

Inclusion in kindergarten? The concept of disability and inclusive education among pre-service early childhood educators.

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Abstract

Context: Despite extensive research on school teachers' attitudes, the perspectives of early childhood educators have been largely overlooked. Studies suggest that positive attitudes toward inclusion and a social understanding of disability are essential for identifying barriers, promoting participation and successfully implementing inclusive practices. Despite extensive research on school teachers' attitudes, the perspectives of early childhood educators remain underrepresented

Methods: This study surveyed 126 pre-service educators from three Bavarian vocational schools using a mixed-methods design. While quantitative data examined attitudes toward inclusion and agreement to the social model of disability, qualitative insights were drawn from semi-structured interviews.

Findings: Confirmatory factors analysis supported the reliability of the social understanding of disability scale, while the inclusion scale did not reach acceptable fit levels. Participants showed positive attitudes toward support and social integration, but had neutral to slightly negative views of the social model of disability. A structural equation modelling showed a good fit to the data and indicated that social contact with individuals with disabilities positively influenced the agreement to the social model of disability, though such contact was infrequent (CMIN/df = 1.38, CFI = .96, IFI = .96, TLI = .93, RMSEA = .05). This relationship was mediated by parental educational background. Interview data showed that participants felt underprepared for implementing inclusive practices, primarily understood disability through medical lens and are more in favour of segregated groups rather than inclusive groups.

Conclusion: Pre-service educators support inclusion but feel insufficiently trained and do not see themselves as responsible for implementing inclusive practices. Social contact and family educational background show small positive effects on adopting a social understanding of disability, highlighting the need for training programs to provide meaningful interactions with individuals with disabilities and strengthen preparation for inclusive early childhood education.

Keywords: disability, inclusion, early childhood, pre-service teacher, kindergarten.

Points of Interest

- This study explores the understanding of disability and the attitudes toward inclusion among pre-service early childhood educators in Germany.
- While participants generally support the idea of inclusion, their views are still strongly influenced by the individual-medical understanding of disability. Their focus stays on the impairment of the

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child rather than on the structural and social barriers in early childhood settings. This perspective could lead to segregation in the preschool setting and not full participation in daily activities.

- Another key finding is the influence of social interactions on agreement with the social model of disability. It was found that trainees who have contact with individuals with disabilities show a higher agreement with the social model of disability, even if the contact was sporadic. However, this is a relatively new finding, and there is limited literature explaining the specific mechanisms behind this relationship.
- The role of practical experience, self-efficacy and concerns about working with children with disabilities in shaping attitudes toward inclusion remains an important area for further research.

Introduction

Germany offers an established kindergarten system for children aged 3 to 6 and an expanding daycare/crèche system for those under 3 years. Most children with disabilities attend inclusive facilities because the support system ensures smaller group sizes and other support measures (Tan et al., 2024). Kindertartens or groups dedicated exclusively for children with disabilities are rare and usually integrated as preschool facilities in special schools or in large institutions for people with disabilities. This contrasts with the German school system, which offers a dual-track approach, in which most children with special education are placed in special schools (Lohmann et al., 2016; Tan et al., 2022).

Although the actual number of preschool children with disabilities can only be estimated, because reports provide data on children from daycare centers who receive integration assistance and children with severe disabilities (Lingenauber, 2012), the number of children who received this assistance has risen approximately from 80,000 in 2014 to more than 99,500 in 2024 (Destatis, 2024). Moreover, it was found that the number of assisted children in daycare centers increases significantly by age: 1.5% for 3-year-olds, 2.8% for 4-year-olds, and 3.6% for 5-year-olds (Autorengruppe Bildungsberichtserstattung, 2014). This variation may be attributed to the fact that children with disabilities typically enter daycare later than their peers without disabilities, which highlights an educational barrier that starts at a young age (Fuchs-Rechlin & Schilling, 2012).

The framework of integration assistance for children with disabilities is part of the German Social Code and each federal state is responsible to establish preschool policies related to inclusion (Staatinstitut für Fröhpädagogik, 2017). For example, while some federal states reduce the group size an educator has when a child with disability is included in the group, other states extend their funding and pay for additional expenses for material costs or teacher training. Around 68% of children with disabilities attend a center in which more than half of children do not have a disability (Autor:innengruppe Bildungsberichterstattung, 2018).

In contrast, some centers separate children with disabilities from non-disabled children in isolated groups, even though inclusive groups boost essential skills for future school success and promote the social engagement of children with disabilities (Lawrence et al., 2016; Sarimski, 2012). This decision relies basically on the staff, who is responsible to place a child with special needs into a group, to implement inclusive measures and to work with other specialists and the family. For this reason, it is important that the staff is trained in special education and have sufficient awareness of the importance of inclusion to ensure the effectiveness of the policies.

Despite Germany's extensive practical experience in educator training, most educators are trained in vocational schools, which have lower entry and completion requirements compared to universities.

Moreover, vocational training offers limited theoretical content in psychology, child development and inclusive education, particularly compared to the training preschool educators received in other European countries (OECD, 2020; Schmidt, 2005).

Ongoing professional development equips educators with the necessary expertise, understanding, and confidence to effectively implement inclusive teaching strategies while also fostering more positive attitudes toward children with special needs (Donath et al., 2023). Therefore, educator training is the initial phase of professional development and it is crucial for laying the foundation for effective teaching practices (Sharma et al., 2021). The development of high-quality inclusive kindergarten programs and the training of educators has been a topic of debate in Germany for many years. While extensive research has focused on teacher training quality and the attitudes of pre-service and in-service school teachers, less attention has been given to the perspectives and experiences of in-service and pre-service educators (Peucker et al., 2010). Our project explores the pre-service educators' understanding of disability and their attitudes towards inclusive education. With this goal, 126 pre-service educators from three different Bavarian institutions were surveyed in a mixed methods study.

