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# Attitude of Primary School Teachers Towards Inclusive Education in Nigeria: Contributions of Personality and Work Experience

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## ABSTRACT

Children with disabilities in South-Eastern Nigeria face problems of isolation. This study investigated the roles of conscientious personality and work experience in predicting teachers' attitude towards inclusive education. Participants included 196 primary school teachers who were selected randomly from 6 primary schools in Enugu, South-Eastern Nigeria. The age of the teachers ranged from 27-51 years (Mean age = 41.85 years; Standard Deviation = 4.63). Results showed that conscientious personality and work experience positively predicted primary school teachers' attitude towards inclusive education. The results were discussed in terms of determining work-related attributes necessary for improving access to education among children with disabilities. The limitation of the study and recommendation for future research were highlighted.

**Keywords:** attitude; conscientiousness; disability; inclusive education;  
work experience.

## INTRODUCTION

The terms disability, impairment and handicap have often been used interchangeably. World Health Organization (WHO, 1980) distinguished among these terms in its International Classification of Impairment, Disabilities and Handicap (ICIDH). It defines impairment as physical or mental disturbances that exist at the level of a bodily organ or function. In the case of disability, it refers to the objectification of impairment, reflecting disturbances at the level of a person. To take an example, whereas total or partial blindness is impairment, it results in the disability of being unable to see or having difficulty in seeing. Lastly, the term handicap refers to the social or economic consequences of a disability, which put the concerned person at a disadvantage. Examples of handicap include being confined to home or being unable to work. In the present study, the children referred to are children who are disadvantaged by physical and/or mental disabilities. The term disability is preferred over the other two.

Inclusive education is the process of educating children with disabilities in the regular education classrooms of their neighborhood schools (Rafferty, Boettcher and Griffin, 2001). The system ensures that children with disabilities attend schools they would normally attend if they did not have a disability. It is the process of bringing support services to the child, rather than referring the child to services. Inclusive education provides opportunity for children with disabilities to be exposed to the richness of regular education environment (Mastropieri & Scruggs, 2004). As Stainback and Stainback (1990) pointed out, "inclusive education is the most effective means of combating discriminatory attitudes, creating welcoming communities and building an inclusive society (p. 37)." Proponents of inclusive education maintain that inclusion in mainstream education is an important means of promoting social integration and avoiding a sense of separateness and inferiority. Inclusive education is the best method to guarantee education for all children irrespective of ability (Toni-Duruaku, 2018). Given adequate resources for special equipment and materials as well as appropriate teacher training, education in regular schools is the best option for children with disabilities.

Children with disabilities are often handicapped in various aspects of social life, receiving less education, becoming marginalized in social activities and having less opportunities for gainful employment in later life

(Czyz, 2018; National Planning Commission & United Nations Children's Fund, 2001; Onyedibe, Ugwu, Mefoh, & Onuiri, 2018). Disabilities put children in more vulnerable situation than they would normally face, particularly with respect to access to education, training and opportunities for employment and self-sufficiency in later life. In a developing country like Nigeria where social security for the weakest is poorly developed, children with disabilities often face numerous problems. Children with disabilities are given fewer opportunities for education. With little education or training, many of them face difficult future in adulthood. Of course, it may not be possible to integrate all children with disabilities into the mainstream of the school system. Children who are moderately impaired can benefit from inclusive education. Children with visual impairment, for example, would profit from inclusive education if there are adequate resources such as Braille machines, type writers, and tape recorders. Also, children who use wheel chair to get around would benefit from inclusive education if authorities provided ramps or elevators. Ebigbo and Ebigbo (2001) decried the situation where many Nigerian children with mild hearing problems have been wrongly placed in special schools for the deaf, whereas with appropriate hearing aids they could easily integrate into normal schools.

One of the perennial problems facing the Nigerian government is how to educate the growing number of children with disabilities. The government adopted inclusive education policy in 1977 through national policy on education (Fokolade, Adeniyi & Tella, 2009); the policy was intended to equalize educational opportunities for all children, irrespective of their physical, mental, or emotional disabilities. However, nearly four decades after the ratification of the inclusive education policy in Nigeria, implementation of the programme has remained poor and educational services for children with disabilities in the country are still grossly inadequate (Eni-olorunda, 2004; Mba, 1991). Many children with disabilities in Nigeria still face special problems of exclusion in schools, which tend to exacerbate the risk of survival and create formidable obstacles for the development of such children. The educational disadvantages faced by children with disabilities result in literacy levels being much lower in such children than in the normal population. Certain categories of children with disabilities, in particular the blind and those with mental disabilities, are in the most disadvantaged situation with respect to education (National Population Commission, 1991).

Teachers' attitude contributes to poor policy implementation of inclusive education. People tend to develop attitude towards everything – towards other people, towards political and religious institutions, towards moral and philosophical systems, towards seemingly every psychological object. The general theory of attitude that was applied to explain teachers' attitude towards inclusive education is the functional theory of attitude (Katz, 1960). This theory of attitude formation and change is based on the notion that attitude is a function of the purpose that a behaviour fulfills for the individual. Attitude helps to give standard for evaluation and perform the function of bringing order, clarity and stability to an individual's frame of reference (Kumar, 2016). Attitudes develop and change with time. Eagly and Chaiken (1993) and Maio, Maio and Haddock (2010) maintain that attitudes are influenced by three components – cognitive, affective and behavioural components. Maio, et al. (2010) define attitude as a relatively enduring organization of interrelated beliefs that describe, evaluate, and advocate action with respect to an object or situation, with each belief having cognitive, affective, and behavioural components. Studies (e.g., Ajuwon, 2008; Deku & Ackah, 2012; Dragna, Brainslav, & Glumbic, 2014; Unegbu, 2013) show that if a teacher possesses a positive attitude towards inclusive education, then that teacher often demonstrates genuine interest in children with disabilities. The teacher sees children with disabilities as individuals and tries to help them to overcome learning problems. In contrast, when teachers develop negative attitudes toward inclusive education, they tend to ask children with disabilities fewer questions in class and/or give them less feedback than their non-disabled peers (Alves & Gottlieb, 1986; Lewis & Doorlag, 1999). Learning appears to be significantly difficult for children with disabilities when a teacher displays tension, aggression, irritability, and other negative attitudes (Dragna, et al. 2014).

### **The impact of conscientious personality and work experience on attitude towards inclusive education**

Teachers' attitude towards inclusive education is influenced by a number of factors. Two factors examined in the present study are conscientious personality and work experience. Personality generally refers to the dynamic organization within an individual that determines one's unique adjustment to his or her environment. Trait-based researchers (Allport, 1937; Costa & McCrae, 1992) argue that personality is stable, and that each individual's behaviour is consistent regardless of the situation. Personality is

a relevant factor in determining work related attitudes (Feist & Feist, 2009; Beer & Brooks, 2011; Sackett, Gruys & Ellingson, 2002). It differentiates individuals and provides clear understanding of the attitude an individual brings to a particular work situation. The present study focuses on conscientious personality as captured in the "Big Five" dimensions (Costa & McCrae, 1992). The Big Five is a hierarchical taxonomy in which specific traits are subsumed within five separate personality traits. The conscientious personality is of interest in the present study. Individuals with high conscientiousness tend to have task-oriented traits, such as being reliable, responsible, and orderly. Conscientiousness correlates with intrinsic motivation, and individuals with high levels of conscientiousness appear to be more dedicated to their jobs than people who are not. When teachers increase their knowledge about children with disabilities their attitude towards inclusive education improves (Handlers & Austin, 1980). Since it encourages high level of self-organized behaviours, conscientious personality seems to facilitate teacher's positive attitude towards inclusive education (De Fruyt & Mervielde, 1996). The five personality traits (McCrae & John, 1992) are 24 – 45% heritable (Larsen & Buss, 2002). The heritability is strongest for extraversion and neuroticism (McCrae & John, 1992), which implies that people could improve their level of conscientiousness through deliberate efforts.

Work experience is another variable of interest to this study. Research on career success has consistently shown a moderately high positive correlation between work experience and career success. In one of his studies, Melamed (1995) examined the relationship of several subjective characteristics with career success. The results show that personality was partially relevant to career success, depending on the nature of the job, while as work experience was not. People are different in the amount and quality of assets they bring to a job. The effectiveness of the assets one expends on a job is the main determinant of career success. Zacher (2014) and Pan and Zhou (2013) posit that career success is critical in influencing how individuals perceive and respond to their career development within organizations. The achievement of improved literacy in children with disabilities cannot take place without expertise and/or experience. Work experience and support for inclusion is somewhat related; studies (e.g., Batsiou, Bebetos, Pantel & Anthoniou, 2008; Kalyva, Gojkovic & Tsakiris, 2007; Kumar, 2016; Malak, 2013) indicate that teachers with previous working experience in an inclusive educational environment or teachers who have had experience teaching



children with disabilities report more positive attitude towards inclusion than teachers without any experience. Teachers unfamiliar with special needs tend to create apprehension, distrust and even hostility due to inadequate training or for some other reasons. Poverty of knowledge about inclusion usually results in the low utilization of instruction materials to improve the needs of children with disabilities. Surprisingly, studies (Berryman, 1989; Forlin, 1995; Hastings & Oakford, 2003; Leyser, Kap- perman & Keller, 1994) have reported that teachers with more years of working experience tend to be less supportive of inclusive education than teachers with less years of working experience. These findings are interesting, but warrant a re-examination of the influence of teacher experience in an African context. Our study fills this gap.

## OBJECTIVES OF THE STUDY

Two objectives were pursued in the present study. The first was to investigate whether conscientious personality would predict teachers' attitude towards inclusive education. The burgeoning research on the trait theory of personality (Allport, 1937; Costa & McCrae, 1992) demonstrates that traits are stable, fundamental properties that make individuals unique. People behave in manners that are somewhat stable; they think, feel, and respond to stimuli in very predictable ways. Because conscientious personality is composed of relatively stable characteristics that cause individuals to behave in certain ways, the first hypothesis states that conscientiousness would positively predict teachers' attitude towards inclusive education. The second objective re-examines the role of teaching experience on teachers' attitude towards inclusive education. Traditional research on career development (Super, 1957; 1988) assumes that work helps develop personal identity, and that who an individual becomes depends on the career choice made. The model assumes that career development is a life-long process of work roles and experiences; one gains vocational self-concept and finds a better way to stay ahead of the competition and secure a professional position. (i.e. career maturity). Because work experience involves commitment and general world of work information, the second hypothesis states that (longer) work experience would positively predict teachers' attitude towards inclusive education.

In summary, the key research question of the present research is: does conscientious personality and work experience significantly predict the attitude of primary school teachers towards inclusive education in Nigeria?

## METHOD

### Participants and procedures

The participants for the present research were randomly selected from six primary schools in Enugu, South-Eastern Nigeria, in the following proportions: 36, 28, 54, 21, 23, and 34. Participants included 196 primary school teachers; there were 92 (46.94%) male teachers and 108 (53.06%) female teachers. The age of the teachers ranged between 27 – 51 years (Mean age 41.85 years; Standard deviation = 6.64). The work/teaching experience of the teachers ranged between 2 – 9 years; all the primary school teachers examined in the study were Igbo (Igbo is the tribe of the people of South-Eastern Nigeria). They are also largely Christians. Data were collected from teachers of five selected primary schools after necessary permission was sought and obtained from the Head Teachers of the schools. Participants were informed that their responses were only to be used for research purposes and were required to respond truthfully to all the items on the conscientious personality sub-scale and on the MATIES. With the approval of the Head Teacher, the two questionnaires were administered simultaneously to the teachers in their respective classrooms. Two hundred copies of the questionnaires were distributed; there was no time limit for the completion of the questionnaires. All the copies of the questionnaires were duly completed and returned to the researchers. However, four questionnaires were improperly filled and were therefore not included in the analysis. At the end of data collection in each school, the principal researcher explained the general purpose of the study and any questions participants had were answered. The permission to carry out the study was granted by the Ethical Board of Department of Psychology, University of Nigeria, Nsukka.

### Measures

Two instruments were used in the present study. They are a sub-scale of the Big Five Inventory (BFI) - conscientiousness sub-scale and the Multidimensional Attitude towards Inclusive Education Scale (MATIES). The conscientiousness sub-scale of the Big Five Inventory (BFI) (John, 1990) was utilized to measure conscientious personality. The sub-scale is a 9 item inventory that measures the personality dimension of conscientiousness (c). The sub-scale is a Likert-type questionnaire that requires respondents to indicate the extent to which they agree or disagree with statements people often use to describe themselves. Response options ranged from "strongly disagree" (scored 1) to "strongly agree" (scored 5). Some samples of the items



on the sub-scale are: “I see myself as someone, who does a thorough job”, “I see myself as someone, who does things efficiently”, “I see myself as someone, who tends to be disorganized”, etc. In scoring the sub scale, a simple scoring technique in which 2 of the 9 items are scored in reverse was adopted (John, Naumann, & Soto, 2008). The validity and reliability of the sub-scale has been well established in Nigerian samples (Umeh, 2004). The present study obtained validity and reliability indexes of the sub-scale by administering the scale to 95 primary school teachers in a pilot study (the 95 participants were not part of the main study). The analyses yielded a construct validity coefficient of .73 and a split-half reliability coefficient of .77 (corrected with the Spearman-Brown formula).

The Multidimensional Attitude towards Inclusive Education Scale (MATIES) (Mahat, 2008) is an 18 items measure of teachers’ attitude towards inclusive education. The MATIES is a Likert-type questionnaire that requires a respondent to indicate his/her disposition towards the equalization of educational opportunities for all children regardless of ability. Response options were “strongly agree”, which scored 6; “somewhat agree”, which scored 5; “agree”, which scored 4; “disagree”, which scored 3; “somewhat disagree”, which scored 2; and “strongly disagree”, which scored 1. The MATIES was structured to cover three important components of attitude - cognitive, affective, and behavioural components. Examples of items found on each of the components of MATIES include: “I believe that an inclusive school is one that permits academic progression of all students regardless of their ability” (cognitive), “I get frustrated when I have to adapt the curriculum to meet the individual needs of all students regardless of their ability” (affective), and “I am willing to en-

courage students with disability to participate in all social activities in the regular classroom” (behavioural). There are six items each in the three components of attitude, which yields a composite score to indicate a teacher’s attitude score on the dependent measure. It is not known whether MATIES has been applied to the Nigerian sample as no psychometric details of the measure could be ascertained. However, the present research administered the MATIES to 95 school teachers, as mentioned earlier. Results indicate an internal reliability coefficient of .85 and a concurrent validity coefficient of .68 for the MATIES. Data on work experience was collected alongside the demographic variables (gender and age).

### Design and statistics

The study employed a cross-sectional design. The statistics used to analyze the data was multiple regression and correlation (MRC), using the statistical package for the social sciences (SPSS), version 16.

## RESULTS

Table 1 showed the results of Pearson product-moment correlation, which assessed the degree of relationships among the variables of interest. The results showed that the demographic variables – age and gender, were not associated with teachers’ attitude towards inclusive education. Specifically, a moderate relationship is declared if Pearson  $r$  is  $\pm 0.30$  (Schwartz, Wilson, & Goff, 2015); thus conscientious personality and work experience were moderately related to the dependent measure: conscientiousness has a correlation coefficient,  $r = 0.24$ ,  $p < 0.05$ , while work experience has a correlation coefficient,  $r = 0.47$ ,  $p < 0.01$ .

Table 1. Means (M), standard deviations (SD) and correlation matrix for attitude (ATIE), personality, work experience and demographic variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Openness	40.08	5.25	1								
2. Conscientiousness	30.76	5.87	.56**	1							
3. Extraversion	24.85	4.20	-.36**	-.32**	1						
4. Agreeableness	28.45	3.02	-.10	.15*	.16*	1					
5. Neuroticism	26.19	5.09	.54**	.41**	.06	.17*	1				
6. Work experience	2.07	.81	.01	.21**	-.02	.22**	.12	1			
7. ATIE	74.0	9.82	-.24**	-.12	.12	-.35**	-.30**	.08	1		
8. Gender			-.06	-.17*	-.20**	.15*	-.38**	-.36**	-.03	1	
9. Age			-.01	-.07	-.01	-.04	.21**	.62**	.13	-.47**	1

Keys: \*\* =  $p < 0.01$ ; \* =  $p < 0.05$ ; ATIE = Attitude towards inclusive education.

Table 2. Multiple regression tables showing the influence of the BFI and work experience on teachers' attitude towards inclusive education

Unstandardized Coefficients					Standardized Coefficients		
Variables	B	Std. Error	Beta ( $\beta$ )	t	Model Summary		
Openness	-.35	.17	-.19	-2.09*	R	R <sup>2</sup>	AR <sup>2</sup>
Conscientiousness	.29	.13	.17	2.15*			
Extraversion	.45	.16	.19	2.70*			
Agreeableness	-1.40	.21	-.43	-6.45**			
Neuroticism	-.44	.15	-.23	-2.81*			
Work experience	2.15	.77	.17	2.78*	.53	.28	.26

Keys: \*\* =  $p < .001$ ; \* =  $p < .05$ .

