

Employment Situation and Career Preferences of Persons Who Use Augmentative and Alternative Communication (AAC) in Germany

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Abstract

Purpose: Little is known about employment situations as well as career preferences and aspirations of people who use Augmentative and Alternative Communication (AAC), especially from the perspective of these individuals themselves. The purpose of this study was therefore to explore 1) employment situations of the persons who use AAC; 2) their satisfaction with the employment situation; and 3) their career preferences. **Methods:** An online questionnaire was developed for the purpose of this study. Twenty-one persons, aged 16 to 65, participated in this study. **Results:** Ten participants (47.6%) were employed in disability specific workshops, five (23.8%) attended adult day centres for people with disabilities, two (9.5%) were unemployed, two (9.5%) were students, and two (9.5%) did not specify their employment status. Nine participants (42.9%) were satisfied with their current employment situation to some extent, while another nine were not satisfied (42.9%). Out of 21 participants, 15 (71.4%) desired a change of their situation, of which nine (42.9%) aspired to employment in the general labour market. **Conclusions:** Future research is needed to address specific barriers and facilitators related to accessing meaningful employment for individuals who rely on AAC and accommodations needed to support such employment.

Keywords

Participation, Employment, Augmentative and Alternative Communication, Job Preferences, Career Aspirations

1. Introduction

Work and employment are of great importance to adults for a variety of reasons,

including their economic independence, identity, quality of life, and meaningful contribution to society (WHO, 2001). Typically, young people who leave secondary school enter employment and/or participate in post-secondary education. Unemployment, on the other hand, is not valued by a majority of the population and is seen as undesirable in contrast to well-paid employment (including self-employment) (University College London, 2018; Albert, Hurrelmann, Quenzel, and TNS Infratest, 2015). Unequal opportunities in the labor market are a recurring theme in the research literature (e.g. Gadi, 2022). The employment rate of people with disabilities continues to be significantly lower than that of people without disabilities; for example, the statistics indicate 19.1% vs. 65.9% in the United States in 2018 (US-BLS Bureau of Labour Statistics and US Department of Labor, 2019), 47.3% vs. 66.9% in Europe in 2011 (Eurostat, 2015), and 43.1% vs. 78.2% in Germany in 2019 (BA—German Federal Employment Agency, 2020), respectively.

The Convention on the Rights of Persons with Disabilities of the United Nations (2006) established in article 27 “the right of persons with disabilities to work, on an equal basis with others; this includes the right to the opportunity to gain a living by work freely chosen or accepted in a labour market and work environment that is open, inclusive and accessible to persons with disabilities” (UN, 2006). Disability has been defined in the preamble as a relative phenomenon in terms of an interaction between persons with impairments and environmental barriers that hinder their full and effective participation (UN, 2006). Therefore, in this paper, we understand employment in a competitive or general labour market as inclusive and not performed in special (social) enterprises, disability specific workshops, or other institutions designated only for persons with disabilities.

“Persons with disabilities experience worse educational and labour market outcomes and are more likely to be poor than persons without disabilities” (WHO and World Bank, 2011). This is why in many countries policies and practices have been developed to support vocational participation for persons with disabilities, utilizing different concepts of employment support, such as specialized consultation in job centres, workplace adaptations, supported employment, personal job assistance, job coaching, and financial support for employers and employees, among other measures (Sayce, 2011). Lindsay and colleagues (2019) found that youth with physical disabilities aspired to a similarly broad range of career options as youth without disabilities. However, individuals with disabilities are often considered unemployable and denied employment in the general labour market, and only social enterprises and disability specific workshops remain as possible options for them to work. Although the earnings in disability specific workshops were found to be significantly lower than in the labour market (Cimera, 2017), researchers also found disability specific workshops to provide and strengthen a sense of economic security and social ties among people with disabilities (Czerwiak and Trela, 2015). In many countries, persons with disabilities receive various “developmental services” or attend “adult day pro-

grams/centres”; however, most of such services or centres do not offer an option to work (Engeland et al., 2020).

