program boosters (i.e., champions), d) institutional barriers and challenges, and e) network effects. Each of the themes prioritized for presentation was mentioned by all five interviewees at least once. Primary findings are presented in the form of the heuristic device CABIN (see Figure 1). CABIN is an acronym that highlights characteristics identified as critical in the initiation and development of WB programs and worthy of consideration by those interested in expanding access to such programs at the collegiate level.

### Coach Characteristics

Through interviews with coaches at established programs, common characteristics emerged. These characteristics were typically personal and attitudinal. Every coach interviewed had a personal experience of being in a wheelchair, and had a personal connection to the sport, either as longtime WB athletes themselves or

**Table 1. Programs and Researchers’ Rationale for Choosing**

Program	A	B	C	D	E
Rationale for choosing	Only Division III school; only one in the NCAA Division in the National Wheelchair Basketball Association (NWBA)	More established program	Established program and wanted a Pac-12 or Big Ten school	Only school in Northeast region	Only FCS school



**Figure 1. CABIN: An illustration of critical characteristics for WB initiation and development.**

as parents of WB athletes. Furthermore, all coaches interviewed had intimate knowledge of living with a disability. Multiple coaches described playing WB from a junior level.

I’ve been playing since I was a freshman in high school .... I’ve been coaching at Program A for 11 years and all around the world; as an athlete I was on three Paralympic teams .... So, I was on the USA basketball team for about 20 years. (Program A coach)

One coach, from Program B, explained how his son’s experience with adapted sports influenced his decision to become a coach: “Well, I’ve been at it 27 years. My son was recruited into adapted sports and grew up doing adapted sports, so I’ve seen a lot of change.”

**Table 2. Thematic Areas and Researchers' Interpretations of Each Theme**

<b>Theme</b>	<b>Meaning</b>
Coach characteristics	Coach characteristics refer to individual or behavioral features attributed to the coaches of the WB programs based on both their explicit descriptions as well as researcher interpretations of implicit roles.
Action to recognize and address equity	Action to recognize and address equity refers to coaches' acknowledgement of disparities between able-bodied athletic programs and WB programs and subsequent action to reduce these disparities.
Boosters	Boosters refer to actors who support WB programs and aid in the proliferation and sustainability of the programs. Boosters can refer to coaches, administrators, or other institutional actors.
Institutional barriers and challenges	Institutional barriers and challenges refer to non-coach characteristics that hinder program growth. These include financial, cultural, and systemic challenges within an institution.
Network effects	Network effects refer to the interpersonal connection and support among WB coaches and community members. This includes shared learnings, mentoring, and other forms of support in starting and maintaining WB programs.

All coaches described personal reasons behind their decision to become WB coaches. For most coaches, their decision was the result of a passion for the sport. A coach from Program C stated that, "Once I started coming here to school and doing some education classes, I was like honestly I want to teach basketball, that's the one thing I really enjoy doing."

All coaches interviewed demonstrated an interest and involvement in campus athletics and culture, and in shaping a positive university experience for their athletes both within and outside of sport. One coach, who had previously played WB at the same school, described that his previous experience as a student-athlete influenced his efforts to cultivate a similar positive experience for his players.

[T]his is my sixth year coaching the men and it's been really exciting to be able to share the experiences that I had as a student athlete here, good and bad, and be able to develop an atmosphere where these guys really feel like it's a family here... (Program C coach)

Furthermore, some coaches emphasized the role of social inclusion and raising awareness of people with disabilities and para sport. A coach from Program E stated that, "It's definitely on our radar to generate excitement and awareness among the whole student faculty and staff body around para sports and what para athletes are capable of and how exciting it is to watch them."

Beyond being coaches, our cohort saw themselves as having a mentorship role to their players, and demonstrated an interest in their personal and professional growth and development.

And they want to pursue basketball and school, but ultimately what are you doing with your life after basketball. I'm all about the guys wanting to find their dreams and their passions, and then how do we find a way of making that happen. (Program C coach)

These attitudinal characteristics of coaches seem to play a significant role in students' decisions to play at a particular school, and created an environment of trust.

It's always nice to have this group of guys talk to other people and say, 'Well, I came to [School C] because of coach and because of this.' And it's like, wow, having these guys take a big leap going to a university because they trust in me. (Program C coach)

## Action to Recognize and Address Equity

Coaches at established programs frequently acknowledged disparities between WB programs and able-bodied teams at their universities in terms of program classification, budget, and access to resources including facilities and transportation. In response, coaches often undertook initiatives to combat these inequities and improve the overall experience for their athletes.

Only one program in our cohort was considered part of the school's athletic department. Other coaches described the complicated nature of not being fully supported by the AD.

Currently, our adaptive sports program is not a part of athletics, but it's also not fully separate from athletics. Our athletes receive athletic letters and we do get some support when it comes to event planning or anything like that where athletics may feel comfortable. So with that being said, we don't have access to large stadiums when we have our events, we have ours down at the recreation centers. (Program C coach)

Multiple coaches discussed funding disparities between their teams and the able-bodied equivalent at their schools.