Multiple regression and correlation (MRC) was used to predict teachers' attitude towards inclusive education (ATIE). The regression table (Table 2) indicated that the control variables (age and gender) did not predict ATIE, but conscientious personality and work experience were shown to be good predictors of the behaviour. In the regression equation model, conscientious personality positively predicted ATIE ( $\beta = .17$ ,  $t = 2.66$ ,  $p < .05$ ). This finding is consistent with the first hypothesis that conscientiousness would positively predict attitude towards inclusive education. Thus, the hypothesis was not rejected. The regression equation model also indicated that work experience significantly (and positively) influenced teachers' attitude towards inclusive education ( $\beta = .19$ ,  $t = 2.87$ ,  $p < .001$ ). Work experience was coded "0" for shorter work experience ( $< 3$  years) and "1" for longer work experience ( $\geq 3$  years). The finding then suggests that as work/teaching experience increases, teachers' attitude towards inclusive education also improves. The multiple R and R<sup>2</sup> for the predictor variables were .53 and .28. Conscientious personality and work experience jointly accounted for 26% of the variance in teachers' attitude towards inclusive education.

## DISCUSSION

The present study examined the roles of conscientious personality and work experience on teachers' attitude towards inclusive education. Two hypotheses were tested in the study. The first was that conscientious personality would predict teachers' attitude towards inclusive education. The results of the data analyses supported the first hypothesis; conscientiousness positively predicted teachers' attitude towards inclusive education. This finding supports previous studies (e.g. Beer & Brooks, 2011; Handlers & Austine, 1980; Malak, 2013), in particular Djigic and Stojikovic (2011) and Taylor's research (2003), which found that

conscientious personality tends to have positive attitude towards academically centered topics. In the present study, conscientiousness has positive relationships with teachers' attitude towards inclusive education. Conscientious people are often competent, ambitious, methodical, focused and dutiful. It is not surprising then that conscientiousness influences teachers' attitude positively: higher levels of conscientiousness seem to cause teachers to express positive attitude towards inclusive education.

The second hypothesis examined in the present research was that work experience would predict teachers' attitude towards inclusive education. The analyses of data supported this hypothesis and it was not rejected: work experience significantly (positively) predicted teachers' attitude towards inclusive education. This finding supports previous studies (e.g., Batsiou, et al. 2008; Kalyva, et al. 2007; Kumar, 2016) that teaching experience is associated with career maturity. The nature of the relationship was such that the more years of experience a teacher devoted to the job, the more positive the teachers' attitudes toward the lifelong work process. This finding is consistent with the theory of career development (Super, 1988), that work helps in the development of personal identity, commitment and vocational self-concept.

The findings of the present research have many practical implications for the training and education of teachers, especially teachers who care for children with disabilities. One of the most important educational implications of the present study is in the burgeoning evidence that conscientiousness is a relevant factor in determining work related attitudes (e.g., Beer & Broke, 2011; Melamed, 1995; Sackett, et al. 2002). The findings of the present study underscore the importance of recognizing the facet of conscientious personality that facilitates

successful implementation of inclusive education policy. In general, personality is fairly stable and predictable throughout different situations and it behooves education administrators to employ teachers whose personalities are amenable to the successful implementation of the inclusive education programme. Teachers' tendency to set high goals and have high levels of motivations and/or to have more social skills or to become more cooperative (i.e., conscientiousness) improves favourable attitude towards the receptivity of children with disability, and positive attitude towards inclusive education. When students are identified by negatively perceived labels such as intellectually disabled, mentally retarded, hearing and speech impaired, teachers are less able to objectively observe, rate and plan appropriate interventions for their behavior (Campbell, Dodson & Best, 1985). Furthermore, because teachers with more years of teaching experience tend to have more positive attitude towards inclusive education than teachers with less years of experience, education administrators need to look out for experience during recruitment of teachers into inclusive education facilities to drive the government's policy of inclusion in schools.

The limitation of the present research lies in the choice of cross-sectional design adopted for the collection of data. Data collected over a long time would have yielded a more robust conclusion than the one that was collected only once. The present study therefore recommends that future studies aimed at evaluating the relationships between teachers' characteristics and the willingness to accept inclusive education in schools, should adopt longitudinal method of sampling data. The longitudinal de-

sign is a useful design that engenders better confidence in the conclusions reached in research.

## CONCLUSION

The present study investigated the roles of conscientious personality and work experience in teachers' attitude towards inclusive education in South-Eastern Nigeria. Two hypotheses examined in the study were that conscientious personality traits and work experience would predict teachers' score on attitude towards inclusive education scale (MATIES). Data were collected through cross-sectional design and were analyzed with multiple regression and correlation (MRC) statistics. Analyses of data supported that the two hypotheses were not rejected. The findings were discussed; one of the most important implications of the study suggests that conscientious personality is a relevant factor in determining work related attitudes. The present study tentatively proposes that successful implementation of inclusive education programme in South-Eastern Nigeria would require that education administrators recruit teachers with high task-oriented characteristics, such as being dependable and responsible, and teachers who possess longer teaching experience. This is a tentative conclusion; converging evidence is required from independent studies before the present findings can be viewed with confidence.

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# Can You Teach Intrinsic Values? Creating a Rubric to Support and Assess Professional Dispositions Development

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## ABSTRACT

Teacher educators understand the important role of dispositions, defined as beliefs, values, and attitudes educators demonstrate when interacting with others. Without skills in these areas, teacher candidates will likely struggle to develop the necessary knowledge and skills to be effective in the classroom. There is general consensus in the field as to the value of developing these dispositions in teacher candidates. The purpose of the present paper is to describe a process aimed to define and measure professional dispositions aligned to Combs' perceptual dispositions model. The work had three objectives. Firstly, to understand how students and other members of the faculty viewed the importance of professional dispositions. Secondly, to build on the broad definition of professional dispositions by identifying associated competencies. Finally, to create a tool to authentically assess and support teaching dispositions in teacher candidates. The authors identified six competencies to measure and help develop in teacher candidates: Cultural Competence, Critical Thinking, Communication, Collaboration, Self-reflection, and Initiative. This paper provides a methodological approach to defining dispositional competencies, a process and tool to measure these in teacher preparation programs.

**Keywords:** dispositions; pre-service; candidate; teacher; education; process; developing



## INTRODUCTION

Teacher educators work tirelessly to prepare candidates in the knowledge and skills necessary to be successful teachers in today's classrooms. Candidates graduate with content and pedagogical knowledge, behavior management techniques, and log hours practicing these skills in classrooms. However, teacher educators know there are also traits that the most effective educators possess that are not adequately captured by measures of knowledge and skills. The literature commonly refers to these as professional dispositions, and they play an important role in the development of future teachers. The field of teacher preparation has long valued the development of these dispositions in teacher candidates.

Since the National Council of Accreditation of Teacher Education (NCATE) first included professional dispositions in the program approval process, there has been an increase in the interest and attention paid to defining and measuring them in teacher preparation programs (Smith, 2013). NCATE (2008) defined professional dispositions as beliefs, values, and attitudes educators demonstrate through their interactions with others. This broad definition has been discussed in literature. Though many professionals have acknowledged the need for a more specific definition than the one set forth by NCATE, there is no consensus on what this definition should be. Much of the literature references NCATE, and then points out the variation in how the literature has tried to create a definition based on these broad standards (Meidl & Baumann, 2015). For example, Edington and Cox (2015) reported using a Teacher Disposition Summary tool to support the development of dispositional skills for pre-service teachers. The tool evaluated the areas of values, commitment, professional ethics, and organization/flexibility. Meanwhile, Pang, Nichols, Terwilliger, and Walsh (2014) created the Teacher Disposition Checklist (TDC) to evaluate the areas of professionalism, communication, respect for diversity, collaboration, self-reflection, recognition of students' individual needs, and responsiveness to feedback.

Despite the disagreement on how to specifically define dispositions, professionals are in general consensus as to the significance of dispositions in teacher preparation programs. One reason is to understand how teacher candidates' professional dispositions may influence their students' learning and their own professional growth. Researchers have found that nature and quality of educa-

tion through which students learn is dependent upon the dispositional skills teachers possess (Notar, Riley, Taylor, Thornburg, & Cargill, 2009; Thornton, 2013), suggesting that an important element to students' learning is the educator's disposition.

In addition, theoretical frameworks available to help guide the development of teacher candidates promote the importance of developing dispositional traits. Tenets of Arthur Combs' perceptual field theory, specifically his discovery that an individual's belief system, rather than knowledge and skills, were the determining factors in effective helpers (e.g., teachers, nurses, and counselors), provides the necessary grounding to facilitate this work (Combs, 1965). Combs contended that all behavior is a function of an individual's beliefs about and experiences in the world (Combs, 1999).

To ensure preparation programs are helping candidates develop the dispositions that will lead to effective teaching, appropriate methods of evaluation are needed. Further, it is important to identify when dispositional skills develop in a teacher preparation program. Most commonly, dispositional skills are defined, discussed, and practiced through field-based experiences in schools. Research has found that teacher candidates feel more competent to teach when their coursework is tied to field experiences (Allen & Wright, 2014; Horn & Campbell, 2015). Kincaid and Keiser (2014) found that intentional observations of teacher candidates by the university supervisor and cooperating teacher is essential in providing support, as related to skills and dispositions critical to the profession that might not be as apparent to a professor in a classroom setting. Having a specific definition can help guide preparation programs to identify associated competencies in order to operationalize and accurately evaluate the specific skills candidates need to develop. It is important to understand how they develop in order to teach and support students in fostering dispositions. Instead of noting whether the dispositions are present or not, teacher educators can target the dispositions and support their growth over time. In addition, teacher educators could notice concerns early in the program and work with students to develop and grow in the area(s) of concern.

The purpose of this paper is to describe a process aimed to define and measure professional dispositions in teacher candidates. With an emphasis on engaging faculty, students, and community stakeholders in this

process, the work had three objectives. Firstly, to understand how students and other faculty viewed the importance of professional dispositions. Secondly, to build on the definition of professional dispositions by identifying associated competencies. Finally, to create a tool to authentically assess and support teaching dispositions for teacher candidates.

## PROCESS

Our teacher preparation program is implemented by the College of Education and Professional Studies at a university in a Midwestern state. The University is located in a rural region with a population of roughly 103,000; 95% of which are white, and the median household income is \$55,000 (U.S. Census Bureau, 2017).

In the program, teacher candidates participate in three field placements prior to student teaching. The first field focuses on the inclusive methods, including culturally responsive teaching, classroom routines and management, lesson planning, and teaching. The second field focuses on collaborative teaching methods, specifically on co-teaching models, and lesson planning with emphasis on differentiation and universal design for learning. The third one focuses on addressing significant and challenging behaviors in a classroom. During the field placements, candidates were working in classrooms with support from Cooperating Teachers. This developmental field experience model provides three distinct points of evaluation for knowledge, skills, and dispositions.

The process applied to determine how to evaluate professional dispositions for the program consisted of three phases. The first phase was to understand the value students and faculty placed on dispositions. This included a review of the literature to determine the definition and associated competencies. This was followed by the distribution of a survey to teacher candidates and faculty in the department to identify which of the competencies identified were most important to support. Subsequently, in order to select the dispositions, focus groups were held with cooperating teachers in the region to explore the professional dispositions they identified as most important for teacher candidates. Finally, the authors developed a rubric to assess and support the development of professional dispositions for their teacher candidates.

## UNDERSTANDING THE VALUE OF DISPOSITIONS

Building on Combs' theory that behavior is impacted by how individuals perceive themselves and the purpose of teaching, we sought to identify the dispositional traits valued by candidates and the faculty. We anticipated finding participant responses aligned to Combs' perceptual field theory. More specifically, his perceptual dispositions model that can be applied to teacher effectiveness. This model identified four areas of perceptions that differentiate effective and ineffective teachers: a) perceptions of oneself, b) perceptions of other people, c) perceptions of the purposes of teaching, and d) general frame of reference perceptions (Combs, Soper, Gooding, Benton, Dickman, & Usher, 1969).

In spring 2016, the authors developed a survey used to determine teacher candidate beliefs about professional dispositions. Based on the current grading tools used within the department and informed by the literature and other disposition rubrics, the authors identified key dispositions for the survey. The survey items included a mix of content, pedagogy, and dispositional traits centered on self-reflection and the teachers role in influencing the environment. The first question the candidates were asked was "how important you feel it is to demonstrate the following skills in your field placement?" Candidates were able to rate options that focused on teaching, assessment, goal setting, planning and dispositional skills from extremely important to not at all important. Second, candidates were asked an open-ended question, "what is the most valuable aspect of field experiences?" These responses were reviewed to identify themes. The authors sent a survey to 73 candidates currently enrolled in the three fieldwork courses offered by the department. Sixty-eight candidates completed the survey with a 93% completion rate. Of the candidates who completed the survey, 48% were juniors and 52% were seniors.

During the same period, faculty members in the department were sent a survey to identify strengths and areas for growth related to fieldwork. The survey was sent to the 12 faculty and staff in the department and eight (67%) completed the survey. The three open-ended questions were:

- 1) What are the objectives of our collective field courses?**
- 2) What skills do you expect students to gain during fieldwork?**



### 3) What experiences do you hope students encounter during fieldwork?

Open-ended questions were used to allow faculty the freedom to share their ideas.

## DEFINING DISPOSITIONS

To elaborate on specific competencies associated with the identified dispositions, focus groups were held with cooperating teachers. The questions asked were open-ended to gather authentic data on their perceptions. The participants in this study worked within a 50-mile radius of the University. The distance parameter was put in place in order to identify the teachers who hosted candidates from the University in their field placements. Further, the authors took into consideration the travel time to and from the focus group location.

Ten teachers were selected using a two-step process. First, all school districts within a 50-mile radius, who hosted teacher candidates from the University in the past, were identified. This resulted in 12 districts. Second, district administrators were emailed and asked to distribute information to their staff about the opportunity to participate in a focus group to examine professional dispositions in pre-service teacher candidates. The interested teachers emailed one of the three authors to receive more detailed information. Inclusion criteria were: 1) hosted a teacher candidate within the last three years, 2) worked in a school district within a 50-mile radius of the University, and 3) was a licensed teacher. All of the teachers who contacted the authors met the inclusion criteria and were enrolled in the study. Four of the twelve school districts contacted were represented in this group. See Table 1 for participant demographics.

The participants attended one of the two-hour focus group meetings. The first focus group had six attendees, and the second had four attendees. Focus groups were held in the evening after school, and food was provided. The same procedures were followed for each focus group. First, participants were provided with a brief overview of the purpose of the meeting and asked to provide written consent. Second, participants were provided with a brief context for the focus groups by listening to a 10-minute PowerPoint presentation that included the definition of professional dispositions. At the end of the presentation, participants learned the procedures of the focus group and had the opportunity to ask questions.

After the presentation, a modified Nominal Group Technique (NGT; Delbecq, Van de Ven, & Gustafson, 1986) process was conducted (i.e., the first six steps of the NGT). NGT is a structured focus group that combines qualitative and quantitative methods to collect feedback in a timely manner (Johnson & Turner, 2003). This process consists of a set of previously developed questions focusing on defining and identifying professional disposition competencies. There are six-steps recommended by Delbecq et al. (1986): (a) brainstorming and silent generation of ideas by participants, (b) recording and displaying ideas, (c) group discussion, (d) categorization of ideas into themes, (e) preliminary vote to determine high-priority ideas, (f) final group discussion of outcome of vote, and (g) a final vote over ideas using a 1-5 ranking system to provide quantitative data.

Each focus group followed the same procedure. Following the brief presentation, each group was provided with the set of three questions to be discussed in turn. The teachers were asked, (1) What are the professional dispositions necessary to be an effective teacher?, (2) Of those dispositions, which do you feel are most likely to develop over time (i.e., you would not expect a first year teacher to have fully developed due to lack of experience in the field)?, and (3) How would you evaluate teacher candidates on the professional dispositions scale identified in question one?

Each question was presented one at a time. After each question, the participants recorded their individual responses on a google form. Once all responses were collected electronically, they were projected for the group to review. The group then discussed the responses and as a whole identified the top five high priority responses to each question. The participants then ranked the five responses: the priority one response received 5 points, the priority two response received 4 points, the priority three response received 3 points, the priority four response received 2 points, and the priority five response received 1 point. The item that received the most points across both focus groups received the number one rank, the second most points received the number two rank, the third received the number three rank, the fourth received the number four rank, and the fifth number five. All procedures were audio recorded, with participants' permission, and a note-taker was present to record questions and ideas discussed during each focus group session.

## SURVEY AND FOCUS GROUP FINDINGS

### Value of Dispositions

Candidate survey. The candidates identified six competencies as “extremely” important professional dispositions. These competencies and the percent of candidates who selected “extremely important” were the following: Communication (91%), Collaboration (82%), Critical Thinking (73%), Self-reflection (72%), Initiative (66%), and Cultural Competence (61%). Common themes that emerged from the open-ended question, “what is the most valuable aspect of fieldwork?” included having an opportunity to participate in “real-life experiences,” applying classroom and textbook knowledge in a classroom setting, and learning what teachers do. In addition, candidates’ comments focused on dispositional competencies, such as learning to effectively communicate and collaborate with colleagues and families, being professional, and being able to grow and reflect on their teaching.

Faculty survey. The first question asked the faculty to consider the objectives of the fieldwork experiences for our teacher candidates. Faculty felt the objectives of the department’s field courses were teaching (co-teaching), lesson planning, problem solving and gaining classroom management skills. Responses also focused on bridging the gap between methods and practice. Similarly to students, the faculty also mentioned the importance of students experiencing the role of a teacher. Other responses included professionalism in the school setting and developing dispositional competencies.