Policies and practices in Germany, like in many other countries, address vocational support for all persons with disabilities (German Social Code, 2018). However, according to Section 219 of German Social Code (2018) people who are deemed “unemployable” by representatives from public employment agencies (German Social Code, 2018), are not eligible to obtain support towards their employment in the labour market. The alternatives are special workshops for persons with intellectual, physical or mental disabilities, which are funded by the government, hereafter referred to as workshops. These workshops offer work in a range of fields such as gardening and landscaping, agriculture, packaging, and assembly (Rehadat, n.d.). The minimum wage for people working in workshops is only a fraction of the minimum wage on the labour market (German Social Code, 2018). However, the wage can be increased beyond minimum wage based on performance. Many employees in the workshops receive social welfare, so their wage only makes up a small proportion of their income. To access the workshops, however, there are certain performance-related requirements that must be fulfilled, and those people with disabilities who cannot demonstrate the expected performance levels are often directed to adult day centres (“Förder-und Betreuungsgruppen”) (German Social Code, 2018). Adult day centres may be part of a residential home and provide no work opportunities. While workshops for people with disabilities are questioned and have been abandoned in many places, like in Ontario, Canada, German policies and practices maintain them as part of the support system (BMAS—Federal Ministry of Labour and Social Affairs, 2009). Interestingly, a recent report indicates that only 8% of the persons formerly employed in disability specific workshops in Ontario managed the transition to the general labour market (Ontario Ministry of Children, Community and Social Services, personal communication, September 8, 2019).

The individuals who are often in workshops and adult day centres/programs are people with severe communication impairments, who often rely on augmentative and alternative communication (AAC). These persons may have different diagnoses or levels of functioning (e.g., little or no functional speech, motor impairment, intellectual disabilities), but they all benefit from augmentative and alternative modes, means and formats of communication, aids and/or technology, to replace or supplement their speech and support their communication and participation (e.g., with the use of communication boards or speech generating devices) (Blackstone, 1993; Bryen, Potts, and Carey, 2007; Carey et al., 2004).

A search in the databases Psyn dex, ERIC, Medline and the German Fachportal Pädagogik for studies concerning AAC in connection with work and employment revealed 17 relevant studies (Blackstone, 1993; Bryen, Potts, and Carey, 2007; Carey et al., 2004; Heller et al., 1994; Ivancevic and Orthmann Bless, 2014; McNaughton, Light, and Arnold, 2002; Light, Stoltz, and McNaughton, 1996; McNaughton and Bryen, 2002; McNaughton, Light, and Groszyk, 2001; McNaughton et al., 2006; Odom and Upthegrove, 1997; Pugh and Capilouto, 2009; Ren-

ner, 2015, 2017; Renner and Leichtle, 2015; Storey and Provost, 1996; Trembath et al., 2010). Most of them have been small (except for Blackstone, 1993), exploratory in nature, and have focused on vocational circumstances (Blackstone, 1993; Bryen, Potts, and Carey, 2007; Heller et al., 1994; McNaughton, Light, and Arnold, 2002; Light, Stoltz, and McNaughton, 1996; McNaughton, Light, and Groszyk, 2001; Odom and Upthegrove, 1997), the effect of communication skill instructions on employment (Storey and Provost, 1996), employers' attitudes (Bryen, Potts, and Carey, 2007), community-based employment (Light, Stoltz, and McNaughton, 1996), vocational experiences in volunteering (Trembath et al., 2010) and employment situation of persons with specific diagnoses, such as cerebral palsy (McNaughton, Light, and Arnold, 2002) and amyotrophic lateral sclerosis (McNaughton, Light, and Groszyk, 2001).

Majority of these studies were conducted in USA and Germany and reported an exceptionally low rate of employment (Blackstone, 1993; Ivancevic and Orthmann Bless, 2014; Light, Stoltz, and McNaughton, 1996; McNaughton and Bryen, 2002; Odom and Upthegrove, 1997; Renner and Leichtle, 2015). Only some adults who used AAC were found to be successfully employed or self-employed (McNaughton, Light, and Arnold, 2002; Light, Stoltz, and McNaughton, 1996; McNaughton et al., 2006); however, the majority of these adults were employed either in disability-related services or in a narrow range of jobs—as clerks and laborers (Light, Stoltz, and McNaughton, 1996; McNaughton and Bryen, 2002). Most of persons who had jobs reported satisfaction with their duties, immediate supervisors, coworkers, and salaries; however, many were found to be dissatisfied with their opportunities for advancement (Light, Stoltz, and McNaughton, 1996). McNaughton and Bryen (2002) in their research review concerning people who used AAC found that in general, the schools did not spend enough time preparing them for employment.