Attitudes toward inclusive education and understanding of the social model of disability

Attitudes are one of the important constructs in psychology because they play a significant role in shaping behavior and decision making and adjustment behavior in various contexts (Glasman & Albarracin, 2006). Although inclusion is a broader concept that encompasses the participation for all individuals, regardless of ability, background, culture, gender or socioeconomic status within society (Goodin, 1996), inclusive education refers to a specific policy framework adopted by most countries. Its goal is to improve both quality education for all children, including the ones with disabilities, and their social integration by adapting the system to meet all learners' needs (United Nations, 2006). The effectiveness of inclusion is not only closely linked to educator training, but also to educators' attitudes and knowledge about inclusive education (Klein, 2015). Studies suggest that early childhood educators generally hold positive attitudes toward inclusion, particularly when they had a positive experience with persons with disabilities or when they received training in special or inclusive education (Aparicio Puerta & Polo Sánchez, 2023; Hsieh & Hsieh, 2012; Lee et al., 2015; Peng et al., 2024; Schaub & Lütolf, 2024; Takala & Sirkko, 2022; Yu & Cho, 2022). However, they have mixed feelings about working directly with children with disabilities and expressed a lack of self-efficacy and willingness to implement inclusive practices (Majoko, 2016; Yu & Park, 2020). In addition, sociodemographic factors such as gender, age, socioeconomic status can also influence their attitudes toward inclusive education (Saloviita, 2018; Schaub & Lütolf, 2024).

Changing attitudes toward disabilities requires first addressing discrimination and prejudice linked to labeling. Labeling can lead to limited teachers' expectations and exclusive practices; often harming the labeled individual (Higgins et al., 2002). Despite ongoing debate, no consensus exists on defining disability and people construct their own concepts of disability based on theoretical models and social experiences (Michailakis, 2003). Models of disability are frameworks that arise from the way society perceives and addresses disability (Gebhardt et al., 2022b). Two of the most spread models of disabilities are the individual-medical model and the social model. While the medical model focuses on the characteristics of the impairment and the remedial treatment, the social model views disability as a result of social and physical barriers that restrict a person's full participation in society (Shakespeare, 2017). Having a social understanding of disability correlates positively to teachers' attitudes toward inclusive education, because a social understanding of disability not only limits of learning barriers, but it fosters the awareness of the diverse needs that students have, enhancing empathy and a better understanding of all student's needs (Gebhardt et al., 2022b). By learning and adopting this model during training in early education, pre-service

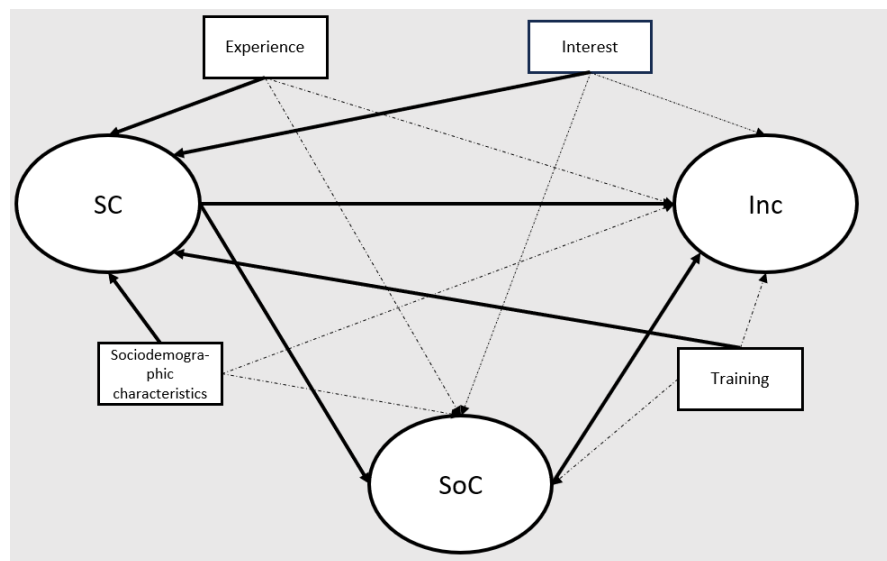
educators are equipped to create inclusive settings that accommodate all students, regardless of their abilities.

Research design

In light of the above, the present study examines pre-service educators' attitudes toward inclusive education and their agreement to the social model of disability in the preschool context using a mixed-methods design. Moreover, possible influential factors are considered. Specifically, the study examines factors such as social contact with people with disabilities, practical experience, training in special or inclusive education and sociodemographic characteristics. The conceptual model shown in Figure 1 outlines and explores the primary pathways through which factors could potentially exert their influence, as well as potential mediators of these relationships, based on theoretical and empirical research: (1) Does social contact (SC) with people with disabilities predict pre-service educators' attitudes toward inclusive education (Inc)? (2) Does social contact (SC) with people with disabilities predict pre-service educators' acceptance of the social model of disability (SoC)? (3) Does previous training or interest in training in inclusive education and practical experience mediate the relationship between social contact (SC) and pre-service educators' attitudes toward inclusive education (Inc)? (4) Does previous training or interest in training in inclusive/special education and practical experience mediate the relationship between social contact (SC) and pre-service educators' acceptance of the social model of disability (SoC)? (5) Do sociodemographic characteristics such as age, gender, religiosity and socioeconomic status mediate the relationship between social contact and pre-service educators' attitudes toward inclusive education? (6) Do sociodemographic characteristics such as age, gender, religiosity and socioeconomic status mediate the relationship between social contact and pre-service educators' attitudes toward inclusive education?

Figure 1. Pathways of effects of social contact on attitudes toward inclusive education and on the acceptance of the social model of disability.