The second question asked faculty to identify the skills expected of teacher candidates during fieldwork. The responses to this question focused mainly on dispositional competencies. The responses included punctuality, professional dress, collaborative practices, effective communication skills (oral and written), critical thinking, self-reflection, following policies/procedures, and handling conflict. Competencies mentioned were practice teaching, evaluating and managing behavior, organizing classroom environments and developing cultural awareness and responsiveness.

The third question asked faculty to describe the experiences candidates were expected to have during their fieldwork. Faculty in the department hoped that students would have the opportunity to work with a diverse group of students, work with a variety of professionals,

and have exposure to the day-to-day activities experienced by teachers. These activities included attending Individualized Education Program meetings, parent conferences and faculty meetings. The faculty also expressed hope that students would experience and implement a variety of teaching styles and be paired with cooperating teachers who would release responsibility to them and mentor/coach them as they hone their skills.

### Identifying Dispositions

The teacher focus group data were analyzed in order to select dispositions. Tables 2-4 include the ranked items for each of the three research questions. The first column of each table includes the generated items that were ranked by the participants in the two focus groups. The participant responses that were similar in content and nature, but worded differently, were subsumed under one item. Consequently, the points for those items were combined. For example, for question 1, some participants’ identified “being inclusive,” “tolerant,” and “accepting of others” values and beliefs” as important dispositions, which were combined under item 1, “open-minded.” The second column includes the points awarded to each item and its rank in the focus group. The third column includes the overall points for each item and the rank of the top five items generated by both focus groups.

Question responses. Table 2 includes eight items generated for focus group question, 1 across both focus groups. These items reflect the dispositions the participants believed were most important for a beginning teacher to possess. There were some similarities in items between the groups. The overall top rated items are listed as 1-5 in the table. These included, 1) open-mindedness, 2) compassion, 3) knowledge of development and content, 4) flexibility, and 5) communication skills. Of these five items, two were rated in the top five by both focus groups, open-mindedness and flexibility. There were three items ranked in the top five for focus group two, that did not rank in the top five once combined with focus group one. These items were passion, collaboration, and professional dress and related behaviors.

Table 3 includes seven items generated for focus group question 2, across both focus groups. These items were what the participants believed to be the dispositional traits likely to develop over time. There were some similarities in items between the groups. The overall top ranked items are listed 1-5 in the table. These included,

Table 1. **Participant Demographics**

	Cooperating Teachers (n= 10)
Female	10
Mean age (Range)	36.5 (27-50)
Caucasian	10
Median years experience (range)	10 (3-14)
Grade levels taught	PreK – 12
Median number of teacher candidates supervised (range)	5 (2-40)

1) flexibility, 2) professional dress and behavior, 3) leadership, 4) self-confidence, and 5) effective communication. Of these five items, two were rated in the top five by both focus groups, flexibility and professional dress and related behaviors. There were two items that were ranked in the top five by one of the two focus groups, but did not receive an overall rank. Those items were knowledge of development and content and open-mindedness.

Table 4 includes eight items generated for focus group question 3, across both focus groups. These items were what the participants identified as the best ways to evaluate teacher candidates' dispositional skills. The overall top ranked items are listed as 1-5 in the table. These included, 1) observation, 2) video, 3) discussion, 4) feedback, and 5) interviews. Of these five items, two were rated in the top five by both focus groups, observation and video. There were three items that were ranked in the top five by one of the two focus groups, but did not receive an overall rank. Those items were journaling, self-evaluation, and rubric.

## THEMES

The final step prior to creating the evaluation tool was to analyze the findings and identify common themes across our participants' responses. The goals of this work were to identify competencies and to determine a process for evaluating dispositions with the assessment tool. Described below are the key

Table 2. **Participant Item Rankings for Focus Group Question 1:  
What are the professional dispositions you expect a beginning teacher to possess?**

Items	Item Points (Rank)		Total Points (Rank)
	Focus Group 1 n=6	Focus Group 2 n=4	
Open minded	18 (4)	15 (2)	33 (1)
Compassion	23 (1)	-	23 (2)
Knowledge of development/content	21 (2)	-	21 (3)
Flexible	9 (5)	11 (3)	20 (4)
Communication	19 (3)	-	19 (5)
Passion	-	17 (1)	17
Collaboration	-	8 (5)	8
Professional behaviors	-	9 (4)	9

Table 3. **Participant Generated Ideas and Item Rankings for Focus Group Question 2:  
Of the dispositions identified in question 1, which do you feel are most likely to develop over time?**

Items	Item Points (Rank)		Total Points (Rank)
	Focus Group 1 n=6	Focus Group 2 n=4	
Flexible	19 (2)	17 (1)	36 (1)
Professional behaviors	18 (3)	14 (3)	32 (2)
Leadership	25 (1)	-	25 (3)
Self-confidence	18 (3)	-	18 (4)
Effective communicator	-	16 (2)	16 (5)
Knowledge of development/content	15 (4)	-	-
Open-minded	-	13 (4)	-

Table 4. **Participant-Generated Ideas and Item Rankings for Focus Group Question 3:  
How would you evaluate fieldwork students on the necessary professional dispositions identified in question one?**

Items	Item Points (Rank)		Total Points (Rank)
	Focus Group 1 n=6	Focus Group 2 n=4	
Observation	24 (1)	14 (3)	38 (1)
Video	13 (5)	16 (1)	29 (2)
Discussion	23 (2)	-	23 (3)
Feedback	16 (3)	-	16 (4)
Interviews	-	15 (2)	15 (5)
Journaling	14 (4)	-	-
Self-evaluation	-	5 (5)	-
Rubric	-	12 (4)	-

themes emerging from our survey and focus group results. These included consistency across participants, identification of professional competencies, and the way in which dispositional constructs were conceptualized.

The authors first looked at similarities among participant responses. The faculty and cooperating teachers consistently identified the value of practicing of what was taught in the college classroom in an authentic context like field experience. Field experiences are components of a teacher preparation program, typically occurring prior to student teaching, in which candidates practice their skills under the supervision of a cooperating teacher and a university supervisor. The findings suggest that field experiences were the place where candidates were most likely to develop proficient professional dispositions.

The value of field experiences in teacher preparation programs have been widely reported in the literature (Darling-Hammond, 2014; Kennedy, Alves, & Rogers, 2015; Welsh & Schaffer, 2017). Evidence suggests that the confidence candidates attain during these experiences is valuable to their growth and development as teachers (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Darling-Hammond, 2014; Nougaret, Scruggs, & Mastropieri, 2005). Our participants emphasized the importance of field experiences and suggested they occur frequently in order to help them develop dispositional skills over time. Similarly, research suggests that regular assessment of candidates should be embedded in field experiences in order to accurately measure the development of skills and dispositions (Borko, Liston, & Whitcomb, 2007; Conderman & Walker, 2015; Allen & Wright, 2014).

Participants identified similar competencies as important to the development of future teachers. The competencies most commonly reported across groups were communication skills, open-mindedness and cultural competence/responsiveness, problem solving, and critical thinking. While the survey and focus group respondents used different language to describe these, the ideas remained the same. These competencies were captured in the final evaluation tool, described in the next section.

Similar to Combs' dispositions model, the teachers reported the value of how they perceive their role and purpose as a teacher. The cooperating teachers in this study reported the top two traits of an effective teacher to be open-mindedness and compassion. They described these in detail as "being inclusive" and "accepting

of others' values and beliefs." When reviewing survey responses, the majority of teacher candidates reported a similar construct of "cultural competence" as "extremely important" and the faculty respondents identified "cultural awareness and responsiveness" as an important skill for candidates to develop. Perceptions of self by effective teachers includes an ability to connect with students from diverse cultural backgrounds and recognize students' capacity to learn (Combs et al., 1969).

In analyzing responses, we found the profound value teachers placed on self-reflection and recognizing the experiences of students. Teachers reported on the necessity of being open-minded and compassionate on a daily basis. For example, they expressed the value of building relationships and understanding family systems and culture in order to help students be successful in school. One participant stated that she did not fully understand the impact of the home environment on student behavior prior to being a teacher, and she had to learn to be "generous" as regards time and attention and to believe in "equity over equality." Much of the discussion among teachers was focused on how they had to reflect on their own biases and limitations in order to adequately support the different life experiences of their students. These profound moments of self-reflection came from years of experience and trial and error in the classroom. Combs et al. (1969) also found that the most effective teachers possessed a natural ability to connect with students from diverse backgrounds and believed they could help any child learn. Further, some of the practicing teachers also felt open-mindedness and compassion were intrinsic traits. One teacher commented, "It is hard to teach things that are intrinsic. How do you change how someone is wired?" Another shared the sentiment that there was not enough time to "develop" some of these key dispositional traits, and waiting for a candidate to do so may cause harm to students.

While these concepts were not discussed explicitly in candidate or faculty survey data, it is likely that these concepts were considered implicit in the cultural competence domain covered in the teacher preparation program curriculum. What seems particularly interesting to us is how this idea was conceptualized. For practicing teachers, the focus was on the feelings they had as teachers and how those feelings were manifested in their interactions with students, which can be difficult to measure. For faculty and candidates, the focus was on the instructional skills associated with being culturally competent, such as planning lessons that include equitable pedagogy,



critical selection of teaching materials, creating a culturally responsive classroom environment, and incorporating various assessment tools (Lee & Herner-Patnode, 2010). It is therefore reasonable to assume that candidates who are not open-minded or compassionate would struggle to demonstrate these skills.

One unanticipated finding was related to professional appearance, specifically dress. In reviewing the literature, professional appearance was often included as an area evaluated in relation to dispositions (e.g., Conderman & Walker, 2015; Johnston, Almerico, Henriott, & Shapiro, 2011). In addition, faculty and staff are often asked by principals and field experience coordinators to discuss appropriate attire with teacher candidates, suggesting that professional appearance influences judgements of teacher candidates. Both focus groups discussed dress briefly, but in the end described “professional behaviors” as “being prepared,” “thoughtful,” “taking initiative,” and being “self-motivated.” Additionally, teacher candidates and faculty did not include professional appearance in their survey responses. This finding suggests that the professional expectations of candidates and the faculty who participated in this study were related to responsive versus superficial professional behaviors.

## RUBRIC DEVELOPMENT

The third goal of this project was to take what was learned from the literature, surveys, and focus groups and create a tool to authentically assess professional dispositions. Based on the findings, the authors identified the criteria for the final assessment. First, all of the participants indicated the importance of observation and self-reflection when evaluating dispositions. Therefore, evaluators had to be able to use the tool in conjunction with observations and in a format that led to self-reflection. Second, multiple evaluators would be using the evaluation tool. The final product needed to produce meaningful information for a variety of stakeholders evaluating dispositions from multiple perspectives. The final step was to create a user-friendly tool that collects data on dispositions throughout a candidate’s program. The objective was that the tool would help candidates develop appropriate professional dispositions throughout their training. Research supports the assessment of candidates’ skills at multiple points during their preparation program to monitor their knowledge and skill development (Brewer, Lindquist, & Altemueller, 2011).

The authors determined that a rubric would be the best method of evaluation (see Figure 1). Six competencies were identified, Cultural Competence, Critical Thinking, Communication, Collaboration, Self-reflection, and Initiative. The rubric was designed to follow each candidate through three field experiences to track their growth in each competency. In addition, the rubric would be used to evaluate teacher candidates across multiple contexts, including field and classroom activities. It includes three levels of performance rated as “beginning,” “emerging,” and “competent.” The expectation was that candidates begin their field experiences with beginning levels of performance and reach the competent level prior to student teaching. The rubric is designed to capture the performance of the field placement at three different points in their training in terms of disposition. Below are the disposition areas included in the rubric.

### Cultural Competence

This domain is defined as an individual’s knowledge of practices and level of interest in interacting with people whose culture is different from their own (adapted from AAC&U VALUE Intercultural Competence rubric, 2009). The expectation of candidates at the “beginning level” is focused on identifying and demonstrating awareness of the value of diversity in professional practice. The expectation of candidates at the “emerging” level is focused on implementing culturally competent practices and expressing an interest in learning more. The expectation of candidates at the “competent” level is consistent demonstration of culturally competent practices and participation in diversity activities to inform professional practice.

The support for this domain came from our cooperating teachers’ perspectives in the areas of cultural awareness and responsiveness, open-mindedness, and compassion. Additionally, current and projected demographics reveal that cultural and linguistic diversity in classrooms will increase, and teacher education programs will need to respond in order to prepare candidates to effectively teach students of all backgrounds (Gomez, Strange, Knutson-Miller, & Garcia Nevarez, 2009; Villegas and Lucas, 2002). There is a wealth of research available to support the value of teachers incorporating culturally responsive practices into their teaching (see Bodur, 2012; Lee & Herner-Patnode, 2010).

### Critical Thinking

This domain is defined as an individual’s ability to apply the skills of analysis, evaluation, explanation, perspective taking, and synthesis to knowledge gathered from

inquiry, observation, or experience and the ability to apply these skills to guide thought and action (adapted from AAC&U VALUE Critical Thinking rubric, 2009). The expectation of candidates at the “beginning level” is focused on being able to identify methods to solve problems and reflect on the outcomes. The expectation of candidates at the “emerging” level is focused on implementing methods with consideration of another point of view and finding theoretical support for the selected method. The expectation of candidates at the “competent” level is selection of methods after considering multiple points of view and accurate reflection to connect outcomes to implications for future practice.

The support for this domain came from survey and focus group responses, which included both critical thinking and problem solving as an essential disposition. This area was not found to be identified as a separate disposition in the literature reviewed. In turn, other dispositions sometimes included elements of critical thinking. For example, Flowers (2006) included flexibility (adjusting lessons as needed) and classroom management (preventing and addressing challenging behavior) as items in the rubric being evaluated. Though critical thinking was not listed as an item, it is inherent in being flexible and managing a classroom. Similarly, Pang, et al. (2014) included problem solving as part of their self-reflection disposition.

### Communication

This domain is defined as the ability to demonstrate thoughtful and effective verbal and nonverbal communication and responsive listening (adapted AAC&U VALUE Oral Communication rubric, 2009). The expectation of candidates at the “beginning level” is acknowledging the need to use professional tone and the ability to share information so others understand their point of view when asked. The expectation of candidates at the “emerging” level is consistently using a professional tone and volunteering information to clearly convey point of view. The expectation of candidates at the “competent” level is the use of professional language and presenting relevant information for others to accurately evaluate a situation.

The support for this domain came from all participant responses. The ability to communicate with colleagues and students was ranked in the top five by practicing teachers and was an expectation of faculty. It is not surprising that this domain ranked high, because communication skills are particularly important in the field of education. Since multi-tiered systems of support (MTSS) became the norm in K-12 education, there has

been increased expectations towards educators to collaborate. The expectation is that teachers will work collaboratively to help all students access the curriculum, which will include collecting and interpreting data, planning classroom intervention instruction aligned with Common Core State Standards (CCSS), and making appropriate changes to instructional plans based on data (Leko, Brownell, Sindelar, & Kiely, 2015).

### Collaboration

This domain is defined as the ability to work with others to complete tasks in a professional and timely manner. The expectation of candidates at the “beginning level” is working with colleagues and identifying responsibilities of a team. The expectation of candidates at the “emerging” level is working effectively with colleagues, identifying responsibilities of all team members, and capitalizing on the strengths of others to solve problems. The expectation of candidates at the “competent” level is working efficiently with colleagues, identifying equitable workload for team members and addressing and resolving conflict.

The support for this domain derived from all participant responses. Faculty responses focused on collaborative practices, handling work conflict, and attending both parent and faculty meetings. Eighty-two percent of student respondents selected collaboration as extremely important. They also expressed the importance of learning to effectively communicate and collaborate with colleagues and families in their responses. Group two of our focus groups ranked collaboration in their top five. These findings are consistent with literature noting the importance of preparing teacher candidates to apply the skills of collaboration within the educational setting (Cramer, Liston, Nevin, & Thousand, 2010; Santagata & Guarino, 2012). Quality collaboration of educators not only affects teacher performance but student achievement as well (Darling-Hammond, 2015; Goddard, Goddard, & Tschannen-Moran, 2007; Ronfeldt, Farmer, McQueen, & Grissom, 2015; Walsh, 2012).

### Self-reflection

This domain is defined as an individual’s ability and willingness to think about, and if necessary, change, actions, motives, and character to improve instructional and professional practices. The expectation of candidates at the “beginning level” is to identify behaviors and skills that could be improved. The expectation of candidates at the “emerging” level is to have the ability to think about their actions and to evaluate choices to change their beha-

avior or professional practice. The expectation of candidates at the “competent” level is to think and evaluate actions and to demonstrate the skills needed to improve practices.

The support for this domain came from all stakeholders, but most specifically from the teacher candidates. The majority of candidates reported “self-reflection” as extremely important (72%). The cooperating teachers ranked knowledge, flexibility, and compassion, all aspects of self-reflection, in their top five professional behaviors. Reflection is well established as an important component of teacher growth and development. Teachers who engage in reflection as part of the self-evaluation process are more likely to act deliberately and intentionally as opposed to randomly and reactively (Shandomo, 2010). On their Teacher Disposition Checklist (TDC), Pang et al. (2014) included a domain called self-reflection which included using reflection to problem solve and make changes when necessary.