Well, I think [the traditional and adapted athletics programs] are actually separate but unequal. If you look at university budgets for athletics programs ... our men's basketball budget is about \$1.7 million and our men's wheelchair basketball budget is about \$245,000. And that includes \$150,000 for scholarships. (Program B coach)

In response to these inequities, several coaches described undertaking independent fundraising efforts to support their players and programs.

I started raising that about, almost 20 years ago. We've had a couple donors who have endowed some smaller scholarships. So we have, as far

as athletic aid, about \$5,000 total for wheelchair basketball. But, again, I've done most of the fundraising on that. We only receive one actual scholarship from the athletic department that I didn't raise any money for. (Program D coach)

Another coach described the result of a previous coach's dedication to ensuring that the campus was accessible for players.

The guy who created our program ... made a major push on our campus and started having accessibility rules in place and he was definitely a hard-working guy. He would go out and put a ramp on a building and the administrators at that time would say that the ramp was ugly and rip it down and at night he'd go out there and build it again until they just gave up, and that's how a lot of our buildings became accessible. (Program C coach)

## Boosters

Throughout our conversations with coaches, it became clear that established WB programs require “boosters” or “champions” invested in the success of the program. These champions are frequently coaches but can also be administrators. One coach described the importance of strong leadership in creating a successful program, especially in the context of limited resources and funding.

One [factor affecting the success of programs] is leadership—it takes a strong leader to come in and fight for funding, fight for space, fight for gym time. So it takes somebody who really understands, not just coaching, that's part of it, but also how to find your place on campus. (Program B coach)

Persistent programs also require champions at the institutional level, including within the athletic department and administration.

The university itself looks at us as a varsity sport. We had three scholar-athletes last month that were recognized with every other varsity athlete .... We take the same type of busses that everyone else does, except ours has a lift on it ... Everything we do is identical to every other sport ... We're housed under Athletics. So we have more opportunities, especially in terms of transportation and a complete budget and a full-time head coach, that other club sports wouldn't have. (Program D coach)

Several programs boasted champions at multiple levels—for example, coach, alumni/donor, local expert, and/or institution leadership—demonstrating the important and potentially multiplicative impact of program champions.

## Institutional Barriers and Challenges

WB coaches and champions face myriad challenges in developing and maintaining their programs. Challenges discussed by coaches include sustainable fundraising and logistics, including travel complexities and costs, dedicated resources (staff, facilities, scholarships), and institutional differences or limitations in support. Nearly all coaches interviewed discussed fundraising as a major challenge they face.

Everyone is trying to fundraise and trying to come up with money, and even on our campus, every team is trying to raise money to keep themselves going. We're competing against everyone else for the ability to raise that money, so on a year-to-year basis, the challenge is definitely fundraising. (Program A coach)

One coach explained the difficulty in securing adequate funds within his institution. A coach from Program B stated, "So when it comes down to competition for funds, then that's where the inclusion part of the formula ends as far as athletics."

Many coaches also discussed difficulties unique to adapted sports, including the logistics, time, and effort required for team travel.

Well, if we get everybody off [the bus], just to get everybody off is going to take 15-20 minutes. And then another 15-20 to get them back on. Because we have to take the chairs for the guys who are in chairs permanently and put them underneath the bus ... So, it's a 10-hour bus ride, but you add in with stops, and then, you know, if a player isn't capable of using the bathroom on the bus, they're automatically getting off the bus no matter what we decide to do. (Program D coach)

Many coaches described the lack of dedicated resources, including staff, facilities, and scholarships within their institutions. A coach from Program B stated, "This year, we did have access to the athletic training facilities that our athletes use, which is pretty much a first." In addition to the financial and logistical challenges faced by coaches at their universities, coaches also face resistance from broader institutional bodies, namely the NCAA, in terms of recognizing wheelchair basketball as a varsity sport. While coaches recognize pros and cons of including WB basketball as an NCAA sport, some coaches recognized that this classification could facilitate the development of new programs as well as ease some of the financial burden on coaches. A coach from Program D specifically mentioned the NCAA's unwillingness to recognize WB as a varsity sport, citing a lack of teams.

## Network Effects

Coaches acknowledged the difficulty in starting new WB programs. The relatively small community of WB enables an environment in which most coaches are

acquainted; it encourages shared learnings and support in maintaining current WB programs and starting new ones. Furthermore, most coaches are former WB players themselves or previously worked or trained with a different WB team.

There was a former women's athlete from our program and her husband that were interested in starting a program, and as soon as he came into place they came to him and said, 'We know you're experienced with wheelchair basketball ... we'd like to start [a program] here' and he said, 'Absolutely let's make it happen ....' (Program C coach)

Newer programs have typically been started by alumni of older programs. This suggests that network effects contribute to the development and sustainability of WB programs.

