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# Students' perspectives on wheelchair basketball in mainstream and special schools

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Very little research has been done on students' perspectives on sports courses in special schools. The state of knowledge about students' perspectives on concrete teaching concepts in inclusive physical education (PE) at mainstream schools is almost as incomplete. The present study was designed to address these two desiderata. For this purpose, a teaching concept was developed that was implemented in the PE lesson of one class in a mainstream school and in two sports courses in two special schools. Following this, guided interviews were conducted with 19 students: four boys and four girls from the mainstream school and 10 boys and one girl from the special school. The interviews were analyzed using grounded theory coding techniques. The students' views differed strongly between the different school types. The students in the mainstream school expressed themselves very positively about the content of wheelchair basketball, but they saw sitting in a wheelchair as a very deficient activity. The students at the special school did not express the same opinion. However, it became clear that the special school was a microcosm that provided a sanctuary for the students. Leaving this comfort zone, for example, to join a wheelchair basketball club, could be very difficult for them. Mainstream school students, however, found learning opportunities in this context: They discovered a new perspective, namely, that of a person with disabilities, even if only for a very short time.

## KEYWORDS

physical education (PE), grounded theory, disability sports, special needs education, teaching concept, inclusion, inclusive sports

## Introduction

Very little research has been done on students' perspectives on sports courses in special schools (Fediuk and Knoll, 2015; Brand et al., 2016; Giese and Schoo, 2022). The state of knowledge about students' perspectives on concrete teaching concepts in inclusive physical education (PE) at mainstream schools is almost as incomplete (Goodwin and Watkinson, 2000; Ruscitti et al., 2017; Giese and Schoo, 2022). In both teaching contexts, it is very important to consider student perspectives. These internal

views are otherwise often marginalized. But only with the help of these subjective experiences can fault lines of inclusion in the context of PE teaching (Giese and Schoo, 2022) be identified and corresponding teaching concepts evaluated in a participant-oriented way. This type of research is very important because teaching concepts are often developed exclusively from the perspective of the teachers. To remedy this situation, a teaching concept for wheelchair basketball in both mainstream schools and special schools was developed, implemented, and evaluated. Wheelchair basketball as content seems to make sense, since wheelchair basketball is one of the most popular sports games in disability sports, and people with and without disabilities can play it together. In this game, runners also sit in wheelchairs. However, mainstream schools usually do not have enough or possibly any sports wheelchairs. In addition, PE teachers at mainstream schools usually lack knowledge about how wheelchair basketball should be taught. Special schools, on the other hand, have appropriate sports wheelchairs. In addition, the PE teachers are often very competent in teaching wheelchair basketball. However, there is little literature on PE in special schools. Therefore, wheelchair basketball is not included in PE lessons at mainstream schools in Germany (which are inclusive by law), while it is often played in school sports at special schools. However, concepts for both contexts have not yet been scientifically evaluated.

The aim on one hand was to consider the inclusive PE lessons at mainstream schools, where playing wheelchair basketball was a new experience. On the other hand, the special circumstances and conditions of special schools in Germany also needed to be considered. Because wheelchair basketball is very present at these schools, the experiences of the students there were also of interest.

## Inclusion in physical education in Germany

The Convention on the Rights of Persons with Disabilities (United Nations, 2006), which Germany ratified in 2009, stipulates that all parents of children and young people with disabilities in Germany can claim the right to be educated at a mainstream school. This inevitably leads to joint education and joint PE for children and young people with and without disabilities. Studies show that children with disabilities in inclusive classes, in contrast to their non-disabled peers, have fewer friendships, are less accepted, and are more likely to be exposed to bullying (Pijl and Frostad, 2010; Bossaert et al., 2013; Kulawiak and Wilbert, 2015; González Contreras et al., 2021). Based on these general findings regarding teaching, the potential of PE classes can also be critically questioned, which some studies also suggest (Fitzgerald and Stride, 2012). Some studies could partially show positive effects of joint PE of students with

and without disabilities (Atkinson and Black, 2006; Coates and Vickerman, 2010).