### Initiative

This domain is defined as an individual’s interest in seeking opportunities to assume a leadership position in order to solve a problem or complete a task. While this domain includes some competencies already addressed (e.g., problem solving), this competency is unique in that it emphasizes the teacher candidate’s ability to initiate action towards leadership and professional growth. The expectation of candidates at the “beginning level” is asking clarifying questions and accepting responsibility for actions when confronted. The expectation of candidates at the “emerging” level is consistently asking questions to complete responsibilities and independently accepting responsibility for actions. The expectation of candidates at the “competent” level is seeking feedback on performance, offering solutions and problem solving during difficult situations.

The support for this domain was signaled all stakeholders. Faculty responses included problem solving skills and students being paired with cooperating teachers who would release responsibility to and mentor/coach them as they honed their skills. When asked what the importance of competencies assessed during fieldwork was, 66 % of students rated initiative as extremely important. Moreover, focus groups ranked professional behaviors that included initiative and leadership in their top five. Teacher preparation literature also views problem-solving skills (Temel, 2014), initiative and leadership (Nolan & Palazzolo, 2011; Norton, 2010) as being critical for pre-service teachers.

### Limitations

A limitation of this project is the small sample sizes. Only ten teachers took part in the focus groups, and all of them were white. Similarly, only a small number of students and faculty were surveyed. Though these particular groups were targeted due to their familiarity with the program and are representative of the region, the generalizability of the results is limited.

Data on the effectiveness of the rubric developed through the process described in this paper are limited. While this process resulted in an evaluation tool representative of the needs of a single program, the authors recognize the need to validate the identified competencies. Future work will include evaluating the rubric for effectiveness in supporting disposition development among teacher candidates.

### IMPLICATIONS

Reviewing the literature revealed a variety of definitions and competencies to draw from when evaluating dispositions. While this provides a general structure to evaluate candidates’ professionalism, there is not a clear direction on how to select competencies, teach, and evaluate them in preparation programs. This article provides a replicable framework for identifying dispositions and creating an evaluation tool that accurately reflects programs’ values.

Because there is not a one-size-fits-all approach to defining and selecting which dispositions to measure, this article suggests a process that may help programs identify their own target dispositions. The process of investigating which competencies were most relevant to students, colleagues, and partners in our community created a more authentic lens in which to view this topic. Including community stakeholders in this process was meaningful and strategic. Their perspectives created a bridge from research to practice, and showed candidates how the components of their coursework filter into classroom practice. As the survey responses indicated, candidates value applied experiences that replicate the kind of work expected of practicing teachers. Therefore, including practicing teachers into the selection of competencies provides credibility and authenticity to the dispositions covered in the college classroom.

Once identified, professional dispositions can be embedded throughout a preparation program in order to



maximize opportunities for multiple points of evaluation (Brewer, Lindquist, & Altemueller, 2011). For example, in the authors' program, the "collaboration" competency is supported in course work and field placements. Candidates enroll in a course specifically addressing collaborative practices, such as co-teaching. Throughout the course, faculty and staff can evaluate candidates' knowledge and practice while working in the college classroom. This experience is then extended in the field when they participate in a collaborative learning experience where they are paired with a peer, and co-teach a unit of instruction. This opportunity allows candidates to develop pedagogical skills and allows faculty supervisors to mentor candidates in how to create, develop, and maintain professional collaborations. The program's practice of providing a foundation in coursework, followed by development and practice in an authentic setting, will result in the ability to measure growth in skills over time.

## CONCLUSION

The central goal of this project was to create an authentic tool for evaluating professional dispositions in teacher candidates. While there is a general consensus as to the significance of developing dispositions in teacher candidates, there is considerably less agreement on how to identify and define dispositions. Therefore, it was important for the authors to identify the traits most reflective

of their program's values and the needs of their stakeholders. The work was completed through a process that centered on the beliefs and perceptions of our students, faculty, and cooperating teachers. The authentic approach to evaluation resulted in a rubric reflective of the program's values and needs of the region.

The process revealed the areas on which to focus for the professional development of teacher candidates. The six competencies identified as skills to develop in our teacher candidates, Cultural Competence, Critical Thinking, Communication, Collaboration, Self-reflection, and Initiative, are not unique to teaching. Arguably, these areas are critical to success in most professions. Further work will introduce, teach, and evaluate candidates' skills in these areas. Intentional focus on teaching these dispositions will likely result in teachers maximally prepared to navigate the demands of the teaching profession.

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<b>CULTURAL COMPETENCE (CC):</b> Individual's knowledge of practices and level of interest in interacting with people whose culture is different from their own.	Able to identify CC practices. Demonstrates awareness of the value of interacting with people different from themselves. Investigates diversity activities that could inform his/her professional practice.			Able to implement CC practices in class and/or in the field. Expresses interest in interacting with diverse groups and cultures. Seeks out opportunities to engage in diversity activities to inform his/her professional practice.			Consistent demonstration of CC practices both in class and in the field. Able to communicate effectively with people different from themselves. Participates in meaningful diversity activities to inform his/her professional practice.		
	1	2	3	4	5	6	7	8	9
<b>CRITICAL THINKING:</b> Individual's ability to apply the skills of analysis, evaluation, explanation, perspective-taking, and synthesis to knowledge gathered from inquiry, observation or experience, which guides thought and action.	Able to identify methods to solve problems, to support the use of those methods, and to reflect on the outcome.			Able to implement relevant methods to solve problems selected after consideration of another point of view. Provides theoretical support for the selected methods, and identifies one strength and one limitation of the outcome.			Able to implement independently selected relevant methods to solve problems selected after consideration of multiple views. Provides accurate theoretical support for the selected methods, and connects outcomes to implications for future practice.		
	1	2	3	4	5	6	7	8	9
<b>COMMUNICATION:</b> Demonstrates thoughtful, effective verbal and nonverbal communication and responsive listening	Acknowledges the need to use a professional tone when communicating with others. When requested, shares information in order for others to understand their point of view.			Uses a professional tone (i.e., attitude) when communicating with others. Presents information in order for others to understand their point of view.			Uses a professional tone (i.e., attitude) and language when communicating with others. Presents relevant information in order for others to understand and accurately evaluate a situation.		
	1	2	3	4	5	6	7	8	9
<b>COLLABORATION:</b> Ability to work with others to complete tasks in a professional and timely manner.	Works with colleagues to complete tasks. Identifies personal responsibilities related to tasks, with some insight into role(s) of team-members. Recognizes contributions of other team- members.			Works with colleagues to effectively complete tasks. Identifies responsibilities of all team members. Capitalizes on strengths of others to solve problems.			Works with colleagues to efficiently and effectively complete tasks. Identifies responsibilities of all team members; workload was equitable. Addresses and resolves conflict.		
	1	2	3	4	5	6	7	8	9
<b>SELF-REFLECTION:</b> Ability and willingness to think about, and if necessary, change, an individual's actions, motives, and character.	Able to identify actions that could be improved. Can identify skills needed to improve practice.			Able to think about one's own actions and evaluate choices. Can explain and acknowledge the importance of skills needed to improve practice.			Able to think about one's own actions and evaluate choices made and how they could be improved. Can demonstrate the skills needed to improve practice.		
	1	2	3	4	5	6	7	8	9
<b>INITIATIVE:</b> Individual's interest in seeking opportunities to assume a leadership position in order to solve a problem or complete a task.	Asks clarifying questions when completing his/her responsibilities. When prompted, accepts responsibility during challenging situations.			Consistently asks questions when completing his/her responsibilities. Takes responsibility during challenging situations.			Clearly and consistently asks questions and seeks feedback when completing his/her responsibilities. Offers solutions & demonstrates an ability to problem-solve during challenging situations.		
	1	2	3	4	5	6	7	8	9

**BEGINNING:**

This rating indicates the teacher candidate (TC) can recall basic information about the competency, yet is not observed to demonstrate the skills associated with the competency without guidance (e.g., understands what self-reflection is and that it has value, but is not observed to be self-reflective). Should little growth be observed in the areas rated "Beginning" over the course of two field placements, the TC would be required to meet with the fieldwork coordinators, assigned department advisor, and department chair.

**EMERGING:**

This rating indicates the teacher candidate (TC) is starting to develop skills in the competency as evidenced by demonstration of the skills associated with the competency. Should little growth be observed in the areas rated "Emerging" over the course of two field placements, the TC would be required to meet with the fieldwork coordinators, assigned department advisor, and department chair.

**COMPETENT:**

This rating indicates the teacher candidate (TC) can demonstrate knowledge and skills associated with the competency, and therefore is at the level expected for that competency area. Teacher candidates are expected to reach this benchmark prior to directed teaching. The performance of TC will be evaluated at the end of the 485-field placement and if there are any competency areas not rated "competent," the TC will be required to meet with fieldwork coordinators, assigned department advisor, and department chair.

Figure 1.

The rubric created based on literature review, survey, and focus group data.

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# Engagement of Children with Special Educational Needs in Accordance with the Routines-Based Model

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## ABSTRACT

Engagement of a child with SEN during therapeutical and educational activities is important in terms of their development. This construct can be understood as the time the child spends interacting with adults, peers and materials, in a manner appropriate for their developmental age. Routines-Based Model is one of the methods which particularly promotes engagement. This study aims at measuring the level of engagement in certain preschool routines and its changes during the school year. The article consists of two parts; the first one presents issues connected with defining and identifying the levels of engagement, the second one discusses the studies connected with determining the level of engagement of children with special educational needs in the process of education. The analysis of study results indicates that children in the tested group achieve the highest scores in overall engagement and engagement with materials. The highest level of engagement throughout the year has also been observed in those categories.

**Keywords:** engagement; Routines-Based Model;  
education of children with special educational needs

## ENGAGEMENT

In inclusive, integrated and even special education, we can observe different levels of engagement of a child with a disability into the proposed educational, therapeutical and care activities. We can very often observe a situation where children without dysfunctions follow the proposed activities while those with greater developmental problems usually watch them, wander without a purpose around the classroom or activate well known stereotypic behaviour.

Therefore, when we observe different types of behaviour in response to the proposed activities, a question arises - what is engagement and how can we determine whether the child fully uses the educational, therapeutical and care provision in the facility and most importantly, whether we can examine that activity and determine its changes.

Child's engagement is defined as the amount of time children spend interacting in a manner appropriate for their age, abilities, and surroundings (McWilliam, Bailey 1992).

**The construct of "child's engagement" in opposition to "taking part in a certain activity" applies to all types of behaviour. It is classified according to:**

- type: interaction with adults, peers and materials;
- levels - from sophisticated to nonengagement (see Table 1);
- amount - per cent of time in which we observe a certain type and level of engagement.

Such detailed description of engagement enables teachers to describe and measure children's behaviour accurately (McWilliam, de Kruif, 1998). During the assessment we should take into consideration the developmental and contextual adequacy in order to recognize the child as engaged. The child must behave in a way that can be expected of them as appropriate for their level of development and not biological age. The contextual perspective is connected with the duration of a behaviour in a certain situation (context) and not with performing individual tasks e.g. in a test situation (McWilliam, Casey, 2008). It is considered that the child's engagement plays a vital role in their education and development (McWilliam et al. 1985). It is seen as a variable between the environment and achievements (Greenwood, Carta, Dowson, 2000). Measurement of the level of children's engagement is a key factor in identifying the areas that require changes in educational, therapeutical and care activities in order to suit them to children's abilities and

to support them (Downer, Booren, Lima, Luckner & Pianta, 2010) as well as to improve the quality of early education (Murillo, Garcia Grau, Dolores Grau, 2020; Casey, McWilliam, 2015; Ridley et al 2000, McBride & Schwatz, 2003; Duda, Dunlap, Fox, Lentini, & Clarke, 2004). The traditional scales and tests e.g. general intelligence tests examine different skills. The results are used to diagnose a certain function without direct recommendation to introduce educational and therapeutical changes in the typical environment of a toddler. Measurement of engagement allows for a direct focus on the functional routines. Such approach is useful while measuring the engagement as a result of checking the effectiveness of using educational interventions. (Kishida, Kemp, 2006). It is very important in case of education of children with disabilities, as the seriousness of the disability may influence their ability to do a certain task. In order to provide the children with conditions that foster their engagement, we have to take into account the possibility of giving them physical prompts that are necessary to ensure active or passive engagement. Additionally, the type of disability determines the character of support provided (Kishida, Kemp, 2006). Children with autism spectrum need more attention to build engagement in relations with another person while a child with a physical disability needs more attention to adjust e.g. the toys and access to them. Until now, the level of engagement of children with disabilities has not been tested in Poland.

It is in the children's nature to be curious of the world. They are interested in everything that surrounds them. The preschool period is frequently defined as an age of questions and preschool children are compared to little experimenters or researchers (Brzezińska, 2014; Szuman, 1985). They examine, observe, draw conclusions - the learning process takes place throughout a child's activity. Consequently, the environment the child functions in must be friendly and encourage them to explore the world freely, irrespectively of their skill and capabilities (Hornowska, Brzezińska, Appelt, and Kaliszewska-Czeremska, 2014; Weisberg, Hirsh-Pasek, Golinkoff, Kitzredge, and Klahr, 2016).

The classes run according to Routines-Based Model (RBM) are aimed at all children, regardless of their level of functioning. The adaptation of main rules favors inclusive education of children with special educational needs, but may also be used in special education. This model has been in use in Poland since September 2018 in Słoneczna Kraina (Sunny Land) Therapeutical Preschool in Cieszyn. It is the first facility which introduced the model into the Polish education market.



Table 1.

Levels of engagement

Level	DESCRIPTION	Category
<b>Persistence</b>	The most sophisticated level of engagement. It involves problem solving and overcoming certain challenges. It also involves changing strategies or using the same strategy again to solve the problem or reach a goal. Example: a child attempts to do a jigsaw puzzle but struggles with matching the pieces so they try to match two pieces in several ways	SOPHISTICATED
<b>Symbolic behaviour</b>	It includes the use of conventional forms of behaviour (e.g. language, pretend play) to talk about the past and future and to construct new forms of expression through combinations of different symbols and signs. The major characteristic of symbolic behaviour is decontextualization or the capability to communicate about someone not physically present. Examples: pretend play, the child pretends to cook in the playground, talks about a trip that was taken last week or uses a block to "brush" a doll's hair	
<b>Encoded behaviour</b>	It includes the use of understandable language to communicate. An important aspect of encoded behaviour is that it must be context bound. Example: the child communicates about objects or events in the immediate environment, e.g. about a game they are playing or about what a peer is doing at the table	
<b>Constructive behavior</b>	It applies only to play with materials. It includes manipulating objects to create, or build something. There is some indication of intentionality. Examples: drawing a picture, building a tower with blocks	
<b>Differentiated behaviour</b>	It involves coordination and regulation of behaviors, reflecting the preparation and progress to conventionalization; it involves active interaction with the environment. In some studies, this level of engagement has been called "participation", because it entails behaviour appropriate for the context. Example: the child uses a spoon to eat during the meal	DIFFERENTIATED PARTICIPATION/ FOCUSED ATTENTION
<b>Focused attention</b>	Focused attention includes watching or listening to features in the environment and must involve directly looking at a feature. Attention must be sustained for at least 3 seconds. Focused attention is characterized by a serious facial expression and a quieting of motor activity extraneous to the task at hand. The child responds to a narrow range of stimuli. Example: listening to a story or reading a book	
<b>Undifferentiated behavior</b>	The child interacts with the environment without changing the characteristics of his or her behaviour (i.e., performs a behaviour in a repetitive manner), using simple, low-level behaviour patterns. Undifferentiated behaviour is not necessarily negative; it might be connected with the level of development the child is currently at. Example: the child keeps hitting two blocks or rolls a car back and forth	UNSOPHISTICATED
<b>Casual attention</b>	It includes relaxed and wide-ranging attention. The child must be looking at something for a total of at least 3 seconds. However, the child is attending to a sequence or a range of things in a sequence within 3 seconds as opposed to attending to one object or person. Example: the child looks around the room to see what activity centres are open, looks at the people, objects, activities.	
<b>Nonengagement</b>	The child is unoccupied (not engaged in any activity), e.g.: - waiting needlessly (i.e. not in a turn-taking situation) - waiting even though it knows what is coming next and is anticipating the activity (e.g., sitting at the table waiting for food) - staring blankly - wandering without a purpose - crying, whining - displaying aggressive or destructive acts - breaking sensible rules (throwing or kicking toys).	NONENGAGEMENT

Own development based on: Raspa, McWilliam, Ridley 2001, McWilliam, Casey 2008.  
Routines-Based Model as a method of promoting engagement

### The following statements, directly connected with engagement, underpin the introduction of RBM:

- Basic assumption of the method stems from the theory of learning, according to which the more a person is interested in something, the faster they acquire the knowledge of a certain issue (Dunst, Raab, Trivette, and Swanson, 2010; Dunst, Herter, and Shields, 2000; Widerstrom, 2005). Studies prove that children with special educational needs spend less time interacting with adults, peers, and materials and most of the time they are not engaged

in any activity or they are engaged at a very low level, i.e. wandering without purpose, clapping their hands or displaying stereotypic movement disorders (Weisberg, Hirsh-Pasek, Golinkoff, Kittredge, and Klahr, 2016);

- Child's engagement might be increased by arranging the child's environment - a special arrangement of space in the classroom which "invites" the child to engaged participation in various activities (McWilliam, Casey, 2008; Weisberg, Hirsh-Pasek, Golinkoff, Kittredge, Klahr, 2016);



- Incidental teaching allows for following an individual need of the child, at the same time strengthening their interests and introducing and consolidating the core curriculum. (Casey, McWilliam, Sims, 2012; McGee, Morrier, Daly, 1999).