In Germany, Ivancevic and Orthmann Bless (2014), in their online survey with 33 adults using AAC, found that 36% of participants attended workshops and 33% were in adult day centres, while none of the participants had a job on the labour market. Similarly, Renner (2015) found that all 20 participants in his study had no job on the labour market. When Renner and Leichtle (2015) explored views of employers from the AAC field about hiring persons who use communication aids, they found that eight out of nine employers expressed their readiness, but only one employed a person using AAC. Furthermore, Renner (2017) conducted a study about 14 practice initiatives/programs across Germany for persons who used AAC and found that none of these programs aimed to support a person to enter the labour market.

The information concerning views of persons who use AAC regarding their career aspirations is scarce. Two studies related to this topic were carried out in North America. Pugh and Capilouto (2009) conducted a survey with 10 people who use AAC in the USA and reported that they had varied career ambitions, such as being an architect or inventor. Similarly, Carey et al. (2004) created a list

of common jobs that were aspired by 37 participants from the USA and one participant from Canada. The most frequently mentioned occupations were web designer, author, and software engineer. Persons who use AAC often need support to pursue and implement their goals. The German disability related support system for the participation of people with disabilities in working life provides for these people primarily special workshops or adult day centers. However, But to what extent do their services correspond to the aspirations and preferences of people who use AAC?

Purpose of the Present Study

Despite some emerging research, we still know little about employment situations as well as career preferences of people who use AAC, especially from the perspective of these individuals themselves. The purpose of this study was therefore to explore 1) past and current employment situations of the persons who use AAC; 2) their satisfaction with the employment situation; and 3) their career aspirations and preferences.

2. Method

2.1. Study Design

The study was aimed at adult persons who use AAC. It was cross-sectional and descriptive. Participation was voluntary and data was collected anonymously via an online questionnaire, following German ethical guidelines. The online questionnaire collected data on past and current employment situation and experiences, the satisfaction with the current employment situation, and the preferences and aspirations. Major parts of the questionnaire were quantitative, which is also more accessible for persons with disabilities. However, it provided also the option of free responses.

2.2. Participants

Those invited to complete the questionnaire needed to fulfill the following criteria: 1) reside in Germany, 2) use AAC, and 3) be 16 years or older. There is no national registry of people who use AAC in Germany. A variety of techniques were used to recruit participants, including convenience and purposive sampling. We published an invitation to participate on AAC online forums, like the public German Facebook AAC group and the German ISAAC mailing list.

Twenty-two questionnaires were returned. It is not possible to comment on the return rate, because in Germany there is no registry of individuals who use AAC. One data set of a participant was excluded from the results, because it was unclear who responded and how responses represented views of the person who used AAC (Schlosser et al., 2014). A total of 21 data sets were included. There were 12 (57.1%) females and nine (42.9%) males, ranging from 16 to 59 years old, with 16 to 29 being the most frequent age category. Twelve participants (57.1%) had congenital disabilities and nine participants (42.9%) had acquired disabili-

ties. The most commonly used forms of communication were facial expressions, body language (posture, movement and actions) (76.2%), speech-generating devices (71.4%), as well as hand gestures (71.4%), and vocalizations (52.4%). **Table 1** shows the participants' characteristics.

Table 1. Participants' characteristics.

Variable	Statistics	
	N	%
Gender		
Female	10	47.6
Male	11	52.4
Age		
16 - 29	9	42.9
30 - 49	8	38.1
50 - 59	4	19.0
Disability		
Acquired	6	28.6
Congenital	15	71.4
Education ^a		
No school-leaving diploma	15	71.4
School-leaving diploma, but not qualifying for university	4	19.0
Diploma qualifying for university admission, but no university degree	1	4.8
University degree	1	4.8
Conventional, functional literacy (reading, writing)		
Yes	4	19.0
No	17	81.0
Uses wheelchair for mobility		
Yes	18	85.7
No	3	14.3
Has an email address		
Yes	19	90.5
No	2	9.5
Who physically filled in the questionnaire?		
Me (person who uses AAC)	5	23.8
Me and my assistance	14	66.7
My assistant on my behalf	2	9.5

Note: N = 21. a. In Germany secondary education is mandatory and may or may not result in a diploma, which allows for further education.