As already mentioned, Teachers are required to implement and design inclusive PE lessons with the students. To this end, Tiemann (2013) elaborated the 6 + 1 model of adaptive PE. This overarching, general concept focuses on the teachers' attitudes, highlighting important components that need to be adapted in an inclusive PE lesson, for instance, the material used. Concrete ideas for designing inclusive PE lessons can often be found in practical journals or other handouts from teachers' associations. However, these have generally not been scientifically evaluated.

There have been few empirical studies on the concrete design of inclusive PE in Germany. Teachers tend to believe that PE lessons offer better opportunities for the implementation of inclusion than other subjects do, and they tend to have open and positive attitudes toward inclusive PE (Rischke et al., 2017). However, much research has shown that teachers generally do not feel well trained to teach PE to students with and without disabilities together and thus feel overwhelmed. These teachers feel that they have little or no specific knowledge about students with disabilities. They also believe that they have little knowledge about the content and methods of inclusive PE (Block and Obrusnikova, 2007; Qi and Ha, 2012; Reuker et al., 2016). These research findings are consistent with research findings on general inclusive education (Ruberg and Porsch, 2017; Pérez-Jorge et al., 2021). Very little research has been done on students' perspectives on inclusive PE (Goodwin and Watkinson, 2000; Ruscitti et al., 2017). Ruin and Meier (2018) were able to show that issues that are relevant for teachers in these settings often tend to be less important to students (e.g., grading and comparability of performance of students with and without disabilities).

## School sports in special schools in Germany

In Germany, there is still a very differentiated and specialized system of special schools for various disabilities. At these schools, students with disabilities are often taught in small and very heterogeneous learning groups. The pedagogical staff (teachers and therapists) are appropriately trained for the specific disabilities. Particularly at special schools for children and youth with physical disabilities, sports and exercise play a central role. However, school sports at special schools has received little attention from German-language sports pedagogy (Knoll and Fediuk, 2012; Prohl, 2013). In addition to the lack of a theoretical foundation, the very small amount of research that has been done has produced insufficient empirical findings (Fediuk and Knoll, 2015; Brand et al., 2016). In this context, special schools have an important information and education function for children and youth with disabilities regarding extracurricular sports

activities (Kultusministerkonferenz and Deutscher Olympischer Sportbund, 2008; Fediuk and Knoll, 2015). Children and youth with disabilities have been significantly less likely to be members of sports clubs in Germany. Cooperation between special schools and sports clubs has tended to be characterized by considerable problems (Fessler, 2000). For example, clubs very rarely have specific offers for children and youth with disabilities (Radtke, 2018), so there tends to be hardly any choice at these clubs for students from special schools. As a result, attending such a sports program could require special needs students to travel long distances, which is often not feasible.

## Wheelchair basketball in school sports

Because wheelchair basketball is a popular sports game in disability sports, it is often played in special schools. Sports courses where interested students from different classes come together are often provided. Sports games *per se* have a selective and competitive character that also exists in school sports. Therefore, sports games are very difficult to implement in heterogeneous learning groups (Weichert, 2003). Wheelchair basketball, however, is special in that runners can also sit in wheelchairs and play together with wheelchair users, thus offering the possibility of implementing its inclusion in PE lessons at mainstream schools that are inclusive. There has not yet, however, been any significant implementation at these schools.

Because it is therefore very important to develop specific teaching concepts and ideas for the implementation of wheelchair basketball in inclusive or very heterogeneous settings, this study's aim is to investigate how students experience and interpret the sports game of wheelchair basketball in different types of schools.

## Method

### Intervention and participants

A team of scientists, PE teachers, and coaches from the German Wheelchair Sports Association developed a teaching concept that can be implemented in both mainstream schools (Kowalewski et al., 2020) and special schools (Böhring et al., 2021). The aim was that all exercises and formats of the game should offer opportunities for runners and wheelchair users to play and practice together.