## MATERIALS AND METHODS

The purpose of this study was to check how, during the school year, the engagement of children who learn according to the guidelines of Routines-Based Model, changes, and to compare the categories of the engagement. The engagement was measured with STARE (The Scale for Teacher's Assessment of Routines Engagement). It is a teacher's scale to measure the engagement of a child into routines. The elements being measured are the level of engagement and the amount of time a child is engaged with adults, peers and materials. Those elements form the assessment of overall engagement. A child is observed every day and filling in the form takes only a few minutes. The scale can be used for:

- examining child's engagement during a certain unit of time (month, year, etc.) and comparing the results in all observed aspects which allows for determining the level of child's engagement and its changes;
- determining the effectiveness of the educational/care and therapeutical activities by analyzing the results of the child's engagement after the teacher's "intervention" which aims at, e.g. increasing the engagement with a peer instead of an adult;
- analyzing the engagement trend, e.g. by determining which routines create bigger or smaller engagement in a child, which may result in changes in the organization of the daily schedule;
- communicating with the family or other specialists about how the child participates in the activities organized in an institution.

In this study the teachers filled in STARE in a form of a questionnaire after observing children's behaviour in a group. First of all, in every preschool routine (i.e. in arrival, music, small group, story) the teachers assessed the length of time of a child's overall engagement and then specified it in the following categories: with adults, peers and materials on a 5-level scale (where 1 means almost none of the time and 5 means almost all of the time) as well as the level of engagement (from nonengagement to sophisticated engagement) (McWilliam, 2000). The results are calculated by taking the mean of 5 variables, i.e.: overall engagement, engagement with peers, adults, ma-

Table 2. **Types of disabilities of the study's subjects**

Types of disabilities among the subjects		
Type of Disability	Frequency	Percent
autism	4	21.05
physical disability, including aphasia	5	26.32
hearing impairment	1	5.26
multiple disabilities	9	47.37
missing	0	0.00
total	19	100.00

terials and quality of engagement, from the results which include all examined routines. Before the statistical analyses were carried out, an analysis of the tools reliability had been carried out with the following result:  $\alpha = .86$

## PARTICIPANTS

Nineteen children took part in the study, including 13 boys (68.42%) and 6 girls (31.58%) who attended Słoneczna Kraina (Sunny Land, Poland) Therapeutical Preschool. The mean age was  $M = 5.26$ . During the first study, the youngest child was 3 years old, and the oldest was 7 years old. All children attending the facility had a special educational needs statement. Table 2 presents types of disabilities among the children according to the diagnoses provided in each statement. All children who took part in the study attended preschool from the beginning of the school year in the groups working in line with the Routines-Based Model method.

The studies were carried out by the teachers of target preschool's groups from the beginning of the school year, i.e. from September 2019 until August 2020, at least once a month. All statistical analyses were conducted with the use of JASP 0.11.1.

## RESULTS

### Engagement

Table 3 presents the descriptive statistics and the statistics concerning the distribution of examined variables. All results were divided into three periods according to the school year. The first period is the mean of study results from September 2019 to December 2019 (I), the second period from January 2020 to March 2020 (II) and the third period from May 2020 to August 2020 (III). No studies were carried out in April due to the lockdown of

Table 3.

## Descriptive statistics

Descriptive statistics															
	OE I	A I	P I	M I	C I	OE II	A II	P II	M II	C II	OE III	A III	P III	M III	C III
Valid	19	19	19	19	19	19	19	19	19	19	12	12	12	12	12
Missing	0	0	0	0	0	0	0	0	0	0	7	7	7	7	7
Mean	4.36	3.19	3.02	4.15	3.23	4.40	2.94	3.08	4.02	3.32	4.72	2.94	3.25	4.43	3.33
Std. Deviation	0.34	0.45	0.72	0.33	0.24	0.32	0.31	0.82	0.40	0.34	0.19	0.51	0.82	0.38	0.34
Shapiro-Wilk	0.96	0.97	0.92	0.95	0.96	0.93	0.97	0.94	0.96	0.90	0.91	0.96	0.85	0.82	0.95
P-value of Shapiro-Wilk	0.63	0.72	0.12	0.39	0.55	0.19	0.81	0.27	0.55	0.06	0.20	0.83	0.04	0.02	0.69
Minimum	3.83	2.04	2.01	3.57	2.74	3.78	2.31	1.20	3.28	2.86	4.27	2.21	1.64	3.40	2.80
Maximum	5.00	3.97	4.23	4.83	3.62	4.83	3.60	4.18	4.80	4.22	4.95	3.84	4.07	4.86	3.88

\*OE – Overall Engagement; A – With Adults; P – With Peers; M – With Materials; C – Complexity

\*\* I – first period from September to December 2019; II – second period from January to March 2020; III – third period from May to August 2020

all educational facilities caused by the sanitary restrictions connected with SARS-CoV-2 pandemic. The data below show that children had the best results in Overall Engagement and with Peers categories. In all three periods the mean Overall Engagement reached the value of over 4 (Min = 4.36; Max = 4.72). Similar results were reported in the category Engagement with Materials (Min = 4.02; Max = 4.43). In order to do further statistical analyses, the normality distribution of the distribution of variables was checked. Shapiro-Wilk test results indicate that three variables - Overall Engagement III, with Peers III and with Materials III are statistically significant ( $p < .05$ ).

### Comparison of engagement categories

In the beginning, the differences between engagement categories among the subjects were checked. To this end, Friedman test was carried out and in the first ( $\text{Chi}^2(2) =$

28.99;  $p < .001$ ; Kendall's  $W = .50$ ), second ( $\text{Chi}^2(2) = 23.47$ ;  $p < .001$ ; Kendall's  $W = .40$ ) and third ( $\text{Chi}^2(2) = 18.77$ ;  $p < .001$ ; Kendall's  $W = .25$ ) measurement it indicated statistically significant differences between the categories that children were engaged with. Table 4 presents the results of post-hoc analysis with Conover test.

In all three tested periods Engagement with Materials was significantly higher than Engagement with Adults ( $p < .001$ ) and with Peers ( $p < .001$ ).

### Change of engagement over the school year

In order to check the change of engagement (Figure 1), in particular categories over the school year, Friedman Test was carried out (Table 5).

The test showed a statistically significant change in the Overall Engagement over the school year:  $\text{Chi}^2(2) = 8.67$ ;  $p = .01$ ; Kendall's  $W = .37$ .

Table 4. Types of engagement comparison. Post hoc analysis

Conover's Post Hoc Comparisons – Types of engagement							
	T-Stat	df	Wi	Wj	p	phonf	pholm
A I P I	0.33	36	29.50	27.50	0.75	1.00	0.75
M I	4.49	36	29.50	57.00	v.001	v.001	v.001
P I M I	4.82	36	27.50	57.00	v.001	v.001	v.001
A II P II	0.81	36	27.00	32.00	0.42	1.00	0.42
M II	4.54	36	27.00	55.00	v.001	v.001	v.001
P II M II	3.73	36	32.00	55.00	v.001	0.00	0.00
A III P III	0.62	22	16.50	19.50	0.54	1.00	0.54
M III	4.03	22	16.50	36.00	v.001	0.00	0.00
P III M III	3.41	22	19.50	36.00	0.00	0.01	0.01

Table 5. Change of engagement. Friedman test's results

Friedman Test					
Variable	Factor	Chi-Squared	df	p	Kendall's W
OE	Months	8.67	2	0.01	0.37
WA	Months	2.00	2	0.37	0.28
WP	Months	0.17	2	0.92	0.86
WM	Months	8.17	2	0.02	0.52
C	Months	3.19	2	0.20	0.73

\*OE – Overall Engagement; A – With Adults; P – With Peers; M – With Materials; C – Complexity

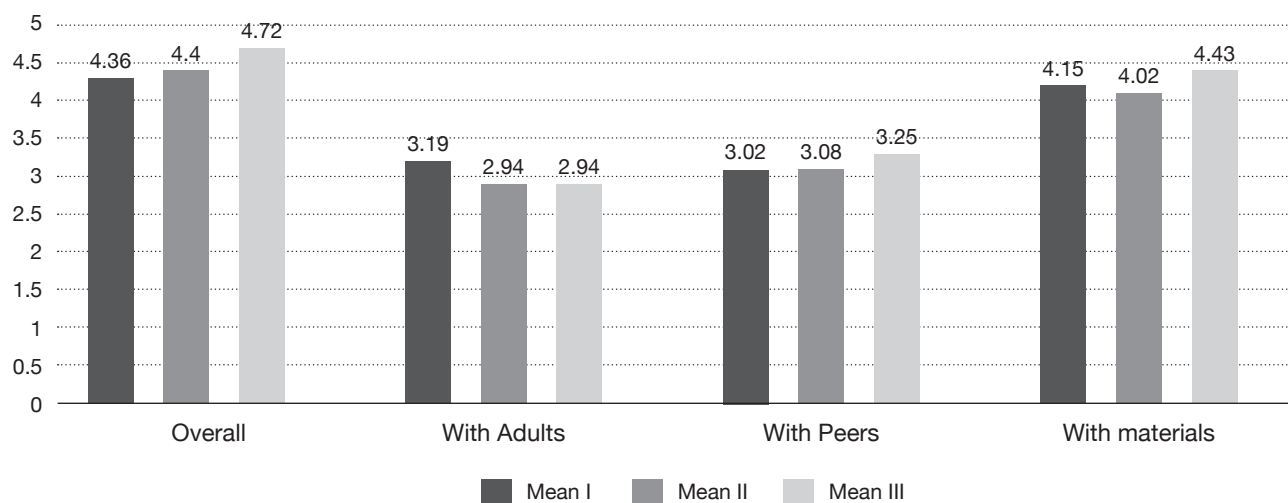


Figure 1.

Mean values in each type of engagement during the school year

Post hoc analysis with Conover test indicated that in the third measurement the subjects received statistically higher results than in the first measurement ( $p = .01$ ) and in the second ( $p = .05$ ), as shown in Figure 2.

Additionally, Friedman's test indicated differences in Engagement with Materials  $\chi^2(2) = 8.17$ ;  $p = .02$ ; Kendall's  $W = .52$ , similarly to Overall Engagement. Post hoc test showed that the Engagement increased between the first and third measurement ( $p = .04$ ), as well as between the second and the third ( $p = .01$ ). The change can be observed on Figure 3 below.

In case of other variables, statistically significant differences have not been observed. However, it is worth paying attention to the effect size, which in case of Engagement with Peers was  $W = .86$ . This indicates the strength of the effect and in the case of Quality it was  $W = .73$  (average effect).

Taking into consideration the above results, Wilcoxon test was carried out and on its basis the information about the effect was gained (Field, 2018). In the beginning,

the measurements of Engagement with Peers were compared. The strength of the effect for the comparison of the first and third measurement was  $rc = .52$ ; 95% CI  $[-.70, .38]$  and for the second and third it was  $rc = -.42$ ; 95% CI  $[-.80, .19]$ , which suggests that work in the examined model matters to the change of Engagement with Peers. In case of engagement quality, the strength of the effect for the comparison of the first and third measurement was  $rc = -.49$ ; 95% CI  $[-.83, .11]$ , which might be interpreted as average effect (King, Minium, 2020).

## DISCUSSION

The quality of children's engagement ranged from focused attention to differentiated participation. The result obtained shows that the tested children are active in interactions with the environment and behave adequately to the educational situation they found themselves in, e.g. by being focused while listening to the teacher's story, be-

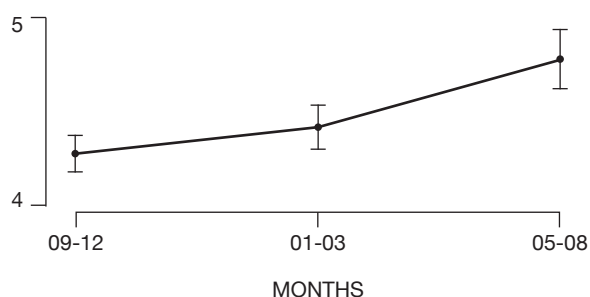


Figure 2.

Change of Overall Engagement in three measurements.

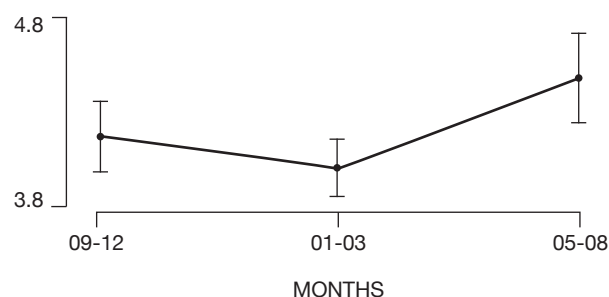


Figure 3.

Change of Engagement with Materials in three measurements.

ing independent in the cloakroom and in the bathroom. Despite no statistically significant differences the effect size reached  $W=.73$ . This result allows for an assumption that the quality of engagement in tested groups has an upward trend.

STARE results indicate that mean overall engagement is a little above 4 points (min = 4.36; max = 4.72), and the quality (level) around 3 points (min = 3.23; max = 3.33). It means that children remain in active interactions with the environment for most of the time. The obtained results show a statistically significant change between measurements I and III as well as between II and III. Mean level of overall engagement increased during the period of school year. In case of the tested group the lowest mean concerned Engagement with Adults (min = 2.94; max = 3.19) and Peers (min = 3.02; max = 3.25). Mean results concerning Engagement with Adults remain at a stable level and prove that children are well engaged in the proposed activities. At the beginning of early education the teacher plays a role of a person who guarantees security and determines the rhythm of activities. While running the educational classes with RBM method the engagement of the teacher changes too. They show, inspire, and use incidental teaching and then they withdraw from children's activities to play the role of an observer. Their main task is to inspire and make sure that children's engagement and well-being are maintained (Cadima et al., 2019). It is possible that the growth of children's competences results in them not seeking permanent contact with the teacher, and the teacher's role is limited to helping with solving conflicts or modelling the required behaviour. It should be noted that RBM does not promote permanent work of a child and a teacher. Its main task is to include the children in the activities which broaden and enrich the knowledge and competences of the children (Grisham-Brown et al., 2017), and the main purpose is to develop social relations with peers which require certain social competences from children. The result achieved in Engagement with Peers is satisfying, taking into account the fact that the group consists of children with autism spectrum and multiple disabilities, many of which are connected with impaired communication. It is satisfying that, despite the lack of statistical significance of the results, the strength of the obtained effect may suggest that the development trajectory of this kind of engagement has an upward trend. It means that the way of conducting the classes fosters establishing and maintaining social interactions with peers despite the difficulties that result from a disability (e.g. communicative, sensory). Nevertheless, it is a field that

requires further support and promotion of the development of competences, which in turn foster developing relations with peers.

The obtained results indicate an increased Engagement with Materials rather than with Adults or Peers. Trajectory of Engagement with Materials has an upward trend. The basic task of a teacher in RBM is to engage a child into an activity of their choice. The teacher who wants to attract the child's attention arranges a situation in which the children can independently explore new materials. Such actions are also in line with the rule of multi-sensory cognition of reality. Another justification of the obtained results is an increased attention of the teachers connected with the development of children's competences in independent play. The interviews conducted with parents often show that the area of common purpose to work on (in preschool and at home) during a school year is connected with independent play. The parents' aims are important in planning the teacher's activities. Relating to the assumptions of RBM model, it can be stated that children's engagement has an upward trend and results from the implemented educational practices.

### Limitations and subjects for future studies

The performed analysis of the types and levels of engagement in children with special educational needs is the first attempt of this kind of studies for Polish special education at the preschool level. The tool itself, to the best of authors' knowledge, is not used in domestic educational facilities. It is due to the fact that the studies were carried out in a preschool that is the first to implement RBM method in Poland. The study of engagement level and its types is one of the practices applied by the model.

The limitations of the study include the fact that the test sample was small. The sample size may condition the lack of statistical significance of some of the results in Friedman test (Ferguson, 2009). The changing number of subjects, caused by the COVID 19 pandemic situation in Poland (closed educational facilities, numerous quarantines, etc.), is also among the limitations that need to be taken into account while interpreting the studies' results.

Future studies may focus on testing the engagement in particular daily routines. It would allow for determining the areas that require reframing in terms of group functioning (e.g. routines' order). An interesting addition would also be to perform a comparison in terms of engagement of children in special groups run with RBM method with the groups run in a "traditional" method of work.

Further studies concerning the levels, types and quality of engagement of children in preschool education during the routines may help in improving the quality of education and the activities integrating the children with special educational needs into inclusive and regular facilities.