2.3. Tools/Measures

Since there were no valid and reliable relevant tools or measures in German, the questionnaire was developed specifically for the purpose of this study by the first two authors (i.e., researcher and practitioner, both with extensive experience in AAC). The content development was guided by the research question with three key constructs of interest: experience, satisfaction, and aspirations, as based on the evidence. The questions were grouped by chronological time and concerned past employment related experience, present situation and satisfaction with it, as well as future aspirations and preferences. The final questionnaire consisted of 36 items (including 9 open ended questions), with varied response options organized into four sections: 1) sociodemographic data, 2) past and current employment situation, 3) satisfaction with the employment situation, and 4) career aspirations along with preferred work contexts.

First, the participants were asked nine questions about age group, gender, disability, education, and communication. Next, participants were asked 11 questions about their past and current employment situation, including questions concerning job applications, job interviews, work experience, and vocational training. To evaluate satisfaction with their work situation, the participants were asked to rate their agreement with the following four statements using a 5-point Likert scale (agree, mostly agree, neutral, mostly disagree, and disagree): 1) school has prepared me for work, 2) there are enough workplaces for people with disabilities, 3) I am satisfied with my current employment situation, and 4) I am satisfied with my current income. In the last section on career aspirations and preferred work conditions, there were 11 questions concerning the following: the participant's willingness to do voluntary work, their aspired employment situation(s), and finally, important characteristics of jobs in terms of tasks, colleagues, prestige, contact with others, wage, and working hours. The following additional options about volunteering were offered in the questionnaire: sports club, music club, other club, neighbourhood watch, community work, church work, animal shelter, retirement home, special care home, and crisis helpline. The participants were asked to choose as many options that applied to them and also could choose "other" and specify voluntary work not listed.

A pilot study was conducted with two adults who used AAC. The participants provided positive feedback and offered one comment and one suggestion. They indicated that it might be difficult for some students to answer work experience related questions as they might not have had any work experience up to the present day. Consequently, the "not applicable" and the "I do not know" options were added. The participants also suggested that the questions about career aspirations could be explained with key points or examples to help understand the types of possible answers. This section of the questionnaire was revised accordingly and examples were included.

2.4. Procedure

The online questionnaire was created using the SoSci Survey tool. Sample ques-

tions of the questionnaire were “which form(s) of AAC do you use?” or “where would you most like to work?” The link to the questionnaire was disseminated through experts, mailing lists, and online forums. The instructions for completing the questionnaire included the options to complete the online form independently, with assistance, or by the assistant (physically mark the answers on behalf of a person).

2.5. Data Analysis

Descriptive statistics were used to analyze the data. As per the guideline for small population research (Kelley et al., 2003) and given univariate categorical variables, researchers calculated frequencies of responses. Furthermore, as recommended for Likert-scale data, the distribution is represented by the diverging stacked bar chart (Heiberger and Robbins, 2014).

3. Results

3.1. Past and Current Employment Situation and Experiences

None of the 21 participants in this study at the time of the survey were employed in the labour market. Ten participants (47.6%) were in workshops and five (23.8%) in adult day centres. Two participants with acquired diagnoses had previously held jobs in the labour market (pre-disability). Out of all participants, 11 (52.4%) had previously applied for a job and all participants aged 30 or older (12 or 51.7%) reported no employment or work-related placements. Out of nine participants younger than 30 years of age (42.9%), one participant indicated no previous work-related activities and eight participants reported school or university job-related placements in the general labour market. These placements took place at a Catholic youth centre, a library, a consulting centre for AAC, and a bakery. The participants stated that their job tasks involved mail distribution, running AAC training courses, customer service, and drawing patterns for textiles. **Table 2** includes details on the employment situation.