Methods



Sample

126 pre-service educators (Erzieher) from three vocational schools in Bavaria participated in this study. Participants should be enrolled in a vocational school and completed at least one year of training to be included in this study. The group had a mean age of 25.33 (SD = 8.0) years, with 111 identifying as female. Most had an intermediate school diploma (Realschule) as the highest household education level (29.8%), and 66.7% reported no religiosity. Nearly all (97%) completed internships averaging 26 months. Only one-third attended an inclusive education course, but 75% expressed interest in specializing in the field. After participants completed the survey, they were invited to be part of the individual interviews. Only 12 people expressed interest in and signed for it. Ultimately, only three came to the appointment and took part of the interviews.

Procedure

For the quantitative part, a survey took place during the months of March and April 2023 in three vocational schools in Bavaria, a German state. A declaration of consent was signed by all the participants and the paper-pencil questionnaire took around 20 minutes to complete. Participants were not offered any compensation, and all responses were assured to be anonymous and confidential. In the same way, interviews were taken with a small group of students who voluntarily gave their contact information and had time availability in June 2023.

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Measures

Social Contact (SC) was operationalized as the *“the frequency of contact with persons with special educational needs in different social circles”*. It was addressed through three questions: how often participants had contact with people with SEN within family members, friends or in other social networks. The frequency of the encounters was measured with seven ratings that went from “almost never” to “almost always”.

All items measuring attitudes toward inclusive education and agreement to the social model of disability had a 7-point rating scale from 1 (strongly disagree) to 7 (strongly agree). Attitudes toward inclusive education were assessed using the scale Einstellungen zur Inklusion – EZI (Kunz et al., 2010), which has a strong reliability coefficient (Cronbach’s = .89). The eleven-question-questionnaire has two dimensions related to inclusive education, Social Integration (SI) and Student support (SCH) and was operationalized as the *“tendency to respond favorable or less favorable toward inclusive practices in the classroom”*. The first dimension (SI) addresses the support and individual assistance for children with special educational needs in mainstream classrooms and their impact on peers without disabilities. The second dimension focuses on social contact and acceptance of these children within regular classrooms (SCH). Participants’ understanding of inclusion as a broader concept was assessed in the qualitative part with two open questions *“what is your idea of inclusion?”* and *“how would you define your attitudes toward children with disabilities and why?”*

Agreement to the social model of disability was estimated using the subscale “Social concept (SoC)” from the “Questionnaire on the Concepts of Disability” (Gebhardt et al., 2022a), which has a Cronbach’s alpha of .80. This variable was operationalized as the *“tendency to respond positively or negatively toward the idea that disability is a social construction and not an inherent condition to the person”*. In the same way,

three items of the questionnaire were selected to be asked as open-ended questions in the interviews to examine how participants deal with the concept of disability and its assumptions. The questions were: “Disability is the result of congenital or acquired damage and disorders. Please, explain to what extent you agree or disagree with it and why”, “A person is not disabled, the person is made disabled. Please, explain to what extent you agree or disagree with it and why”, “Disability is the result of an unfair distribution of rights and opportunities. Please, explain to what extent you agree or disagree with it and why”.

Sociodemographic information was asked in the survey using four questions. Gender was a closed-ended question with three alternatives (male, female and diverse). Age was addressed as an open-ended question to be answered with whole numbers. Religiosity was presented as a 7 point-Likert-scale (from non-religious to very religious) and socioeconomic status was addressed with the question “What is the highest level of education in your household?” and eight alternatives were given based on the German educational levels: no school diploma, basic school diploma, intermediate school diploma, high-school diploma, incomplete university studies, bachelor’s degree, master’s degree and PhD.

“Interest” was operationalized as “the desire to specialize in special/inclusive education” with a closed-ended question, so participants can choose if they would like to or not like to specialize in this area. Likewise, training was operationalized as “Attending seminars in special or inclusive education and having practical experience in an educational institution” with four questions. Participation in seminars on inclusive education was asked with a closed-ended question, in which participants indicated if they had or had not attended a related seminar. In case they had, the training subject should have been indicated. Similarly, experience was measured with a closed-ended question in which participants chose if they made or not made an internship. If the participant had practical experience, they should have specified the duration of their internship in months. For the qualitative part, this point was addressed with an open-ended question about participants’ practical experience and whether they assess the experience as positive or negative.

Analysis

The quantitative analyses were conducted in three stages. First, data were analyzed descriptively using SPSS 29.0 (IBM Corp., 2022). Second, a confirmatory factor analysis was conducted to confirm the adequacy of the scales used using Jamovi (The jamovi project, 2022). Third, the hypothesized structure of the latent factors of social contact and attitudes were analyzed by the means of structural equation modelling (SEM) using SPSS AMOS Version 29.0 (Arbuckle, 2021). The interviews were recorded and then transcribed in a Word Document (.doc) and analyzed using the MAX-QDA Software Version 2023 (VERBI Software, 2022).

Results: Quantitative part

While most of the participants (97%) had completed an internship, with an average duration of 26 months (SD = 16.2), only 33% of the participants had attended at least one course related to inclusive education or special education (Mo = 2, SD = 0.47). Furthermore, 74% of future educators were interested in training themselves in special education at one point of their careers.

Table 1. Descriptive statistics

Item	Mean	SD	Item-Rest-Correlation
Agreement to the social model of disability	3.28	1.27	