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#### DISCLOSURE STATEMENT

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# Socio-Pedagogical Determinants of Social Acceptance of People with Disabilities

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## ABSTRACT:

The social acceptance of people with disabilities is multidimensional and is often analyzed concerning various factors. Both external (demographic) factors, e.g. age, gender, place of residence, type of education or occupation, and internal factors (e.g. level of intelligence, self-esteem, sense of coherence) can be taken into consideration. The study presents the results of an analysis of the relationship between socio-demographic factors, characteristics of the family environment, social relations, contact with people who have disabilities, and the level of social acceptance of people with disabilities. The study uses the Disability Acceptance Scale, which consists of 27 statements and is a tool used to measure the level of acceptance of people with disabilities in three dimensions: (1) the acceptance of support given to people with disabilities; (2) the acceptance of inclusion of people with disabilities in the institutions of social life; (3) the acceptance of competences of people with disabilities to function in social roles. The study involved 313 people living in south-eastern Poland, including 156 women (49.84%) and 157 men (50.16%). The results of the research showed that regarding socio-demographic factors there are no statistically significant differences between the level of acceptance of people with disabilities depending on the gender of the respondent; while differences are observed between different age groups and people living in different types of living environment. In the context of the family environment, the factors affecting the level of acceptance were the mother's education and the father's employment. Concerning social relations with people with disabilities, having a family member with a disability and having contact with a student with a disability at school were found to be significant factors affecting social acceptance.

**Keywords:** disability; family environment; social acceptance; social contacts; socio-demographic factors

## INTRODUCTION

Attitudes of various social groups towards people with disabilities are a frequent subject of research. It is commonly believed that attitudes consist of three components: affective, cognitive and behavioural. Two opposing attitudes towards people with disabilities are most often mentioned in the literature: positive (acceptance) or negative (rejection). Attitudes are considered to be predictive of people's behaviour, mainly discriminatory behaviour (Ajzen & Fishbein, 2005). Acceptance is considered desirable, to a large extent conditioning real social inclusion and good relations between non-disabled and disabled people. Social psychology suggests that acceptance is probably one of the most important factors for people's well-being within a social context (DeWall & Bushman, 2011).

In the literature, acceptance functions in three forms: as self-acceptance, acceptance of others and the so-called „third wave” of behavioural and cognitive-behavioural approaches. Additionally self-regulation techniques or therapeutic activities based on acceptance. The variety of interpretations and definitions, the low level of specificity of the term and the range of overlapping components mean that despite many attempts to define, operationalise and measure acceptance, the literature highlights the insufficiency of a sufficiently comprehensive and systematic framework for understanding the broader multifaceted construct of acceptance (Williams & JanLynn, 2010). This report focuses on the acceptance of others as a phenomenon analysed by social psychology, and also present as pedagogical or sociological research. Acceptance of others can be understood as an individual's acceptance of group norms in the form of conformity to them, adherence to them, identification with them and internalisation (Cialdini & Goldstein, 2004), while acceptance „by others” refers to the consequences of being or not being accepted by others, e.g. acceptance of children by parents, acceptance of youth by peers, or social acceptance of people with disabilities (Willialms & JayLynn, 2010).

The purpose of the study is to examine the relationship between socio-demographic factors, characteristics of the family environment, social relations with people with disabilities, and the level of social acceptance of people with disabilities.

### Social acceptance and its factors

Researchers studying the social acceptance of people with disabilities are more likely to use approaches that operatio-

nalise the phenomenon rather than theoretical definitions. They emphasise that the degree of social inclusion can be measured by the quantity and quality of social interaction between people with disabilities and other members of the community or group (Vornholt, Uitdewilligen & Nijhuis, 2013). Defining the phenomenon of acceptance in terms of attitudes is rooted in The Theory of Reasoned Action (Fishbein & Ajzen, 1975; Vornholt, Uitdewilligen & Nijhuis, 2013), which explains the relationship between attitudes, intentions and behaviour. This theory suggests that we can predict an individual's behaviour through attitudes towards that behaviour, as well as the person's expectations of other people's reactions during the behaviour in question. According to this theory, acceptance can be understood as a consequence of attitudes towards people with disabilities. In traditional social psychology, attitudes have cognitive, emotional and behavioural dimensions. Applying the concept of acceptance to people with disabilities, cognitive acceptance refers to thoughts and ideas about them and a high level of acceptance means perceiving them as full members of a group, understanding the specifics of their disability (including their disorders or impairments) and appreciating their competence and value in action. Emotional acceptance, on the other hand, will concern feelings and emotions and a high level of acceptance will mean not being reserved towards people with disabilities and not having negative feelings when interacting with them or thinking about them. Behavioural acceptance concerns all behaviours and reactions towards people with disabilities. With a high level of acceptance, a person with disabilities is highly integrated with society and has access to all communal activities (e.g. educational or vocational). All these aspects together create a concept of social acceptance in which a person with a disability is treated as a full member of the community and disability is considered as one of the characteristics of diversity and not as an exclusionary or stigmatising characteristic (Kazanowski & Żyta, 2020). Social acceptance is a prerequisite for the development of close relationships, for social inclusion and also for the weakening of negative stereotypes about people with disabilities. Besides, it is an essential condition for creating a climate of integration that goes beyond mere physical accessibility (Devine, 2004).

### Socio-demographic factors

(gender, place of residence, age)

### and attitudes towards people with disability

The attitudes to people with disability are influenced by demographic variables such as age, gender, nationality, marital status, educational level, socioeconomic status, place



of residence (such as rural versus urban), and experience with disability (Tervo 2004; Barr & Bracchitta, 2012).

Gender and age are among the most frequently analysed socio-demographic factors in research on attitudes including social acceptance of people with disabilities. There are several reports confirming that women's attitudes towards people with disabilities are more positive than those of men (Bossaert et al., 2011; Siperstein, Parker, Bardon, & Widaman, 2007), other reports state that gender does not influence attitudes towards disability (Tervo 2004).

The relationship between attitudes towards disabled people and age is sometimes considered unclear (Nowicki 2006; Barr & Bracchitta, 2012). Favourable attitudes increase from early childhood to adolescence, decrease in late adolescence and increase again in young adulthood and late adolescence, and then increase again in young adulthood to late adulthood (Harper & Peterson, 2001).

One of the elements influencing the attitudes towards people with disabilities and the level of their acceptance is the place of residence. The place of residence varies in terms of the degree of homogeneity of the inhabitants, the level of urbanisation and industrialisation, and the size of the community (Chodkowska & Kazanowski, 2019). In the classical view, urban areas foster more cosmopolitan and progressive views, more tolerant attitudes towards minority and commonly marginalised groups (Carter, Carter & Corra, 2016). At the same time, secondary rather than primary relationships, of a more impersonal nature, predominate here. In the rural environment, by contrast, residents are less anonymous and more exposed to the judgments of others. Both non-standard behaviour and appearance may meet with less tolerance in the countryside (Carter et al., 2016; Dudak, 2019). The distinction between rural and urban environments appears important in certain cultural contexts (Magiati, Dockrell & Logotheti, 2002). The level of social acceptance of people with disabilities among people living in big cities is usually higher than among people living in rural areas or small towns and reaches a significantly higher level of support for their participation in society (Carter et al., 2016; Chen et al., 2011; Chodkowska & Kazanowski, 2019). On the other hand, other studies report more positive attitudes towards students with disabilities among children living in rural environments (Gash & Coffey 1995; Magiati et al., 2002). This may suggest that, in addition to place of residence (number of inhabitants living in a given place, type of relations prevailing in a given environment, access to public facilities), the cultural context plays an important role.

### **Family environment and attitudes towards people with disabilities**

The person's cultural and family background has a significant impact on attitudes toward people with disabilities. An important source of knowledge and the first agent of socialization is the family. Family can greatly influence the beliefs that someone holds, especially if they have never been exposed to a different perspective (Dalege & Degner, 2013). Children are shaped by their parents' values from an early age. Social learning theory suggests that parents serve as important models for children's behaviors and beliefs and that children begin to develop certain ideals based on what they are exposed to at home. Even when children enter school, their values and beliefs are more influenced by their parents than by their peers (Castelli, Tomelleri & Zogmaister, 2009). Children's feelings about people with disabilities and their behavioural intentions regarding inclusion decisions are related to how their parents perceive people with disabilities (Castelli et al., 2007). However, Hong et al. (2014) found that children may be influenced by parental attitudes towards people with disabilities only when the attitudes are explicitly expressed and modeled or when the children are told about the topic by their parents.

### **Social contacts and relations in the context of attitudes towards disabilities**

Contact remains a very important variable in examining the relationships between people with and without disabilities (Barr & Bracchitta, 2012). Pettigrew and Tropp (2006) conducted a meta-analysis of over 500 studies relating to Gordon Allport's 1954 theory of inter-group contact, which emphasizes that personal contact improves attitudes towards negatively stereotyped groups. Optimal conditions during contact are important: personal interaction and cooperation that discourage stereotyping and promote equal status. The authors of a meta-analysis (of studies involving many groups, not only disabled groups) confirmed that contact alone is sufficient to improve attitudes towards group members.

More frequent contacts influence more favorable attitudes towards people with disabilities in adults (Seo & Chen, 2009), adolescents (McDougall et al., 2004), and children (Kalyva & Agaliotis, 2009). McManus et al. (2010) reported that better quality of contact influences positive attitudes towards people with disabilities, whereas more contact and greater knowledge about disability are not related to positive attitudes. Barr and Bracchitta (2012) reported that the type of relationship an indivi-

dual has with a person with a disability is related to positive attitudes to a greater extent than contact with such people. In addition to this, Barr and Braschitta (2015) found that mere contact with people with disabilities is not necessarily associated with positive attitudes. The type of disability a person comes into contact with appears to be a better predictor of positive attitudes. While greater contact with people disabilities may allow others to gain a more accurate picture and understanding of people with disabilities, contact with certain types of disabilities may provide unique information about the disability that is not readily apparent through ordinary contact.

## METHODOLOGY

The aim of our research is cognitive and is to determine the level of social acceptance of people with disabilities due to socio-demographic factors; characteristics of the family environment and social relations with people with disabilities

The designed diagnostic will allow us to assess the variation in the level of acceptance studied (dependent variable) in the context of the set of independent variables that make up the characteristics of the group studied. We omitted to take into account the type of disability (although such data was collected) and other more specific aspects related to the contact itself. We decided to limit ourselves to a very general analysis with the conviction that this would be conducive to forming more universal conclusions about overcoming the problems observed. The main aspect of the research was formulated in the form of the question: What factors influence the intensity of social acceptance of people with disabilities expressed in the acceptance of the support given to them, in the support of their participation in social life, and in the recognition of the competencies required to perform social roles? Additionally, three specific questions were constructed:

1. How do demographic and social factors that characterize the study participants, i.e. gender, age, and place of residence, affect the social acceptance of people with disabilities?
2. How do family factors, i.e. parents' education, the structure of the family environment, and the presence of unemployment in the family affect the social acceptance of people with disabilities?

3. How do relations with people with disabilities in the family, school, and local environment affect the social acceptance of people with disabilities?

Our study is exploratory and descriptive in nature. This type of study does not require hypotheses.

## INSTRUMENTS

In the research, we used the diagnostic survey method and the questionnaire technique. We collected material for quantitative analysis aimed at achieving the planned goal. The survey questionnaire consisted of three parts: 1) the Acceptance of Persons with Disabilities Scale, 2) the Social Approval Questionnaire (KAS) and 3) Information about the people participating in the study. The Disability Acceptance Scale allows for the collection of research material which can then be analysed in three areas: 1- acceptance of the support provided to people with disabilities, 2 - acceptance of the inclusion of people with disabilities in institutions of social life and 3 - the expression of acceptance of the competence of people with disabilities to function in social roles.

The Social Approval Scale was used as a tool to monitor the level of social approval. As noted by J. J. Shaugnessy, E. B. Zechmeister and J. S. Zechmeister (2002, p. 182), „the quest for social approval may cause respondents not to answer truthfully, but according to an idea of what they should answer”. The research of B. Weigl confirmed that „secondary school students display less stereotypical perception and less overt prejudice (which, however, is significantly correlated with the need for social approval: the greater the need for approval, the more favourable the image of others).” (Weigl, 1999, p. 140). By controlling for the level of social approval, a serious source of distortion of the obtained research results can be avoided. Finally, after taking into account the KAS criterion (subjects with scores below 7 and above 21), the results of 41 subjects were rejected.

## PARTICIPANTS

There were 313 participants in the study, including 156 (49.84%) women and 157 (50.16%) men. The mean age of the participants was 35.76 years. Detailed characteristics of people participating in the study are presented in Table 1.

Table 1.

Variable	N	%
<b>SEX OF THE RESPONDENTS</b>		
Female	156	49.84
Male	157	50.16
<b>AGE OF THE RESPONDENTS</b>		
16 - 18 y.o	97	30.99
31 - 40 y.o	107	35.14
Pow. 50 y.o	106	33.87
<b>PLACE OF RESIDENCE</b>		
Rural	116	37.06
Town	93	29.71
City	104	33.23
<b>MOTHER'S EDUCATION</b>		
Primary education	45	14.38
Vocational education	96	30.67
Secondary education	108	34.50
Higher education	64	20.45
<b>FATHER'S EDUCATION</b>		
Primary education	50	15.97
Vocational education	126	40.26
Secondary education	81	25.88
Higher education	51	16.29
No answer	5	1.60
<b>MOTHER'S EMPLOYMENT *</b>		
Unemployed	109	34.82
Employed	142	45.37
No answer	62	19.81
<b>FATHER'S EMPLOYMENT*</b>		
Unemployed	66	21.09
Employed	179	57.19
No answer	68	21.72
<b>STRUCTURE OF THE FAMILY ENVIRONMENT **</b>		
Two-parent family	279	87.14
Single-parent family	34	10.86
<b>SIBLINGS</b>		
Yes	247	78.91
No	66	21.09
<b>PERSONS WITH DISABILITIES IN FAMILY</b>		
Yes	45	14.38
No	267	85.30
No answer	1	0.32

**The Characteristics of the Study Groups**

Variable	N	%
<b>INTERACTION WITH PUPILS WITH DISABILITIES IN PRIMARY SCHOOL</b>		
Yes	34	10.86
No	269	85.94
No answer	10	3.20
<b>INTERACTION WITH PUPILS WITH DISABILITIES IN LOWER SECONDARY SCHOOL</b>		
Yes	20	6.39
No	249	79.55
No answer	44	14.06
<b>INTERACTION WITH STUDENTS WITH DISABILITIES IN SECONDARY SCHOOL</b>		
Yes	24	7.67
No	285	91.05
No answer	4	1.28
<b>CONTACT WITH PEOPLE WITH DISABILITIES IN THE LOCAL COMMUNITY</b>		
Yes	68	21.73
No	244	77.95
No answer	1	0.32

\* for the second and third age groups, it is the period during the developmental age

\*\* in the case of the second and third age group, it is the family of origin in which the respondents were brought up at the developmental age  
Source: Authors' own study.

## PROCEDURE

Probabilistic stratified sampling was applied. The research covered adolescents attending general secondary schools in the south-east of Poland. The sampling frame was a list of general secondary schools located in rural areas, in towns, and cities. On this basis, nine schools were selected - three representing each community (proportional variant). As a result of contacting the schools and obtaining appropriate permissions (from the school management and parents' councils), meetings with the youth selected for the research were held on the school premises during tutor training hours. During the meetings organised in selected classes at school, students were asked to take part in the research, and each of them was given three copies of the questionnaire (one for a student and two for other adults living together) to complete at home. Respondents answered the questionnaires on their own. Respondents were given three days to return the questionnaires they had completed.

The statistical analysis comprises descriptive statistics (means and standard deviations) and inferential statistics (F-test, Z-test, and Kruskal-Wallis test).

Table 2.

**The results of the analysis of social acceptance  
of people with disabilities considering socio-demographic variables**

SEX	Female		Male		F	p		
	M1	SD1	M2	SD2				
Factor 1	3,59	0,68	3,53	0,56	1,234	0,190		
Factor 2	3,99	0,71	3,98	0,69	1,055	0,741		
Factor 3	3,28	0,62	3,32	0,58	1,144	0,402		
AGE	16-18 y.o (1)		31-40 y.o (2)		>50 y.o (3)		F	p
	M1	SD1	M2	SD2	M3	SD3		
Factor 1	3,44	0,56	3,54	0,64	3,69	0,54	4,607	0,0111
Factor 2	3,87	0,77	4,09	0,66	3,98	0,66	2,504	0,083
Factor 3	3,16	0,56	3,37	0,57	3,36	0,65	4,118	0,0172
PLACE OF RESIDENCE	Rural (1)		Town (2)		City (3)		F	p
	M1	SD1	M2	SD2	M3	SD3		
Factor 1	3,52	0,56	3,53	0,50	3,63	0,68	1,060	0,348
Factor 2	3,95	0,68	3,88	0,75	4,12	0,65	3,170	0,0433
Factor 3	3,26	0,55	3,27	0,61	3,37	0,65	1,076	0,342

Factor 1: Accepting the support to be provided to people with disabilities

Factor 2: acceptance of the inclusion of people with disabilities in society' institutions

Factor 3: Acceptance of the competences of people with disabilities to functioning in social roles

<sup>1</sup>Statistically significant differences as determined by Tukey's RIR test among groups 1/3 ( $p = 0.007$ );

<sup>2</sup>Statistically significant differences as determined by Tukey's RIR test among groups 1/2 ( $p = 0.027$ ) and 1/3 ( $p = 0.039$ ).

<sup>3</sup>Statistically significant differences as determined by Tukey's RIR test among groups 2/3 ( $p = 0.039$ )

Source: Authors' own study.

## RESULTS

The analysis of social acceptance of persons with disabilities was conducted in the context of demographic and social variables describing persons participating in the research. The importance of gender in differentiating interpersonal attitudes, including those relating to people with disabilities, justifies the assumption that this factor may also prove significant in measuring acceptance concerning people with disabilities (Table 2).