3.2. Satisfaction with Employment Situation

When asked if school prepared them well for work, nine participants disagreed to some extent (42.8%) and seven participants (23.3%) agreed. When asked if there were enough workplaces for people with disabilities, none of the participants agreed and three (14.3%) disagreed and remaining 18 participants (85.7%) disagreed to some extent. Eleven participants (52.3%) were not satisfied with their current income to some extent and five (23.8%) were satisfied. Nine participants (42.9%) were satisfied with their current employment situation to some extent, while nine were not satisfied (42.9%). **Figure 1** contains details on satisfaction with the current employment situation.

3.3. Career Preferences and Aspirations

When asked if they are in their desired job, 15 (71.4%) participants disagreed,

Table 2. Past and current employment situation and work-related experience.

Variable	Disability		Age group			Gender		Writing		Wheelchair		Education (cert) ^b		Total														
	Congenital	Acquired	16 - 29		30 - 49		50 - 65		Male	Female	Yes	No	Yes	No	Total													
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%										
Current employment situation																												
Student	2	13.3	0	0	2	22.2	0	0	0	0	1	9.1	1	10.0	1	5.6	1	5.6	2	11.1	0	0	1	16.7	1	6.7	2	9.5
Unemployed/ seeking work	1	6.7	1	16.7	2	22.2	0	0	0	0	2	18.2	0	0	0	0	2	11.1	2	11.1	0	0	2	33.3	0	0	2	9.5
Workshop	7	46.7	3	50.0	1	11.1	7	87.5	2	50	3	27.3	7	70.0	2	66.7	8	44.4	7	38.9	3	100	2	33.3	8	53.3	10	47.6
Adult day centre	4	26.7	1	16.7	3	33.3	1	12.5	1	25	5	45.5	0	0	1	33.3	4	22.2	5	27.8	0	0	1	16.7	4	26.7	5	23.8
Not answered	1	6.7	1	16.7	1	11.1	0	0	1	25	0	0	2	20.0	0	0	2	11.1	2	11.1	0	0	0	0	2	13.3	2	9.5
Work-related experience (past)																												
Labour market	0	0	2	33.3	0	0	1	12.5	1	25	1	9.1	1	10.0	3	100	2	11.1	2	11.1	0	0	2	33.3	0	0	2	9.5
Temporary work placement	2	13.3	1	16.7	1	11.1	2	25.0	0	0	1	9.1	2	20.0	3	100	3	16.7	2	11.1	1	33.3	1	16.7	2	13.3	3	14.3
Job application	6	40.0	5	83.3	6	66.7	3	37.5	2	50	5	45.5	6	60.0	1	33.3	10	55.6	10	55.6	1	33.3	6	100	5	33.3	11	52.4
Job interview	6	40.0	4	66.7	7	77.8	3	37.5	0	0	5	45.5	5	50.0	1	33.3	9	50.0	9	50.0	1	33.3	5	83.3	5	33.3	10	47.6
Total	15	71.4	6	28.6	9	42.9	8	38.1	4	19	11	52.4	10	47.6	4	19.0	17	81.0	18	85.7	3	14.3	6	28.6	15	71.4	21	100

Note: N = 21. b. Education (cert): In Germany secondary education is mandatory and may or may not result in a diploma depending on students' performance. The diploma of high school completion is required to enter further education, such as university, college or technical/professional schools.