"Disability is a social construct."	3.21	1.60	0.69
"One is not disabled; one is made disabled."	3.13	1.84	0.44
"Disability is the product of social communication and negotiation processes."	3.10	1.61	0.71
"Disability arises from the prejudices and attitudes of people without disabilities."	3.50	1.76	0.67
"Disability often has social or situational causes."	3.26	1.59	0.49
Attitudes toward student support	3.93	0.81	
"The more time children with special educational needs spend in mainstream classes, the more likely the quality of their education improves."	4.13	1.33	0.55
"The benefits of integrating children with special needs outweigh the potential challenges for other students."	3.92	1.28	0.34
"Most lessons and materials in mainstream classes can be adapted to meet special educational needs."	4.88	1.40	0.19
<i>"If these children spend most of their time in mainstream classes, they may not receive the necessary support."</i>	3.89	1.60	0.47
"The quality of mainstream education improves when children with special needs are included."	4.62	1.44	0.43
"These children could receive all the support they would in specialized settings while being part of mainstream classes."	2.91	1.25	0.57
"Mainstream education offers more meaningful learning opportunities than specialized settings."	3.32	1.33	0.40
Attitudes toward social integration	4.93	0.93	
<i>"The more time these children spend in mainstream classes, the more likely they are to face poor treatment from classmates."</i>	4.98	1.15	0.63
<i>"Spending significant time in mainstream classes increases the likelihood of feeling isolated or excluded."</i>	4.74	1.28	0.55
"Spending significant time in mainstream classes helps these children form friendships with classmates."	5.33	1.15	0.44
"The more time children with special needs spend in mainstream classes, the more likely they are to be treated kindly by their classmates."	4.63	1.29	0.60

Table 1 shows the means, standard deviations and item-rest-correlation values of each item from the three subscales: Social model of disability ($\alpha = .81$), Student support ($\alpha = .71$) and Social integration ($\alpha = .75$). Items which were originally worded negatively are marked in italics to distinguish them and their polarity had been reversed to ensure consistency in analysis. Attitudes towards inclusive education were found to be positive: trainees achieved the highest scores on the Social Integration (SI) subscale ($M = 4.93$, $SD = 0.93$) rather than in the student support (SCH) subscale ($M = 3.93$, $SD = 0.81$). However, the results for the social concept were slightly negative, below the midpoint of 3.5. Participants displayed neutral to negative views toward the social model of disability ($M = 3.28$, $SD = 1.27$). The score of the highest rated statement, "Disability arises from prejudices and attitudes of people without disabilities" ($M = 3.50$, $SD = 1.76$), did not surpass the midpoint. The lowest rated item was "Disability is the product of social communication and negotiation processes" ($M = 3.10$, $SD = 1.61$).

Table 2. Means, standard deviations, and correlations among the study measures

	M (SD)	Acquaintance	Friends	Family	SOC	SCH	SI
Acquaintance	3.69 (1.92)	—					
Friends	2.71 (1.92)	0.64***	—				
Family	2.40 (2.06)	0.54***	0.63***	—			
SoC	3.27 (1.27)	0.17	0.25**	0.23*	—		
SCH	3.92 (0.81)	0.18	0.04	0.14	0.22*	—	
SI	4.92 (0.92)	0.23*	0.12	0.15	0.10	0.41***	—

* $p < .05$, ** $p < .01$, *** $p < .001$

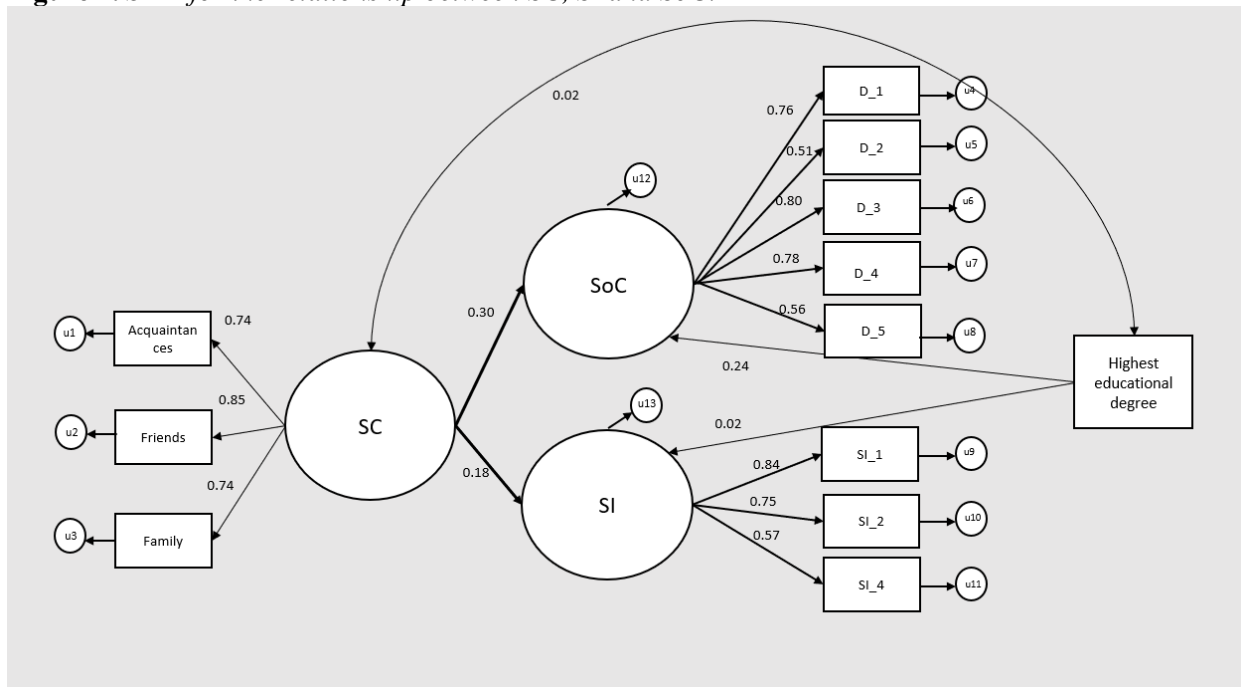
Table 2 presents the means, standard deviations, and correlations of the measures. Participants reported occasional interactions with individuals with disabilities across all social circles, with acquaintances being the most frequent groups where the encounters took place ($M = 3.69$, $SD = 1.92$). A positive but weak correlation was observed between social contact within friends and family circles and agreement to the social model of disability. Similarly, contact with acquaintances showed a low positive correlation with attitudes toward social integration.