No statistically significant differences were confirmed between male and female respondents in the area of social acceptance of persons with disabilities. The greatest difference between male and female respondents occurred in the area of acceptance of support provided to people with disabilities (factor 1). Both male and female respondents showed the highest intensity of acceptance concerning the inclusion of persons with disabilities in institutions of social life ( $M=3.99$  and  $M=3.98$ ; factor 2), while the lowest intensity of acceptance was associated with their recognition of the competence of persons with disabilities to function in social roles (factor 3).

Another demographic variable analyzed was the age of the respondents. The analysis conducted in this respect revealed statistically significant differences between the examined age groups in two areas of acceptance of persons with disabilities: acceptance of support provided to persons with disabilities and acceptance of the competence of persons with disabilities to function in social roles. The lowest level of acceptance is found in the group of people aged 16 - 18 years. These people declare a significantly lower level of acceptance of providing support to people with disabilities (as compared to people over 50) as well as acceptance of their competencies to function in social roles (as compared to the oldest as well as the middle age group). In all age groups, the greatest acceptance is shown for including people with disabilities in social institutions (factor 2:  $M1 = 3.87$ ;  $M2 = 4.09$  and  $M3 = 3.98$ ), and the least acceptance is shown for the belief that people with disabilities are competent to function in social roles (factor 3:  $M1 = 3.16$ ;  $M2 = 3.37$  and  $M3 = 3.36$ ).

A comparison was also made between the respondents' declared intensity of acceptance relating to people

Table 3.

**Results of the analysis of social acceptance of persons with disabilities depending on the parents' education**

EDUCATION	Primary (1)		Vocational (2)		Secondary (3)		Higher (4)		Kruskal-Wallis Test
	M	SD	M	SD	M	SD	M	SD	
Mother									
Factor 1	3,52	0,52	3,68	0,53	3,48	0,61	3,54	0,65	H (3, 313) = 8,499, p = 0,0371
Factor 2	3,99	0,67	3,93	0,66	4,00	0,77	4,07	0,66	H (3, 313) = 1,870, p = 0,600
Factor 3	3,23	0,49	3,36	0,57	3,26	0,66	3,33	0,64	H (3, 313) = 1,578, p = 0,664
Father									
Factor 1	3,69	0,49	3,59	0,56	3,55	0,59	3,36	0,70	H (3, 308) = 5,556, p = 0,135
Factor 2	3,99	0,56	4,02	0,71	3,89	0,79	4,00	0,66	H ( 3, 308) = 1,052, p = 0,789
Factor 3	3,30	0,58	3,31	0,57	3,23	0,70	3,36	0,56	H ( 3, 308) = 1,022, p = 0,796

<sup>1</sup>Statistically significant differences as determined by Tukey's RIR test among groups 2/3 (p = 0.043).

Source: Authors' own study.

with disabilities and their place of residence. There is a statistically significant difference in the acceptance of the inclusion of people with disabilities in institutions of social life between people who live in small towns and those who live in larger cities (p=0.039). It is worth stressing that people living in small towns are less accepting of the inclusion of people with disabilities in institutions of social life (M=3.88). It is also worth stressing that in all selected groups, the lowest results refer to the assessment of the readiness of persons with disabilities to perform social roles and the highest to the acceptance of the inclusion of persons with disabilities in institutions of social life. It can also be noted that respondents living in cities declare a higher general level of acceptance of people with disabilities (M=3.71) than respondents living in towns (M=3.56) or in rural areas (M=3.58). On the other hand, if people living in cities and towns were to be combined into one group, it would transpire that

the general level of acceptance of people with disabilities among respondents living in urban areas (M=3.63) is higher than among respondents living in rural areas (M=3.58).

The second part of the analysis focused on factors characterizing the family environment of people participating in the research. The education of the parents, the presence of unemployment among the parents, the structure of the family environment, and having siblings were considered important for the intensity of social acceptance towards people with disabilities.

A comparison of the intensity of social acceptance of people with disabilities according to the father's education did not show statistically significant differences. However, when the intensity of acceptance was analyzed in relation to the mother's education, it was observed that it can differentiate declarations of willingness to support

Table 4.

**Results of the analysis of social acceptance of persons with disabilities according to parents' employment**

Employment	Does not work		Work		F	p
	M1	SD1	M2	SD2		
Mother						
Factor 1	3,66	0,57	3,48	0,60	1,095	0,621
Factor 2	4,05	0,72	3,92	0,73	1,034	0,860
Factor 3	3,34	0,63	3,28	0,57	1,200	0,309
Father						
Factor 1	3,71	0,65	3,50	0,57	2,710	0,007
Factor 2	4,01	0,74	3,98	0,73	0,404	0,686
Factor 3	3,37	0,68	3,28	0,56	1,249	0,212

Source: Authors' own study.



Table 5.

**Results of the analysis of social acceptance of persons with disabilities by structure of the family environment**

PARENTS	Two-parent family		Single-parent family		Z	p
	M1	SD1	M2	SD2		
Factor 1	3,55	0,58	3,64	0,66	-1,062	0,288
Factor 2	3,97	0,70	4,10	0,64	-1,071	0,284
Factor 3	3,30	0,62	3,28	0,51	-0,002	0,998
SIBLINGS	Yes		No		Z	p
	M1	SD1	M2	SD2		
Factor 1	3,56	0,55	3,55	0,72	0,462	0,644
Factor 2	4,00	0,69	3,95	0,71	-0,572	0,567
Factor 3	3,32	0,58	3,22	0,70	-0,664	0,507

Source: Authors' own study.

people with disabilities ( $H(3, 313) = 8.499, p = 0.037$ ). At the same time, it was noted that in this area, mothers with secondary education scored significantly lower than mothers with vocational education ( $p = 0.043$ ).

The presence of unemployment among parents also did not obtain the status of a significant factor differentiating social acceptance towards people with disabilities.

Significant differences were found when considering the employment of fathers. People who declared a significantly higher intensity of acceptance in the area of support provided to people with disabilities were those whose fathers did not work ( $p=0.007$ ). It is also noteworthy that the average intensity of acceptance was in all examined areas higher in the case of people whose parents had problems with employment.

In this part of the research, we were also interested in the structure of the family environment of the participants of the study (as a place of the implementation of upbringing functions, including the transmission of values and shaping of attitudes), as well as having siblings.

Growing up in a complete (two-parent family) or incomplete (single-parent) family structure does not statistically significantly differentiate respondents' acceptance of people with disabilities. Both persons brought up in two-parent families and persons from families without both parents declared the highest level of acceptance concerning the inclusion of persons with disabilities in institutions of social life and the lowest level of acceptance about the competence of persons with disabilities to function in social roles. In two di-

mensions (factor 1 and factor 2), mean scores expressing acceptance of persons with disabilities are higher among persons brought up in single-parent families and one dimension (factor 3) among persons brought up in families with both parents.

On the other hand, taking into consideration the possibility of the respondents' interaction with their siblings (having siblings), it was found that the respondents with siblings achieved higher average intensities of acceptance towards people with disabilities compared to the respondents - only children, but these differences were not statistically significant. As in previous analyses, the highest intensity of acceptance of both siblings and singles concerned the inclusion of persons with disabilities in institutions of social life and the lowest intensity concerned the acceptance of the competencies of persons with disabilities to function in social roles.

The last part of the analysis focused on relations with people with disabilities. It was attempted to determine their importance in differentiating the intensity of social acceptance towards people with disabilities.

The data in Table 6 shows that having a person with a disability in the family may be important for the acceptance of the inclusion of people with disabilities in institutions of social life (factor 2). Differences between the mean scores obtained by the respondents differ in this area at a statistically significant level ( $p=0.003$ ). The comparison of mean results also shows that respondents who have a person with disabilities in their family are characterized by higher acceptance intensity than people who do not have such circumstances.

Table 6.

**Results of the analysis of social acceptance of persons with disabilities in relation to interactions with such persons**

PLACE OF CONTACTS	Contacts with PWD		No contacts with PWD		Z	p
	M1	SD1	M2	SD2		
FAMILY						
Factor 1	3,62	0,60	3,54	0,58	-1,136	0,256
Factor 2	4,27	0,65	3,94	0,70	-2,984	0,003
Factor 3	3,31	0,67	3,30	0,59	-0,412	0,681
PRIMARY SCHOOL						
Factor 1	3,37	0,62	3,57	0,59	2,053	0,040
Factor 2	4,03	0,69	3,96	0,70	-0,705	0,481
Factor 3	3,20	0,58	3,31	0,61	0,968	0,333
LOWER SECONDARY SCHOOL						
Factor 1	3,30	0,70	3,58	0,58	1,979	0,048
Factor 2	3,94	1,06	3,90	0,66	-0,951	0,342
Factor 3	3,37	0,47	3,27	0,60	-0,813	0,416
SECONDARY SCHOOL						
Factor 1	3,63	0,55	3,55	0,59	-1,010	0,312
Factor 2	4,37	0,32	3,95	0,71	-2,878	0,004
Factor 3	3,48	0,51	3,29	0,61	-1,813	0,070
LOCAL COMMUNITY						
Factor 1	3,56	0,61	3,56	0,58	-0,185	0,853
Factor 2	4,09	0,67	3,96	0,70	-1,606	0,108
Factor 3	3,31	0,62	3,30	0,60	-0,354	0,723

PWD – persons with disabilities

Source: Authors' own study.

Analysing data concerning contacts in the school education period, it can be observed that there is a statistically significant difference in the acceptance of support given to persons with disabilities (factor 1) between persons who had contact with disabled peers in primary school and those who did not experience such support in that period ( $p=0.040$ ). It is particularly noteworthy that it is the latter group that is more accepting of providing support to people with disabilities.

The inclusion in the analysis of contact with peers with disabilities in the period of attendance at lower secondary school was also a source of significant variation in the research results.

It has been found that these contacts can be a factor reducing the level of acceptance of the support given to people with disabilities (factor 1;  $p = 0.048$ ).

Table 6 also includes an analysis of the significance of the occurrence of contacts of the respondents with disa-

bled peers in secondary school. In this aspect, a statistically significant difference occurred with the acceptance of the inclusion of people with disabilities in institutions of social life (factor 2). It is noteworthy that this time a higher level of acceptance was obtained by those who had relations with disabled peers in secondary school ( $p=0.004$ ). The high value of the mean suggests that in the analyzed group of respondents there were clearly more people who did not have any doubts that people with disabilities should actively participate in social life and use all forms of such participation available to all citizens.

The research showed that most contacts of people surveyed with people with disabilities concerned the local environment. Although they referred to only 21.73% of respondents, in comparison with, for example, interactions in the school environment, they were 2-3 times more frequent. When analyzing the diversity of the intensity of acceptance towards people with disabilities, ta-

Table 7. **Results of the analysis of acceptance of people with disabilities considering contacts with people with disabilities in any environment (family, school or community)**

ENVIRONMENT	Contacts with PWD in any environment		No contacts with PWD in any environment		Z	p
	M1	SD1	M2	SD2		
Factor 1	3,55	0,62	3,56	0,564	-0,235	0,814
Factor 2	4,10	0,70	3,91	0,690	-2,740	0,006
Factor 3	3,31	0,60	3,29	0,608	-0,489	0,625

Source: Authors' own study.

king into consideration the factor of local contacts, no statistically significant differences were found. Finally, the analysis of acceptance towards people with disabilities was conducted without specifying the place (Table 7).

Experiencing relationships with people who have disabilities, therefore, appeared to be of greatest importance in the area of acceptance for the inclusion of people with disabilities in institutions of social life (factor 2). People who had interactions with people with disabilities showed a significantly higher intensity of acceptance in this area compared to people who did not have such experiences ( $p=0.006$ ).

## DISCUSSION AND CONCLUSIONS

The results of the research showed that socio-demographic factors, characteristics of the family environment, and contacts with people with disabilities can influence the intensity of the level of acceptance towards these people.

When analyzing socio-demographic factors, the importance of age and place of residence was found. Particularly worrying is the low intensity of acceptance declared by the youngest age group (people aged 16 - 18), which may result from personal experience of contact. Younger people tend to have less interpersonal experience compared to older people and their experience of contact with people with disabilities is less frequent and less diverse. This result is in line with the findings of A. J. Murch, T. Choudhury, M. Wilson, E. Collerton, M. Patel, and K. Scior (2018, p.782) who believe that this may be due to older people's increasing social tolerance and their higher education.

Exploring the meaning of age as an explanation for the existing differences in social acceptance of people

with disabilities should therefore always take into account additional variables (e.g. it cannot omit the analysis of contacts with such people). The same is true when taking into account the place of residence. Here, too, differences can be explained by the density of interpersonal relations, their diversity, and greater accessibility in the case of inhabitants of large cities. In conclusion, the demographic factors of particular importance to be taken into account in measuring the acceptance of people with disabilities are age and place of residence. Gender, on the contrary, tends to disappear as a criterion clearly indicating more positive reactions of women to disability compared to men (Murch, Choudhury, Wilson, Collerton, Patel & Scior, 2018, p.782).

In the analysis of the factors characterizing the family environment of the research participants, two deserve attention: 1) mother's education (mothers with vocational education declared higher intensity of acceptance of people with disabilities than mothers with secondary education) and 2) father's employment (unemployed fathers declared higher intensity of acceptance of people with disabilities than working fathers). The result of the study relating to education requires further explanation. We are far from claiming that a lower level of education is conducive to the acceptance of people with disabilities, since, as our research indicates, it would be more correct to acknowledge the insignificance of this variable and to emphasize that high intensity of social acceptance is available to people with both low and high levels of education. On the contrary, concerning the difficulty of finding a job, as a variable supporting a higher intensity of acceptance of people with disabilities, we should consider giving it a broader meaning, as a factor favoring solidarity with other people in a difficult professional situation, which are undoubtedly also people with disabilities in the labor market. A study by D. W. Wong et al. (2004, p. 201) found that students felt more comfortable interacting

with people they perceived as more like themselves. This result confirms one of the conditions for successful contact, which speaks of equal statuses between groups that meet (Connolly, 2000, p. 172).

The final part of the analysis focused on contact with people who have disabilities. Although a study by Douglas C. Strohmer, Sheldon A. Grand, and Michael J. Purcell (1984, p. 142) found that the degree of contact with people with disabilities is the most important factor associated with more favorable attitudes, the results of other studies in this area do not allow for clear conclusions (Scior, 2011, p. 2177 - 2178). Although contacts are considered as a factor that allows the formation of all components of overt attitudes (Hein, Grumm & Fingerle, 2011, p. 518). However, as Douglas C. Strohmer, Sheldon A. Grand, and Michael J. Purcell (1984, p. 143) state, a satisfactory explanation in this regard is still lacking. „For example, Antonak (1980) reports that intensity of contact with the disabled accounted for only 4% of the variance in scores on the Attitudes Toward Disabled Persons Scale, Form O” (Strohmer, Grand, & Purcell, 1984, p. 143). Our results confirm the need to look for other predictor variables and the multi-dimensionality of the phenomenon of social acceptance of people with disabilities.

It has been shown that low levels of acceptance are also to be expected among people who have encountered students with disabilities during their education. Gary N. Siperstein, Jennifer Norins, and Amanda Mohler (2007, p. 136), present findings from several studies conducted in different historical periods (Goodman et al., 1972; Brewer & Smith, 1989; Manetti, Schneider & Siperstein, 2001; Stager & Young, 1981) which confirm that the more contact primary school students have with peers with intellectual disabilities, the more negative their attitudes become and that the inclusion of students with intellectual disabilities in mainstream classrooms does not foster more positive attitudes or greater social acceptance.

At this point, it is also worth recalling the research of Barnes (1990) who noted that people with disabilities consistently experience a lack of social acceptance in the work environment (Devine & Lashua, 2002, p. 67). Thus, it can be concluded that experiencing contact with people with disabilities is a variable that may be important in generating cross-group differences, but creating characteristics of such contact that would foster higher

levels of acceptance requires more detailed research. For research to assist in the development of specific strategies at the level of interaction, there needs to be a significant change in the methods used in the researching of interpersonal contacts and, taking into account all the conditions derived from the theory of inter-group contact. As P. Connolly (2000, p. 190) notes, without a more grounded, qualitative analysis to explore how particular patterns of contact have been experienced, and thus to explore the meanings and motivations behind participants' actions, it is very difficult to adequately assess the impact and effectiveness of these conditions. This includes the informal context of establishing personal relationships between non-disabled people and people with disabilities as a factor in encouraging acceptance (McKittrick, 1980 after Devine & Lashua, 2002, p. 67).

**Taking into account the three dimensions of the studied phenomenon and the existence of statistically significant differences in inter-group comparisons, it can be concluded that:**

1. the highest level of acceptance in all sets occurred concerning the inclusion of people with disabilities in institutions of social life;
2. the lowest level of acceptance in all sets was concerning the recognition of competencies of people with disabilities to function in social roles;
3. the following factors were particularly important in differentiating the intensity of acceptance for the support provided to people with disabilities:
  - (a) experiencing contacts with a person with a disability while attending secondary school,
  - b) experiencing contacts with a person with a disability while attending primary school,
  - c) work (employment) of the father,
  - (d) mother's education,
  - (e) age ;
4. The following factors were particularly important in differentiating the intensity of acceptance for the inclusion of people with disabilities in institutions of social life:
  - (a) experiencing contact with a person with disabilities while attending secondary school,
  - b) Experience of contact with a person with a disability in the family,
  - c) place of residence.