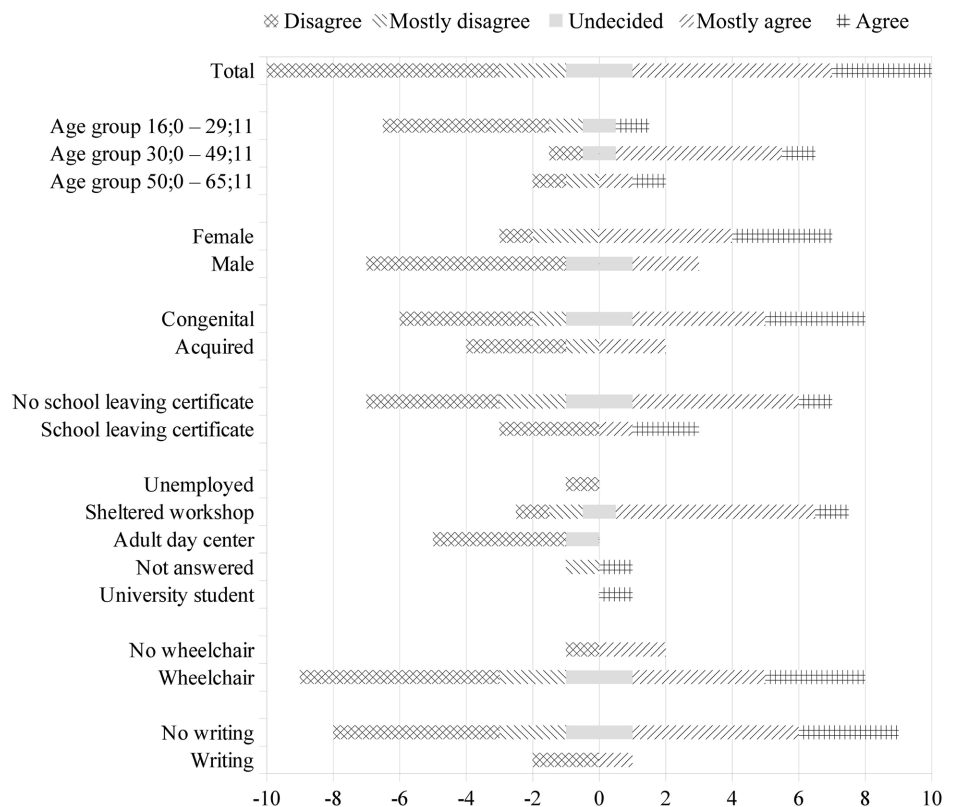


Figure 1. Satisfaction with the current employment situation.

four (19.0%) agreed, and two (9.5%) did not answer. All four participants who reported to be in their desired job (19.0%) were in the age group 30-49 and were attending workshops. In this age group, the remaining four participants (or 50%) were not in their desired job. Of the four participants in their desired job, one (25%) was satisfied with the salary, while three (75%) were not. Out of all the participants in workshops (10 or 47.6%), six participants (or 60% of those in workshops) were not in the desired job and all five (23.8%) who were in adult day centres reported to be in an undesired job situation.

Employment in the labour market was desired by nine (42.9%) participants and in workshops by eight (38.1%) participants. None of the participants wanted to be in adult day centres, and four (19.0%) chose the “other” options and indicated that they wanted to give AAC support, to teach AAC courses, to write a book, or to work as an artist. All six participants (66.7%) who had a school leaving diploma (secondary or university) preferred working in the labour market. The majority of participants aged 16 - 29 preferred the labour market (7 out of 9 or 77.8%), as well as two out of four (or 50%) of the participants that were aged 50 - 65. The majority of participants in the age group 30 - 49 preferred the workshops (7 out of 8 or 87.5%). Out of the 10 respondents employed in workshops, seven (70%) chose the workshops as their future preferred employment context; four of them (57.1%) stated that they were in their preferred employment situation, and three (42.9%) stated that they were not in their preferred employment situation, indicating that they would prefer different jobs while at workshops. Two of the four participants (50%) who were in workshops and reported to be in their most desired employment role provided information about their job tasks: one worked in the garden and the other did packaging work.

Twelve (57.1%) participants provided information in response to the open question about their specific aspired employment. The aspired jobs were: artist (“drawing pictures or giving art courses”), clerk, doorman, midwife, AAC teacher/trainer, office worker, administrator, and social worker. Three of the participants provided descriptive or multiple responses: “something with football, to do a job with people without disabilities”, “something with technology or music management”, and “technical, musical, temporary computer work”, “my all-time favourite job is to become something like a teacher. In the field of AAC in schools, workshops and other institutions. That is my biggest dream.”

When participants were asked a hypothetical question regarding their career aspirations assuming they had no disability, 19 participants (90.5%) provided information of which six (28.6%) indicated that their career aspirations would be the same, and 13 (61.9%) indicated that their career aspirations would have been different. These latter 13 participants stated the following jobs/professions: teacher (1), computer specialist (1), pediatrician (1), physician (2), self-employed (1), soccer player who studies at the university (1), midwife (1), conductor (1), event manager (1), logistics manager (1), missionary (1), and one participant did not specify. For example, they indicated: “I am using [name of communication de-

vice] and I would like to hand on my knowledge with this computer to other people with disabilities, who are in a similar situation”, “To run a study and to work in a studio—both would be my favourite jobs”, “Without my disability I would like to work as a forwarding merchant”.