A confirmatory factor analysis (CFA) was conducted to confirm the adequacy of the scales used. The model fit indices for the social model of disability scale suggest that the measurement model was a good fit to the data ($\chi^2 = 9.6$, $df = 5$, $CFI = 0.98$, $TLI = 0.96$, $RMSEA = 0.08$). However, the CFA made on the scale EZI failed to confirm the scale's properties and maintain two dimensions ($\chi^2 = 118$, $df = 43$, $CFI = 0.78$, $TLI = 0.71$, $RMSEA = 0.12$). For this reason, the two subscales were analyzed separately.

A structural equation modeling (SEM) was used to explore causal relations among variables through path coefficients indicating the strength of relationships (Figure 2).

The model evaluated the effects of social contact (SC) with individuals requiring special education support on attitudes toward social integration (SI) and agreement with the social concept of disability (SoC). The model fit was confirmed: $CMIN/df = 1.38$, $CFI = .96$, $IFI = .96$, $TLI = .93$, $RMSEA = .05$. SC positively and significantly influenced SoC ($b = .30$, $t = 2.65$, $p = .008$), with "highest household qualification" also playing a role ($b = .24$, $t = 2.40$, $p = .016$).

Figure 2. SEM for the relationship between SC, SI and SoC.



However, SC and SI showed no significant correlation. All the parameter estimates and regression weights are shown in Table 3.

Table 3. Parameter estimates and regression weights for the SEM - Pre-service educators

			SRW	URW	S.E.	C.R.	P Label
SOC	<---	Contact	0.30	0.18	0.07	2.65	.008
SI	<---	Contact	0.18	0.12	0.07	1.64	.1
SOC	<---	Educational_Degree	0.24	0.13	0.05	2.40	.016
SI	<---	Educational_Degree	0.02	0.01	0.06	0.23	.815
Acquaintance	<---	Contact	0.74	1			
Friends	<---	Contact	0.85	1.15	0.15	7.67	***
Family	<---	Contact	0.74	1.07	0.14	7.41	***
D_5	<---	SOC	0.55	1			
D_4	<---	SOC	0.77	1.55	0.27	5.78	***
D_3	<---	SOC	0.80	1.45	0.25	5.82	***
D_2	<---	SOC	0.50	1.06	0.24	4.42	***
D_1	<---	SOC	0.76	1.37	0.24	5.69	***
SI_1_u	<---	SI	0.84	1			
SI_2_u	<---	SI	0.75	0.99	0.17	5.91	***
SI_4	<---	SI	0.56	0.75	0.14	5.31	***

Results: Qualitative part

Semi-structured interviews were conducted using a standardized guide with ten primary questions, supplemented by follow-ups to clarify or elicit responses. Initial questions focused on participants' concepts of inclusion and disability, followed by their experiences, self-efficacy, and perspectives on inclusion in early education. Three items from the Questionnaire on the Construct of Disability' (Gebhardt et al., 2022a) were included, assessing attitudes toward two disability models (individual-medical and social). Participants listened to statements, indicated agreement or disagreement, and explained their reasoning. Three trainees in education participated in the interviews.

The semi-structured interviews allowed for a deeper understating of how pre-service educators construct meaning around "disability" and "inclusion". It provided insights into their subjective definitions of inclusive terms that cannot be captured through standardized questionnaires. For example, trainees' responses about their concepts of inclusion were marked by contrasting opinions. While two trainees agreed on the positive influence that inclusive groups bring for all children, the other participant disagreed with the idea and expressed that *"the best thing would be to first create a group with all the disabilities and to set it up in such a way that you can satisfy everyone's needs instead of having inclusive groups"* (Interviewee E2). In the same way, participants mentioned difficulties that could arise by implementing these practices in the group *"It becomes difficult (...) if you can no longer meet the demands of the disabled kid because of lack of staff"* (Interviewee E2), an idea that was shared by the other two participants. The lack of resources, the lack of interdisciplinary work and the size of the group were mentioned as barriers that hinder the execution of inclusion in early education. The three participants declared to have positive attitudes toward inclusion and toward people with disabilities and agreed on the idea of working with children with disabilities was good *"As long as the group is small and there is no lack of personal (...) because sometimes it was too difficult because there were not enough personal and I wanted to give this kid my time, but it was extremely difficult with the other kids around"* (Interviewee E3).

When participants were asked about what is disability for them, their responses were strongly influenced by the medical concept of disability, which focuses mostly in the impairment. Definitions such as *"Disability is when someone is either physically, mentally or emotionally disabled and shows difficulties in these areas"* (Interviewee E1) or *"Disabilities are limitations that affect life. There can be different types of limitations and that is why it has to be compensated for with special support so that people can still lead a simple life"* (Interviewee E2) showed their inclination to the individual-medical model. However, participants agreed with the statements of the social model of disability because *"Society is the one who discriminates the person"* (Interviewee E1) or because *"Society has defined who is disabled and who is not. And our system is already adapted to naturally non-disabled people"* (Interviewee E2) or *"I think this world is not really made for people with disabilities. So it is done in such a way that if you are in a wheelchair, there may be ramps where you go, and what if there is no one? And what about blind people? Maybe there are these lines on the floor to help them, and maybe there are not. You don't see it everywhere and it is not designed for everyone with a disability"* (Interviewee E3).

In general, although all participants have experienced working with children with disabilities and expressed these experiences as positive, they did not think they are enough prepared to work with them, mainly because their vocational program did not focus on this subject and their internships in inclusive kindergartens were short. Furthermore, Interviewee E1 mentioned one negative aspect she observed during her internship in an inclusive center: *"Children were separated in groups according to the type of disabilities and they actually did not spend time with other children and could not socialize with their peers"*. Interviewee E2 already worked as a kindergarten assistant before doing the program for educators and expressed the importance to learn about special education before: *"learning more about special*

education early in the apprenticeship and not in the third year, so you can deal with it better before, (...) especially because sometimes you have to wait for therapist or specialist to come and support the child on a regular basis". Moreover, when participants were asked how inclusion can be improved in early childhood centers, they all mentioned the necessity to improve the vocational training in order to improve their theoretical and practical knowledge about disabilities and inclusion, instead of going directly to a center without this knowledge.