The concept was developed assuming that there would be few wheelchairs available, especially in mainstream schools, and that runners would sit in wheelchairs for a limited time during the lessons. Similarly, it was assumed that the runners would also spend a limited amount of time in the lessons playing and

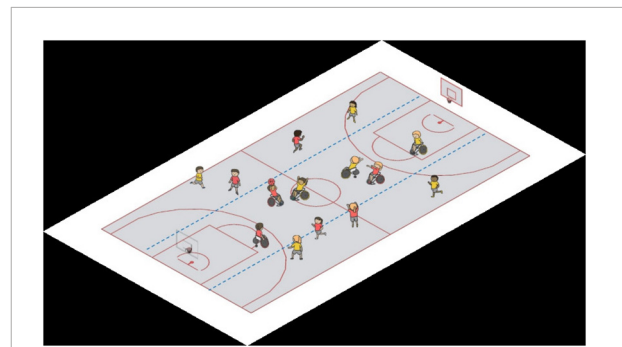


FIGURE 1  
Zones wheelchair basketball.

practicing as runners. The concept spanned six lessons of 45 min each and was designed for youth aged 13–16.

The concept was implemented in three learning groups: first in two sports courses at special schools and second in a mixed-age class at a mainstream school. The regular school class consisted of 24 children (11 boys and 13 girls), all between 14 and 16 years old. At the special schools, one sports course was implemented in a class for 10 students (8 boys and 2 girls) with physical and motor disabilities and the other in a class with 14 students (11 boys and 3 girls), all between 13 and 16 years old.

### Example: Zones wheelchair basketball

The basketball court is divided lengthwise into three zones (see Figure 1). Two teams play against each other. In the middle are the wheelchair users, on the outside are the runners. The players are not allowed to leave the zones. Depending on the skill level of the learning group, what counts as a basket success can be varied, such as a rebound after hitting the board or a score after hitting the board, basket ring, or basket. Changing zones within a team occurs after a set number of points or time is reached.

### Data collection and analysis

To answer the research question, a qualitative research design with an exploratory character was developed. Data collection and analysis followed the grounded theory methodology (GTM; Corbin and Strauss, 2008), which was particularly appropriate because the subjective perspectives of the youth were the focus of the research interest. This methodology was followed because of the lack of scientific evidence available on wheelchair basketball in schools.

Following the implementation of the teaching concept, guided interviews were conducted with different youths from the learning groups. Participation in the interviews was

voluntary for the students. Not all students wanted to give an interview. For some students there was no declaration of consent from the parents, these were also not interviewed. From the mainstream school class, four boys and four girls were interviewed. From the sports classes of the special schools, 10 boys and one girl were interviewed. Of them, four boys and one girl were dependent on wheelchair use in everyday life. All other young people interviewed did not need a wheelchair in everyday life. The interviews lasted between 7 and 39 min. Interviews were conducted by four researchers. All of them were experienced in interviewing adolescents and adolescents with disabilities. The interview guidelines were developed and prepared in advance by the researchers. The students were informed that the interview data would be anonymized afterward. The interview guide began with an open narrative about the previous PE class. In addition, youth were asked to compare the wheelchair basketball lessons to their other PE lessons. For this purpose, the runners were asked how they felt about playing in a wheelchair, and the wheelchair users were interviewed about how they felt about the situation when other youths sat down in wheelchairs to play with them.

The interviews were then transcribed by using F4 software. After this, the data were open and axial coded using GTM with help of the MAXQDA data analysis program. The data were coded collaboratively by the researchers and the results discussed. This circular process in terms of GTM had not been completed at the time of publication. The phenomena and patterns of action presented in the following section “Results” will be further differentiated in a second data collection through further axial coding, selectively coding where appropriate. The first goal was to develop a category system that will be further differentiated and concretized. Whether the final step of selective coding will be possible and necessary cannot be conclusively answered at this stage of the study.