Ten out of 21 participants (47.6%) expressed willingness to do voluntary work at the following places: church/religious work (3 or 14.3%), music club (2 or 9.5%), sports club (2), other club (1 or 4.8%), AAC/ISAAC (International Society of Augmentative and Alternative Communication) consultation (1), and AAC teaching (1). When asked about the most valued and desired aspects of their job, most frequently participants indicated performing meaningful tasks (19 participants or 90.5%) and to be in contact with other persons (17 participants or 81%). Salary was important to 11 (52.4%) participants and social status to three participants (14.3%).

4. Discussion

Overall, none of the participants of the current study, who were individuals using AAC aged 16 to 65, were employed in the general labour market. This finding supports earlier reports from practice-based projects in Germany, in which none of 85 adults who used AAC had a job on the labour market (Renner, 2017). The majority of the participants in the current study were in disability specific settings like workshops or adult day centres. None of the participants had ever worked in the general labour market as a person with an identified disability. In addition, none of the participants thought that there were enough workplaces for people with disabilities in the labour market. Thus, this small study can suggest that individuals, who use AAC, may not participate, as desired, in the labour market in Germany.

We found that only half of the participants had experience with a job application, and all of those who had experience had graduated with a school leaving diploma (secondary or university). However, only one third of those participants who did finish secondary school without a diploma had some experience with job applications. This finding suggests that the majority of the individuals in the latter group may not have received adequate job preparation, and are expected to follow a path from school to workshops and adult day centres. The expectation and limited view on vocational options may also explain why 66% agreed at least partly with the statement that school prepared them well for work—while 52% disagreed in a similar study in the USA (Light, Stoltz, and McNaughton, 1996). The participants of the current study might have not even considered a chance on the general labour market. However, student internships, for students with severe disabilities also occur in workshops or adult day centres, so they may have no experiences on the general labour market, as also found in this study.

Furthermore, only four of the 21 (19.0%) participants reported to be in their favourite employment situation. Interestingly, these were only persons from the age group of 30 to 49 years old and all participants in adult day centres aspired

to alternative options. The differences in the age groups requires further investigation as to possible reasons, which could be related to changing regulations, but could also be due to people's experiences and losing hope for employment. The finding that none of the participants wanted to be in the adult day centres is concerning and points to the need for further research on how to provide options that might better support vocational aspirations of people who use AAC.

Employment in the labour market was desired by almost half of the participants and they aspired occupations included a diverse range of careers across various art, education and industry sectors, with some specific to AAC. Carey et al. (2004), similarly to the current study, found that social workers, office activities and occupations in the field of AAC were desirable occupations. However, the occupations mentioned by the participants of the current study represent a broader range—similar to those of persons without disabilities (Gore et al., 2017). This finding supports a need for an individualized approach and challenges the restriction of persons who use AAC to specific areas of employment. It is worth noting that jobs mentioned by participants were different when they were asked a hypothetical question—what they wanted to do if they had no disability. For example, they indicated being a physician with no disability vs. working in an office; being a professional soccer player vs. doing something related to soccer. This suggests that participants' job aspirations may reflect what they perceive as realistic from their perspective.

Furthermore, almost all participants (90.5%) had the expectation to perform useful tasks at work. This finding is similar to the findings from the focus group studies of McNaughton, Light, and Arnold (2002) and McNaughton et al. (2006). Not surprisingly, this suggests the importance of meaningful contribution and personal fulfillment. Typical tasks in workshops, for example, consist of mounting, packing, making crafts, and agricultural labour (German Workshop Ordinance WVO, 1980). These tasks are often not well-aligned with the strengths and needs of individuals who use AAC, who may not have sufficient motor skills to execute the required actions but may have adequate cognition to participate in other tasks that are not available in workshops, such as computer-related work. However, if no computer workstation is available (adapted as required), they may be assigned to adult day centres. Given that there are work tasks that can be performed best or even only by persons with particular disabilities (e.g., education about disability-related topics), there is a market for paid services. Appropriate programs could address this demand and enable employers to hire persons with severe multiple disabilities in the labour market.