Discussion

In Germany, a child with a disability has the right to participate in mainstream education and a childcare setting, so kindergartens are encouraged to include children with and without disabilities in the same groups, fostering an inclusive environment (Bundesrepublik Deutschland, 2019). An inclusive kindergarten should focus on the strengths and resources of each child and support individual development paths, as well as give them the opportunity to actively participate in social interactions and educational opportunities with the help of well-trained professionals who can implement the principles of inclusion in their daily work (Heimlich, 2013; Klein, 2015).

Our findings highlight that although pre-service educators hold positive attitudes toward inclusive education and are familiar with the concept of inclusion, there is a significant gap in the understanding of disability. During interviews it was noticed that respondents agreed with examples of both the individual-medical and the social model of disability, which are contradictory. This contradiction may be due to social desirability or lack of awareness because they had not received training in special or inclusive education. Participants' understanding of disability remains heavily influenced by the individual-medical model, which focuses on children's deficits. This limited understanding may hinder their ability and also their willingness to implement inclusive practices in early education settings (Tan et al., 2024). These outcomes from the qualitative part are supported by the results of the survey. Their slightly disagreement with the statement of the social model of disability suggest that participants attribute disability to personal deficits within the child rather than to the way educational systems exclude certain groups. Given that a social understanding of disability addresses both systematic and individual barriers, it is necessary that professionals in early education move beyond remedial or segregated practices in this stage (Hansen et al., 2024) and recognize diversity as a strength for their own professional development. This perspective may overlook social and institutional barriers instead of questioning whether inclusion is truly being implemented or if it rather resembles remedial special education instead (Norwich & Koutsouris, 2017).

The lack of training in special education and external factors were mentioned during the interviews as the main concerns why they hesitate to embrace inclusion. In the same way, participants expressed their concern about not being able to do what is right for a child with a disability, a similar result found in other studies conducted among early childhood educators (Forlin, 1995; Forlin & Chambers, 2011) and also in other educational levels (Söderlund et al., 2024). These results are in alignment with past research conducted internationally, in which it was found that pre-service educators have positive attitudes toward inclusion, but also have concerns about implementing inclusive practices in these settings (Aparicio Puerta & Polo Sánchez, 2023). Because the topic of self-efficacy and concerns were only covered in the interviews with a reduced group of participants and not in the questionnaire, the results on this aspect should be interpreted with caution. Although a larger number of pre-service educators expressed interest in participating in the interviews, most eventually declined due to scheduling constraining. Future studies should include measures of self-efficacy and concerns directly in the quantitative phase to allow for a more

robust analysis. Additionally, combining survey data with in-depth interviews could provide a more comprehensive understanding of the relationship between these variables.

For the interviewees, inclusion is seen as an additional load outside their main responsibility, which they only want to take under specific conditions: more personal, less children, more training, more interdisciplinary work, among other things. This approach shows the lack of understanding that inclusive education is not an optional responsibility but a principal part of their future role as educators. This finding confirms previous studies, in which educators are reluctant to be the ones implementing individualized education plans for children with disabilities in inclusive settings (Bruns & Mogharreban, 2007).

An interesting finding is that social contact has a positive but weak effect on participants' agreement with the social model of disability ($r=0.3$). While previous research has documented how teacher training that facilitates interaction with individuals with disability can foster better attitudes toward inclusion (Hsieh & Hsieh, 2012; Miesera et al., 2019; Sharma et al., 2008), the finding that these interactions can specifically influence agreement with the social model of disability is novel. Future research is needed to investigate how and why social contact might contribute to a deeper alignment with the social model. Another interesting finding is that the variable "highest educational degree in the household" had some effect on the agreement with the social model of disability, but not on attitudes toward social integration. No other socioeconomic or training variables were found to moderate the relationships between these variables. While the impact of higher educational degrees on agreement with the social model of disability has not been studied, a likely explanation is that individuals in households with higher educational attainment are often exposed to more progressive ideas, including those related to disability rights and equality. These results suggest that both personal and sociocultural factors may influence how future educators conceptualize disability, potentially shaping their readiness to implement inclusive practices. Although both effects were modest, they are consistent with previous research showing that meaningful contact can promote inclusive attitudes and that higher educational backgrounds are often linked to greater openness toward diversity (Forlin et al., 2008). Finally, although the instrument EZI (Kunz et al., 2010) has been used in Germany with pre-service school teachers and in-service teachers, no acceptable fit was found in this study with future educators. Thus, future studies should adapt this scale or use another way to find a significant model that can consistently measure attitudes toward inclusion of pre-service and in-service educators.

Conclusion

The findings of this study have important implications for teacher education in early childhood settings. The modest but positive effects of social contact with the agreement with the social model of disability highlights that teacher training should intentionally enhance meaningful encounters between pre-service educators and children with special educational needs during their training, not only in their internships, but also in guided reflection seminars for example. Given that many pre-service educators have a medical understanding of disability but have positive attitudes toward inclusion, it could be helpful that beliefs about disability are addressed during reflective activities that could connect the gap between theory and practice. To sum up, our findings emphasize that current training alone does not adequately prepare future educators to work with children with disabilities. Students do not have a social understanding of disabilities and do not embrace totally the models of inclusion in daycare centers and they do not see themselves as the responsible agents of the implementation of inclusion. Building on research shows that regular and significant contact during training improves attitudes toward individuals with disabilities (Sharma et al., 2008), increase their knowledge about inclusive policies and reduce their concerns while increasing their self-efficacy to work with children with disabilities (Campbell et al., 2003; Forlin & Chambers, 2011).