## Results

During the reconstruction of the students’ views on the described lessons, different phenomenon areas became visible that are described in the following. At this stage of the investigation, the phenomena had not yet been finally described as categories. Therefore, the naming of the listed phenomenon areas was done in a different way, for example, as *in vivo* codes or as descriptive labels.

### Ambivalent views on wheelchair use and wheelchair basketball

Many of the youth reported a more deficit-oriented view of wheelchair action and the game of wheelchair basketball.

This attitude was especially apparent in the mainstream school students:

*And through that I felt comfortable pretty quickly and also knew how to do what, um, and otherwise you have to say, I don’t know, wheelchair sports is already something else, because you move differently, you also have less opportunity to move and through that you also have to play more tactically, because the moves are not so you run there really fast to the left or really fast to the right, but you just have to think about where are you going now, because you can’t jump over someone else (Student 2, pos. 88).*

Although the student reports that he quickly felt good in the wheelchair basketball situation, he finds many negative terms for the situation. From his point of view, there are fewer possibilities for movement since one is sitting in a wheelchair. Because of this, one cannot move as quickly to the right or left, cannot jump, and must move “differently.” Here it becomes clear that his sense of normality is violated. Wheelchair basketball does not seem to be normal for him, which comes across rather negatively.

It is interesting that students from special schools often saw this differently:

*So, when rolling it was first of all, it was just really cool that you can sit, and at the same time still move around, so to speak, and also wheel so fast, and then so around the curves and so, that was simply a cool feeling (Student 16, pos. 91).*

This student describes many positive emotions while using the wheelchair. It is noticeable that he is happy that he was allowed to move while sitting down, which seems very open-minded and positive about this kind of locomotion. This may be because the student, who is not dependent on a wheelchair in everyday life, is familiar with other students in wheelchairs every day at school.

### Gaining a better understanding of a wheelchair user

Many youths who were not dependent on wheelchairs in everyday life reported that they could now put themselves in the shoes of wheelchair users after their experiences in the wheelchair, or that they could better understand the life situations of wheelchair users. This was also evident in the following example of a student from a mainstream school:

*Yes, everyday things are simply made more difficult in many situations, such as using public transport, stairs at home, for example. So actually, such simple things, which then quickly become obstacles and which are then also partly bypassed*

*with long distances. Because there is no other way. It's quite difficult for wheelchair users to find the perfect route. How do I get there? And what, where do I have to change trains or the like. And you're also often dependent on the help of others when you're in a wheelchair, for example, when you're in the supermarket and want something from a higher shelf, unfortunately you can't get to it. So you have to ask either employees or passers-by. [...] So I know in any case that I can understand how they feel in the wheelchair a bit, [...] so how you think, how you roll, you do not just roll on it and look first where I roll now long, if I see, for example, the platform is full, then I do not roll through there and ask if I can go through, but look first on the left is there something free (Student 7, pos. 35–37).*

The student notes that as a wheelchair user, one is disadvantaged in many situations in everyday life and is dependent on outside help. Here too a deficit view becomes clear. The student seems to feel that the relatively short time in the wheelchair during the PE lessons is already sufficient for him to be able to gain a better understanding of wheelchair users who are always in wheelchairs, even though the student did not experience any everyday situations in the wheelchair, rather only wheelchair basketball in PE lessons. So, while it is obvious that the experience of being in a wheelchair must have been very intense, it seems that the student has a very deficient view of life in a wheelchair in general, which is reinforced rather than changed by the experience.