Our[s] ... is a recent program, they just started a program in the last five or six years, and that was an individual that did schooling at [a university] that had a program. He went to [another university] for his doctorate and decided, while I'm doing my doctorate, I'm just going to provide an opportunity for people to be able to play wheelchair basketball recreationally. (Program C coach)

## Discussion

Through discussions with five WB representatives, several consistent themes emerged as potentially important in supporting and starting future WB programs. CABIN describes critical factors for initiating and maintaining a WB program within the collegiate arena based on the reported experiences of WB coaches and/or champions.

The WB coaches in our cohort are typically the driving force behind their programs. They demonstrated leadership, commitment, and passion that extend beyond coaching knowledge and are willing to advocate on behalf of their program. The strong personal experience with WB, combined with their long-term commitment to the sport, suggests that these qualities may lead to persistent programs.

Despite their strong commitment and individual action, coaches recognized myriad challenges and barriers in supporting their programs and players that are consistent with previous research on sport participation for people with disabilities: finances, access to facilities, transportation, and broader institutional support within the athletic department and from the NCAA (Diaz et al., 2019; Shields & Synnot, 2016).

The interviews exposed a gap between these institutional barriers and the attitudes and commitment of individual coaches and program champions. Study participants met these institutional barriers with strategies to support their teams

and players, including organizing fundraising events and promoting campus and community advocacy initiatives. While reducing barriers could promote access to WB programs, increased institutional support alone is not sufficient to create sustainable programs. Coach characteristics, campus environment, and synergistic network effects may contribute to new program development, but more research is needed to better understand the facilitators of long-term program engagement.

Similar to other models of sport development, these findings highlighted the importance of individual coach characteristics as well as broader community and network effects to lead to successful sport development. The qualities of individual coaches and boosters outlined by the CABIN model are similar to the “change agents” discussed by Sherry et al. (2016) who serve as a bridge between sport stakeholders, such as players and coaches, and community organizations. The CABIN model identifies specific individual characteristics of change agents that make sport development possible (Sherry et al., 2016).

Other relevant frameworks include *development of sport* (aimed at improving sport-related skills of individual athletes; primary focus is largely on skill and performance outcomes) and *sport for development* (improvement of sport and other skills achieved through sport participation; focuses on how we use sport to develop individuals, groups, communities, and society as a whole). WB and adaptive sport, more broadly, sit nicely at the intersection of these two frameworks in allowing athletes the chance to compete at all levels and also improving athletes’ lives, and the lives of those around them (Sherry et al., 2016).

Prior research has explored barriers to athletic involvement among people with disabilities (Diaz et al., 2019; Shields & Synnot, 2016). Conversely, this study specifically explored facilitators to program creation and growth. A dearth of research concerning the facilitators of starting collegiate adaptive sports programs remains. There is also a lack of qualitative research studies addressing adaptive athletics at the collegiate level, as most studies focus on youth athletics. Further qualitative studies investigating facilitators to college adaptive sports programs would advance research understandings and possibly support increased access to athletics for young adults living with disabilities.

## Limitations and Conclusions

Prior to this study, there was very little published qualitative research examining facilitators of collegiate adaptive sports programs. This study thus contributes to the adaptive sports literature in a unique way, and gives sports leaders such as athletic directors a chance to consider new factors when developing collegiate WB programs. However, limitations of the study include the small sample size. Having interviewed so few WB coaches may limit the range of understandings

drawn from the data. However, given the small total number of collegiate WB programs, this sample size represents a significant portion of WB programs. Furthermore, this study focused solely on WB; the findings may or may not be relevant to other adaptive sports programs with varying structures, membership statistics, and cultures.

The CABIN model describes critical factors for initiating and maintaining a college-level WB program based on the reported experiences of WB coaches and/or champions, and was also designed to be a simple heuristic tool to help future sports leaders think about necessary support for a viable WB program. Future research should build on the identified facilitators of WB program development to expand access to adaptive sports for American college student-athletes.

## Call to Action

While sport industry practitioners, specifically collegiate athletic and campus recreation leaders, should consider this study's findings when developing WB programs, it is also important to acknowledge the steep power imbalances between player-facing employees at individual schools, who are invested in the success of the student-athletes but juggle demanding daily schedules (i.e., coaches, administrators), and national-level sports governing bodies (i.e., NCAA). Due to the enormous heterogeneity in the social and sports culture at American colleges, individual coaches and affiliate supporters of WB programs cannot—and should not be expected to—turn the tide on their own. Self-perpetuating disparities between non-disabled basketball and WB programs cannot be overcome from the bottom of the power structure. Self-identified champions for collegiate WB programs must courageously step forward from among the most powerful groups in American college sports. If leaders were to explicitly prioritize WB and offer persistent and tangible support to WB, including systems-level budgetary allocations, then year-over-year growth can be expected in American collegiate WB. The growth of college WB will diversify and expand the culture, climate, and participants in American basketball, which will allow American basketball (inclusively defined) to better reflect the diversity of America itself.

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