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References

- Aparicio Puerta, M., & Polo Sánchez, M. T. (2023). Attitudes Toward Disability in Early Childhood Education: A Methodological Review. *Exceptionality*, 31(4), 241–257. <https://doi.org/10.1080/09362835.2022.2130322>
- Arbuckle, J. L. (2021). *IBM SPSS Amos for Structural Equation Modeling* (Version 29.0) [Computer software]. Arbuckle, J. L.
- Autor:innengruppe Bildungsberichterstattung. (2018). *Bildung in Deutschland 2018*. <https://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2018/pdf-bildungsbericht-2018/kapitel-c-2018.pdf>
- Autorengruppe Bildungsberichterstattung. (2014). *Bildung in Deutschland 2014: Ein indikatorengestützter Bericht mit einer Analyse zur Bildung von Menschen mit Behinderungen*. <https://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2014/pdf-bildungsbericht-2014/h-web2014.pdf>
- Bruns, D. A., & Mogharreban, C. C. (2007). The Gap Between Beliefs and Practices: Early Childhood Practitioners' Perceptions About Inclusion. *Journal of Research in Childhood Education*, 21(3), 229–241. <https://doi.org/10.1080/02568540709594591>
- Bundesrepublik Deutschland (Ed.). *Staatenbericht zur UN-BRK: Zweiter und dritter Staatenbericht zur UN-Behindertenrechtskonvention*.
- Campbell, J., Gilmore, L., & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual & Developmental Disability*, 28(4), 369–379. <https://doi.org/10.1080/13668250310001616407>
- Destatis. (2024). *Kinder in Kindertagesbetreuung nach verschiedenen Merkmalen*. <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Soziales/Kindertagesbetreuung/Tabellen/kita-betreuung-merkmale.html>
- Donath, J. L., Lüke, T., Graf, E., Tran, U. S., & Götz, T. (2023). Does Professional Development Effectively Support the Implementation of Inclusive Education? A Meta-Analysis. *Educational Psychology Review*, 35(1). <https://doi.org/10.1007/s10648-023-09752-2>
- Forlin, C. (1995). Educators' beliefs about inclusive practices in Western Australia. *British Journal of Special Education*, 22(4), 179–185. <https://doi.org/10.1111/j.1467-8578.1995.tb00932.x>
- Forlin, C., Loreman, T., Sharma, U., & Earle, C. (2008). Demographic differences in changing pre-service teachers' attitudes, sentiments and concerns about inclusive education. *International Journal of Inclusive Education*, 13(2), 195–209. <https://doi.org/10.1080/13603110701365356>



- Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education*, 39(1), 17–32. <https://doi.org/10.1080/1359866X.2010.540850>
- Fuchs-Rechlin, K., & Schilling, M. (2012). *Formen und Ursachen von Bildungsbenachteiligung in der Kindertagesbetreuung* [Studienbrief]. Hochschule Fulda.
- Gebhardt, M., Schurig, M., Suggate, S., Scheer, D., & Capovilla, D. (2022a). *Fragebogen zum Konstrukt Behinderung*. <https://doi.org/10.5283/EPUB.51337>
- Gebhardt, M., Schurig, M., Suggate, S., Scheer, D., & Capovilla, D. (2022b). Social, Systemic, Individual-Medical or Cultural? Questionnaire on the Concepts of Disability Among Teacher Education Students. *Frontiers in Education*, 6, Article 701987. <https://doi.org/10.3389/educ.2021.701987>
- Glasman, L. R., & Albarracin, D. (2006). Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychological Bulletin*, 132(5), 778–822. <https://doi.org/10.1037/0033-2909.132.5.778>
- Goodin, R. E. (1996). Inclusion and exclusion. *European Journal of Sociology*, 37(2), 343–371. <https://doi.org/10.1017/s0003975600007219>
- Hansen, J. H., Skovbjerg, H. M., Sand, A.-L., Jensen, J.-O., Jørgensen, H. H., & Lieberoth, A. (2024). Pedagogues' participation in play as a pathway to inclusive environments. *European Journal of Inclusive Education*, 3(1), 217–223. <https://doi.org/10.7146/ejie.v3i1.143132>
- Heimlich, U. (2013). *Kinder mit Behinderung: Anforderungen an eine inklusive Frühpädagogik*. WiFF-Expertise 33. Deutsches Jugendinstitut.
- Higgins, E. L., Raskind, M. H., Goldberg, R. J., & Herman, K. L. (2002). Stages of Acceptance of a Learning Disability: The Impact of Labeling. *Learning Disability Quarterly*, 25(1), 3–18. <https://doi.org/10.2307/1511187>
- Hsieh, W.-Y., & Hsieh, C.-M. (2012). Urban early childhood teachers' attitudes towards inclusive education. *Early Child Development and Care*, 182(9), 1167–1184. <https://doi.org/10.1080/03004430.2011.602191>
- IBM Corp. (2022). *IBM SPSS Statistics* (Version 29.0) [Computer software]. IBM Corp.
- The jamovi project. (2022). *Jamovi* (Version 23.2) [Computer software]. <https://www.jamovi.org>
- Klein, F. (2015). *Inklusive Erziehungs- und Bildungsarbeit in der Kita: Heilpädagogische Grundlagen und Praxishilfen*. Bildungsverlag EINS.
- Kunz, A., Luder, R., & Moretti, M. (2010). Die Messung von Einstellungen zur Integration (EZI). *Empirische Sonderpädagogik*, 2(3), 83–94. <https://doi.org/10.25656/01:9350>
- Lawrence, S. M., Smith, S., & Banerjee, R. (2016). Preschool inclusion: Key findings from research and implications for policy. *Child Care & Early Education Research Connections*. <https://doi.org/10.7916/D8571C1C>
- Lee, F. L. M., Yeung, A. S., Tracey, D., & Barker, K. (2015). Inclusion of Children With Special Needs in Early Childhood Education. *Topics in Early Childhood Special Education*, 35(2), 79–88. <https://doi.org/10.1177/0271121414566014>
- Lingenauber, S. (2012). *Kinder mit Behinderungen in Kindertageseinrichtungen*. <https://www.bildungsbericht.de/de/schwerpunkthemen/pdfs/expertenworkshop-2012-lingenauber1112.pdf>