## Wheelchair basketball is less strenuous

In the interviews, the youths made many comparisons between wheelchair basketball and other sports they play and their other PE lessons. Here it is also noticeable that the youths had already evaluated wheelchair basketball positively but view it as correspondingly deficient. This is also shown by the following example:

*It was once in any case something else, normally PE lessons were pretty exhausting, because you were just very, very tired afterward. With the wheelchair it wasn't like that, because you don't move completely in your body, and halfway only your arms, but it was definitely something different, I thought it was very good. [...] It was in any case not as strenuous as the normal PE lessons, but it was still fun. With me the value was now more on having fun than on doing the right sport, because I now also do not have the thickest arms but, new forms of movement ultimately, you do not have to run yourself, also (Student 5, pos. 56–58).*

This youth from the mainstream class encounters wheelchair sports for the first time and finds this type of

sport less physically challenging. He compares this to regular PE classes. While he feels it was “fun,” he makes it clear that wheelchair basketball is not “doing the right sport” for him. Wheelchair basketball is not normal for him; his understanding of normalcy in PE or sports in general seems to be something other.

## Barriers to joining a wheelchair basketball club

For the students at the special school, joining a wheelchair basketball club seemed to involve various barriers. This is shown in the following:

*Interviewer: Can you imagine playing wheelchair basketball in a club?*

*Student: Yes, uh, preferably near me, but otherwise, yes, I would dare to do it and I would also like everyone to be friendly to me; yes. And treat me well (Student 1, pos. 97–98).*

The student describes his need for a club to be nearby, which may be due to his lack of mobility, meaning lack of access to a car or public transit. In addition, it is important to him that potential teammates deal with him in a friendly manner, which may imply that he has already had negative experiences in similar contexts.

## Discussion

The results show interesting aspects that are particular to the situation of the special school students. Joining a club seems to be difficult to realize for them, which confirms the results of Fessler (2000). The results also suggest that the special school represents a microcosm (Knoll and Fediuk, 2012), where students are more likely to have positive thoughts about wheelchair use and less likely to express views similar to those heard from some mainstream school students that wheelchair basketball is deficient. However, the mainstream school students also had many positive impressions from playing wheelchair basketball. They seemed to be very open to inclusive content, which may be a good way of implementing inclusion in PE lessons. Also, the students (from their point of view) being able to gain a better understanding of wheelchair users seems to be at least an interesting approach, even if it needs to be more differentiated and analyzed, for instance, regarding everyday situations.

The results suggest that wheelchair basketball as PE content, if appropriately staged, offers educational possibilities due to its

special form. Playing in a wheelchair can offer a joint sporting activity that even enables equal opportunity competition. The question remains, however, whether it will also offer appropriate learning opportunities beyond sports, for example, regarding acceptance and tolerance (Goodwin and Watkinson, 2000; Ruscitti et al., 2017). Further developments, investigations, and discussions are needed.

## Future directions

Since the study is designed in accordance with the GTM research paradigm, a second data collection will take place soon. In this context, the teaching concept will be implemented in two further mainstream school classes and in two sports courses at special schools. Interviews are then also conducted with the students involved in this new intervention. The interview guidelines are reflected on by the researchers beforehand and adjusted selectively if necessary. When selecting the learning groups, care is taken to ensure that they are equivalent classes or sports courses as in the first intervention (e.g., age of the students, structure of the learning groups).

The phenomena presented in this paper have not yet been conclusively classified into distinct categories, nor are there various overlaps. Thus, the results cannot yet be considered valid. Therefore, a second data collection is necessary. Following this data collection, all data will be further analyzed. It will be interesting to see if the second data collection confirms the previous findings and if so what other phenomena can be identified. The new data will be open coded, then the data from all data collections will be axially coded, with the goal of being able to form a final category system after this step. Likewise, it will then be decided whether the process of selective coding is possible and necessary.

## Data availability statement

The datasets presented in this article are not readily available because we have assured the students' parents that the data will not be shared. Requests to access the datasets should be directed to SG, [steffen.greve@leuphana.de](mailto:steffen.greve@leuphana.de).

## Ethics statement

The studies involving human participants were reviewed and approved by the Leuphana Universität Lüneburg,

Ethik Kommission. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

## Author contributions

SG and JS contributed to conception and design of the study. SG organized the database and wrote the first draft of the manuscript. Both authors contributed to manuscript revision, read, and approved the submitted version.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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