The majority of participants in the current study valued meeting and being in contact with interesting persons through work. Similar results were reported by McNaughton, Light, and Arnold (2002) and emphasize the importance of social interactions and participation. Previously researchers found that people who use AAC had limited opportunities to interact with others and form meaningful relationships and friendships (Ma et al., 2020). It is possible that the participants of

the current study could have wished for a wider range of social opportunities than they found in workshops or adult day centres. In our study only half of the participants considered money compensation for work as a priority, while in the US-based study of [McNaughton, Light, and Arnold \(2002\)](#) financial benefits were found to be an important factor. A potential reason for rating the importance of salary low in our study could have been that participants were receiving substantial financial support from the government (as per German Social Code SGB IX).

It is important to note that all the participants aged 30 or older (51.7%) reported no employment or work-related placements. However, the majority of participants younger than 30 years (90%) indicated university job-related placements in the general labour market, which were not followed by employment. This difference might be attributed to changing regulations, such as the requirement of special schools in Germany to provide work-related placements. According to the German Ministry of Labour since 2009, to adequately support individuals with a disability in the labour market, there first needs to be a focus on finding them a workplace/employer, followed by a focus on supporting their performance as an employee ([BMAS—Federal Ministry of Labour and Social Affairs, 2009](#)). Researchers who studied employment for other groups of people with disabilities found that adapted structures such as pre-vocational career exploration, professional vocational training, job placement assistance, on-the-job training and supports, counselling/guidance, and supported employment contributed to positive employment outcomes ([Ma et al., 2020](#); [Jang, Wang, and Lin, 2014](#)).

In summary, there is a lack of broad representative studies of the vocational situation of persons who use AAC worldwide. This is a unique group of people, often misunderstood, because physical disabilities are compounded by lack of speech; yet many individuals can successfully communicate and participate when given appropriate opportunity and support ([Batorowicz et al., 2014](#)). However, the findings of this study from Germany support the findings of a small set of studies conducted in 90's and 2000's in US ([McNaughton, Light, and Arnold, 2002](#); [Light, Stoltz, and McNaughton, 1996](#); [McNaughton and Bryen, 2002](#); [McNaughton et al., 2006](#)). Almost two decades later we found that persons with communication impairments, who use AAC, despite substantial changes in policies and significant technology advancements, continue to lack opportunities to be employed as they desire, yet they have diverse career aspirations.

4.1. Study Limitations and Directions for Future Research

One limitation of this study, as reported by many other researchers, it seems difficult to reach a large number of persons with complex communication needs who use or could benefit from AAC ([Batorowicz et al., 2014](#)). In the future, researchers could attempt to also recruit directly through health care or community institutions. Moreover, a reminder message to participants could have

helped to increase the number of datasets. The questionnaire did not have age limitations as to employment age, which in Germany at the time of the study was 15 to 65. Given a larger number of participants, future studies may consider age related analysis depending on the historical context.

Transition focused program development and evaluations in different countries could lead to a better understanding of the factors that contribute to success, as well as the greatest degree of inclusion of people who use AAC (i.e., in all settings including labour market). Future research could especially focus on the journey from school, to placement(s), and finally employment (i.e., longitudinal research). There is a lack of robust evidence on the willingness of employers to hire applicants with communication disabilities who require workplace modifications. Therefore, studying the views of employers and what is needed to support them and their organizations may help to understand the particular barriers to hiring a person with disability and what could be done to alleviate such barriers. Finally, while disability specific workshops have been closed in many countries, the statistics of unemployment remained unfavourable. Therefore, further investigation is needed to understand the continuing barriers toward employment of persons who have complex communication needs.

4.2. Conclusion

Despite a comprehensive support system for the vocational inclusion of persons with disabilities in the labour market, none of the 21 persons from Germany who used AAC and participated in this study had achieved employment in the labour market, even though many desired such an employment. This suggests that the policies that focus on employment may not translate to the desired effect in the lives of people with disabilities. Therefore, there is an urgent need for further research to better understand the specific issues and possible solutions. A systematic evaluation of experiences with programs of inclusion and support in different countries might be beneficial. Such research should involve the views of the various stakeholders, including individuals who use AAC, their families, employers, service providers and policy makers.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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