- Lohmann, A., Hensen, G., & Wiedebusch, S. (2016). Fachbeitrag: Einstellungen heilpädagogischer Fachkräfte zu Inklusiver Bildung. *Vierteljahresschrift Für Heilpädagogik Und Ihre Nachbargebiete*, 86(1), 26. <https://doi.org/10.2378/vhn2017.art03d>
- Majoko, T. (2016). Inclusion in early childhood education: Pre-service teachers' voices. *Early Child Development and Care*, 186(11), 1859–1872. <https://doi.org/10.1080/03004430.2015.1137000>
- Michailakis, D. (2003). The Systems Theory Concept of Disability: One is not born a disabled person, one is observed to be one. *Disability & Society*, 18(2), 209–229. <https://doi.org/10.1080/0968759032000044184>
- Miesera, S., DeVries, J. M., Jungjohann, J., & Gebhardt, M. (2019). Correlation between attitudes, concerns, self-efficacy and teaching intentions in inclusive education: Evidence from German pre-service teachers using international scales. *Journal of Research in Special Educational Needs*, 19(2), 103–114. <https://doi.org/10.1111/1471-3802.12432>
- Norwich, B., & Koutsouris, G. (2017). Addressing dilemmas and tensions in inclusive education. In G. W. Noblit (Ed.), *Oxford Research Encyclopedia of Education*. Oxford University Press. <https://doi.org/10.1093/acrefore/9780190264093.013.154>
- OECD. (2020). *Quality Early Childhood Education and Care for Children Under Age 3*. <https://doi.org/10.1787/99f8bc95-en>
- Peng, X., Long, T., & Su, X. (2024). Preschool Teachers' Attitudes about Inclusive Education and Its Influencing Factors in China. *Behavioral Sciences*, 14(10). <https://doi.org/10.3390/bs14100904>
- Peucker, C., Gragert, N., Pluto, L., & Sckeinger, M. (2010). *Kindertagesbetreuung unter der Lupe: Befunde zu Ansprüchen an eine Förderung von Kindern*. DJI-Fachforum Bildung und Erziehung, Bd. 9. Deutsches Jugendinstitut.
- Saloviita, T. (2018). Attitudes of Teachers Towards Inclusive Education in Finland. *Scandinavian Journal of Educational Research*, 64(2), 270–282. <https://doi.org/10.1080/00313831.2018.1541819>
- Sarimski, K. (2012). *Behinderte Kinder in inklusiven Kindertagesstätten*. Kohlhammer Verlag.
- Schaub, S., & Lütolf, M. (2024). Attitudes and self-efficacy of early childhood educators towards the inclusion of children with disability in day-care. *European Journal of Special Needs Education*, 39(2), 185–200. <https://doi.org/10.1080/08856257.2023.2200106>
- Schmidt, T. (2005). Entwicklungen in der Ausbildung von Erzieherinnen. *Zeitschrift für Pädagogik*, 51. <https://doi.org/10.25656/01:4777>
- Shakespeare, T. (2017). The social model of disability. In L. J. Davis (Ed.), *The disability studies reader* (5th ed., pp. 266–273). Routledge. https://thedigitalcommons.org/docs/shakespeare_social-model-of-disability.pdf
- Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society*, 23(7), 773–785. <https://doi.org/10.1080/09687590802469271>
- Sharma, U., Sokal, L., Wang, M., & Loreman, T. (2021). Measuring the use of inclusive practices among pre-service educators: A multi-national study. *Teaching and Teacher Education*, 107, 103506. <https://doi.org/10.1016/j.tate.2021.103506>
- Söderlund, G., Thoutenhoofd, E., Westman Andersson, G., Gerrbo, I., & Berhanu, G. (2024). Inclusive education in Sweden. *European Journal of Inclusive Education*, 3(1), 142–166. <https://doi.org/10.7146/ejie.v3i1.145185>



- Staatinstitut für Frühpädagogik. (2017). *Lust und Mut zur Inklusion in Kindertageseinrichtungen: Handreichung zur Öffnung von Kindertageseinrichtungen für Kinder mit Behinderung*. https://www.ifp.bayern/files/media/ifp/public/projects/raum-fuer-inklusion/stmas_lust-und-mut-inklusion-kita_-_kennwort.pdf
- Takala, M., & Sirkko, R. (2022). Pre-service teachers' attitudes towards inclusion in Finland. *Support for Learning*, 37(3), 377–398. <https://doi.org/10.1111/1467-9604.12415>
- Tan, R., Devarakonda, C., & Rothe, A. (2024). How is inclusion defined on the early childhood level in China, Germany and the UK: A systematic literature review. *International Journal of Early Years Education*, 1–20. <https://doi.org/10.1080/09669760.2024.2368041>
- Tan, R., Lichtblau, M., Wehmeier, C., & Werning, R. (2022). Preschool teachers' attitudes towards inclusion: A comparison study between China and Germany. *European Journal of Special Needs Education*, 37(6), 994–1008. <https://doi.org/10.1080/08856257.2021.1997480>
- VERBI Software. (2022). *MAXQDA 2022* [Computer software]. <https://maxqda.com>
- Yu, S., & Cho, E. (2022). Preservice Teachers' Attitudes Toward Inclusion in Early Childhood Classrooms: A Review of the Literature. *Early Childhood Education Journal*, 50(4), 687–698. <https://doi.org/10.1007/s10643-021-01187-0>
- Yu, S., & Park, H. (2020). Early Childhood Preservice Teachers' Attitude Development Toward the Inclusion of Children with Disabilities. *Early Childhood Education Journal*, 48(4), 497–506. <https://doi.org/10.1007/s10643-020-01017-9>