Age was particularly important in differentiating the intensity of acceptance for the competence of persons with disabilities to function in social roles.

This statement suggests that treating social acceptance as a multidimensional phenomenon provides an opportunity to uncover detailed conditions related to its structure and that interventions towards developing acceptance may prove more effective when they take into account its individual profile.

It would therefore be interesting to investigate further whether awareness of the problems accompanying the work of people with disabilities would be conducive to their acceptance concerning the provision of support, or how different forms of relationships with people with disabilities are conducive to their acceptance of participation in social life. As noted by O'Brien (1987), this participation should not be purely formal, because even when people with disabilities are physically included in the community, this is often accompanied by a lack of social acceptance. Limitations in acceptance, make the active participation of people with disabilities in community life inhibited (Safilios-Rothschild, 1970) (after: Devine & Dattilo, 2001, pp. 319-320).

The greatest challenge, however, in the context of the results obtained, would be to convince society that people with disabilities can achieve such a high level of preparation for fulfilling social roles that their performance will be neither threatened nor marked by the stigma of disability.

## LIMITATIONS

A number of caveats need to be noted regarding the present study. Firstly, the study highlighted contacts with people with disabilities but did not produce conclusive results in this respect. The respondents' experiences of contact with people with disabilities should be further explored, taking into consideration different aspects such as quality and intensity. Secondly, the study used the general category of „disability“, which makes it impossible to relate the results precisely to any specific type of disability. Thirdly, taking into consideration the size and scope of the sample, the results of the study should be treated as a proposal for a set of factors determining the acceptance of people with disabilities and constitute a starting point for more in-depth exploration.

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# Paradigm as a Critical Analysis Tool in Education/Special Education

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## ABSTRACT

Familiarity with the concept and the essence of a paradigm allows for analysing a text and assessing the research intention of its author. In this mode, one can trace the correctness of theoretical and conceptual deduction in publications, the mode of combining paradigms by other researchers, including unauthorised borrowings and interpretations. Such knowledge is also necessary to plan research projects. The text draws attention to the problem of incommensurability of paradigms, errors in their application and difficulties with interpreting publications devoid of paradigmatic declarations. The author of the paper highlights the modes and risks of using several years of theoretical achievements of education and special education.

**Keywords:** paradigm, paradigmatic awareness, knowledge construction, critical text analysis

## INTRODUCTION

To understand the significance of a paradigm in critical academic analysis, it is necessary to adopt a specific conceptual category to understand the attributes of paradigm and to indicate the mode of their use. Obviously, one may venture a question: why does a researcher of educational science need such knowledge? The answer lies in the nature of building knowledge in education. It is a standard that for the needs of studies, theoretical issues are prepared, relying on the accomplishments of researchers over several decades. Oftentimes, quotations and references are purely thematic, and provided without distinguishing the period to which they refer, the methods that were used for data compilation, the data that the contemporary researchers relied on or the premises that accompanied their interpretations and the social and cultural context in which they were adopted. Such raw transfer of interpretations may lead to adoption of erroneous theoretical premises and in consequence, to bad methodological choices, rendering a research project doubtful or even absurd. In this sense, understanding the contexts of knowledge creation, as well as its paradigmatic nature, not only facilitates its analysis, but also protects, in a certain manner, from adopting incorrect assumptions in the designed projects.

### Paradigm:

#### Why Are Problems with the Concept So Significant?

Without doubt, this concept, which has become so popular in the modern science, has its source in the perspective of philosophical analyses about building knowledge and development of science. Insofar as the priority of applying this term in philosophy may be subject to a discussion, it must be acknowledged that the works of Kuhn, in particular the "Structure of Scientific Revolutions" (Kuhn, 2001), have contributed to its popularisation.

In Kuhn's first works, the structure of the paradigm related to the development of science assumed existence of a certain academic community sharing a view with the same significance and materiality, which not only distinguished them as a group, but also designated the principles of research conduct, allowed for diversification and exclusion of other views, described academic progress and its stages (first original publication, Kuhn 1962). Science, according to Kuhn, develops in a two-track mode, in the period of the so-called standard development, as long as it is capable of explaining the existing scientific puzzles, and through scientific revolutions in case it fails to tackle the-

se puzzles applying the current knowledge. Kuhn made the paradigm the key category of change. Since the very beginning, this category has been accused of ambiguity, also due to the fact that Kuhn used it inconsistently in several dozen meanings (cf. Masterman, 1970, p. 61). An example may be the aforementioned "Structure", where the researchers of T. Kuhn's works distinguished over 20 meanings of a paradigm.

Later works of Kuhn are also problematic: the concept of paradigm was transformed, inter alia under the impact of a critical discussion about the model of science development. The discussion had continued until the author replaced his concept with the category of an exemplar and a disciplinary matrix. In this approach, the *sensu stricto* paradigm would be an exemplar, a specific scientific accomplishment, a discovery, a specific puzzle-solving. On the other hand, a paradigm in a broader meaning, *sensu largo*, would be a set of ordered elements of various types, determining a common standpoint for the scientists of a given discipline, basic claims, concepts and theories (Kuhn, *Postscriptum*.... 2001).

The concept of the matrix and the exemplar are well explained in educational science by broader paradigms, of greater scope, e.g. disciplinary or inter-disciplinary (humanistic paradigm) and narrower ones, e.g. sub-disciplinary (subjective, rehabilitative, emancipatory, etc.). Nowadays, there is a dominant view in education that:

"A paradigm is a set of concepts, theories and methodological premises, accepted in a given historical period by scientists as scientific and adequately explaining the reality..."

(Klus-Stańska, 2018, p. 38)

Some of Kuhn's original assumptions about the characteristics of paradigm posed a problem for social sciences and humanities. In "Structure", Kuhn himself had doubts about paradigms in social sciences claiming:

"it remains an open question what parts of social science have yet acquired such paradigms at all. History suggests that the road to a firm research consensus is extraordinarily arduous."

(Kuhn, 2001, p. 38)

The premise of mutual preclusion of paradigms was the primary problem for social sciences. In the first version, Kuhn assumed that a new discovery, typical for experimental sciences, is scientifically confirmed and accepted by the ever-growing community of scientists which, in

turn, leads to the dominance of a new paradigm. This condition seemed difficult to meet in social sciences, including educational science, where multiplicity of concepts, theories and stances functioning in parallel, would render it a non-paradigmatic science. Nevertheless, in the course of time, along with admitting the possibility of existence of multi-paradigm disciplines, this view subsided. Kuhn himself, in his later works, e.g. in "The Road Since Structure", no longer excluded such possibility (Kuhn, 2003).

There are many reasons to consider education a multi-paradigm discipline. The main one follows from the sole nature of education, where cultural and social meanings are subject to negotiations, where unanimity is replaced by interpretations and objectivity is not the only way of cognition. Multi-paradigmatic nature in this case means that paradigms may be mutually exclusive, that some are replaced by new ones, some are abandoned, and others begin to dominate; however, it is assumed that some of them remain in parallel with respect to the new ones or are positioned anew in the hierarchy. A peculiar map of paradigms is developed, not only with a broader and narrower range, but also featuring competitive paradigms, disputed and alternative ones.

### **Pedagogy As a Multi-Paradigm Discipline**

Researchers' long-lasting discussion about paradigms in education does not entail that the scope of application of this concept has been unified. Multiple standpoints with respect to the nature and the essence of paradigms are still dominant in the works devoted to education, which may pose an interpretative difficulty for the recipient as to what the author had in mind and which theoretical assumptions were adopted.

Without delving any further into the philosophical debate on the accuracy of the concept of paradigm here (those interested will easily find such discussions in the works published also in Poland), I would like to draw attention to three issues that are useful, in my opinion, for every education practitioner who makes use of works of other researchers. It is the issue of handling the ambiguity of the term paradigm, the significance of using it from the point of view of development of social sciences and the manner in which it may become useful for a critical analysis in such discipline as education.

The first issue of defining a paradigm may evoke dilemmas, in particular among young researchers. The multiplicity and the ambiguity of the concept applied in literature is bewildering and the authority of well-known researchers and adoption of frequently contrasting

stances makes a just choice nearly impossible. The difficulty with making the right choice may be additionally aggravated by the diversified attitudes to the paradigm category among the education practitioners who either adopt the original or the secondary version of Kuhn, limit its scope and meaning, completely change its content or even reject it entirely. In other words, there may be situations when a publication that is under analysis makes use of the term paradigm, but has little to do with how it is understood in science.

This issue becomes even more complex as adoption of a specific meaning of paradigm has consequences not only with respect to the content and the range of application of the term, but also the vision of development of science in the discipline that is practised, the essence of relations of the models, the theories and concepts in such discipline or the dimension of methodological (also theoretical) ordering.

"Paradigmatic identification," says Łopatkowska "requires not only proper discernment of the complexity of modern pedagogy, but also knowledge about the paradigm as an epistemological construct, the elements comprising it and the consequences that result from founding research activities on it."

(Łopatkowska, 2017, p. 399)

Whilst clarifying the consequences of understanding paradigms with the examples from the area of education, attention should be drawn to a typical for many of its sub-disciplines (also for special education) appropriation of such category in the form of a postulate or as forms of practical educational activities. An example is provided by the works of Obuchowska and Twardowski, where the family cooperation paradigm or the positive thinking paradigm is mentioned (Obuchowska, 1987; Twardowski, 2004). This approach to the paradigm that has little to do with the original is only a mode of using the term to provide the promoted theory and postulate of a higher rank. It does not have any direct significance for the mode of overviewing the examined reality and for searching for a meta-theoretical perspective, yet it may emphasise the significance of educational actions in the personal theory of a researcher. In its consequences as part of the sub-discipline, it may designate certain directions of actions or emphasise their significance with respect to others, which may result in certain hierarchisation of studies. The case is similar with emphasising the significance of a child's subjectivity via the category of a paradigm, which makes it a stream of research signi-



ficant both in school education and in special education. In this case, it is difficult to talk about the paradigmatic awareness of persons using this concept in this manner, yet there is a material emphasis on the significance of the phenomenon for the academic discipline, which also constitutes one of the features of a paradigm.

A researcher, making use of such sources, has to be aware that in an academic discussion such range of use of the term does not entail that we are actually dealing with a paradigm. For example, humanistic, constructivist and subjective paradigms, as well as support for cooperation with the family paradigm in education should not be enumerated next to each other as in this way, categories with various meanings are combined, showing not only misunderstanding of this conceptual category, but also misleading the recipient.

On the other hand, understanding the paradigm as a methodological model seems to be much less disputable. This category, most commonly encountered in education, is understood both in a narrow sense, i.e. exclusively as conducting a research procedure, as well as in a broader context, i.e. as a determination of the modes of understanding the studied reality. Many studies available in education allow for learning the level of the researcher's paradigmatic awareness through such methodological approach, which is expressed in the perception of consequences of own methodological path. Literature also features works showing low awareness of the applied methodological paradigm. Examples include works where the researcher, declaring a quality paradigm and data collected in such convention, attempts to objectify the results of own studies.

Meta-theoretical or epistemological approach to a paradigm is not uniform or even popular among education practitioners. However, its significance may be perceived through the consequences of Kuhn's structure of the exemplar and the disciplinary matrix. Such broad or narrow understanding of a paradigm is particularly significant for multi-paradigm sciences (if we agree that such sciences exist), as it allows for creation of a peculiar map of paradigms or a paradigm hierarchy, which is of fundamental significance for the understanding of the modern education (cf. Śliwerski, 2009). Such approach facilitates the category's transfer to the sub-disciplines of education which, in compliance with the disciplinary matrix, make up paradigms with a narrower meaning, types of exemplars that bring the communities together, including handling of disability-related issues.

An illustration is provided by a humanistic paradigm, reflected in the sub-disciplines of education through

the category of emancipation, subjectivity, integration, normalisation, etc. Even though theoretical categories in education will never be as expressive as in experimental sciences and their identification may raise controversies, their significance for showing the links of the sub-discipline with the main currents of meta-theory is not to be underestimated.

An example is not only the development of the last 20 years of special education, but also social rehabilitation, didactics, school counselling, special methodologies and others, where the majority of new cognitive impulses originate from beyond "own" sub-disciplinary theoretical background. Let us illustrate it with the current situation of a disabled child in a general education school. In the narrow perspective of the sub-discipline, we may examine the efficiency of teaching in a school of such type, peer relations in a class, efficiency of the child's rehabilitation and scope of the necessary support, satisfaction of special educational needs. When we venture beyond the "special education", towards cultural theories, critical sociological, social and psychological studies, we will notice much more, e.g. the oppressive role of institutions originating from the concept of Foucault (1975), the concept of stigma deriving from the concept of Goffman (1975), the concept of the Other in the approach of Bauman (1995), the Pedagogy of the Oppressed of Freire (1970) and many other theories, which special education practitioners may use to describe such phenomenon.

### Why Is Paradigm Needed in Education?

In order to make use of non-sub-disciplinary science and to participate in a common scientific discourse, a mutual understanding of researchers is needed, at least via concept categories, clarity of the adopted premises and consistency of arguments. In Kuhn's approach, the understanding of studies requires consistency of the matrix and the paradigm's exemplar, i.e. creation of a narrative and arguing within the same paradigm. The awareness of such consistency is growing in education, year by year, which results in the criticism of fragmentary education, deprived of the understanding of the context of the examined phenomenon. It is still possible to find works that are "isolated" in the disciplinary sense in the Polish educational science, yet these cases are rather rare. It seems that along with the popularisation of the socio-cultural model of disability and its consequences, special education practitioners make more frequent use of the accomplishments of similar disciplines than of other sub-disciplines of education.

Obviously, awareness of the compliance of the exemplar and the discipline matrix will not protect many researchers from making ostensible or misguided links. The fact that someone declares operation within the framework of humanistic or interpretative paradigm does not mean that this is really the case. However, this issue is more complex and will be handled in the further part of this study.

Popularity of the category of paradigm in education entails not only its significance in the context of identification of changes in education, but also the power of the concept as such. Łopatkowska justly notes – after a detailed analysis of applications of the concept in education – that the term may be replaced by other accepted and less troublesome terms such as: model, view, theory, postulate, direction of studies, etc. (Łopatkowska, 2017, p. 394). Therefore, why has it not been discarded? I believe that the advantage of the paradigm in education is the strength of this concept. This is what the education researchers needed not only to distinguish one scientific model from another one, but also to indicate its significance, superiority, validity, advantage over others, etc.

To sum up this part of the discussion, the use of paradigms as a tool of critical analysis not only requires understanding of paradigms and their meaning in education, but also their attributes such as, for example, incommensurability, modes of expiry and principles of concomitance.

## PARADIGM AS A TOOL OF CRITICAL ANALYSIS

### Works Without Paradigmatic Declaration

Independently from multiple approaches to the paradigm in the social sciences and complications resulting from a transition of this category from exact sciences, it may be assumed that education features works with clear paradigmatic declarations with the use of the category of paradigm and works without such declaration, often with an unspecified paradigm or works with an unrealised paradigm.

Let us start with a situation when the researcher does not position his/ her studies in any specific paradigm, yet such paradigm is, from today's perspective, easy to identify. These are, in majority, works from a period when the category of paradigm was not used, but it can be clearly recognised on account of the current studies in which they were created. An example is provided by the studies

which are described with the use of an objectivist paradigm. They include the authors' certainty with respect to scientific cognition of the world, discovery of facts and regularities, confirmation or rejection of the proposed theses and hypotheses. In the present-day pedagogical studies, we can find critical analyses of this cognitive path, often dubbed naïve scientism. We also tend to look at the results of such studies with a certain distance from the perspective of the constructivist and interpretative paradigm, assuming non-contextual inscrutability of the social world. Being aware of the context in which knowledge is created, we do not accept it as a scientific axiom or, even more, as a thoughtless starting point of own research project.

However, some authors fail to notice it. Building their methodological projects in the 21st century, they try to find a justification for them in the works written several decades ago. Oftentimes, the presented results of other researchers are quoted only in fragments, without specifying the mode and the situation in which the study was performed. The authors, quoting studies in such "raw" manner, lose their social context. In the Polish pedagogy and society which underwent a system transformation in the 1990s, such "unconscious time travels" are methodologically very dangerous. An example is provided by numerous studies on the integration situation of persons with disabilities, which are found in special education publications. It is known from modern studies on disability that the assessment of the level or readiness for social integration without the social and cultural context may be useless. Comparing, for example, the degree of educational integration over the years and concluding, on this basis, about the condition (openness) of special education in Poland may lead to absurd conclusions that the special education teachers are responsible for the lack of progress of integrated education.

The basic trap of failing to notice a paradigm in a publication lies in the non-contextual understanding and reliance on the knowledge created by predecessors (cf. Krause, 2014). Even if it is assumed that the education researchers in the last century did not distinguish paradigms, it does not mean that they did not create knowledge in a specific paradigm or that they were not under its impact. In consequence, today's researcher, when preparing his/ her research project in typical pedagogical areas, e.g. educational functioning of a family, child subjectivity issues, emancipation or disability, cannot thoughtlessly rely on the theses and results of studies published several decades ago without an attempt at defining the paradigm in which such studies were created.

Kuhn describes the non-contextual references to researchers in the scientific tradition as follows:

“Partly by selection and partly by distortion, the scientists of early ages are implicitly represented as having worked upon the same set of fixed problems and in accordance with the same set of fixed canons that the most recent revolution in scientific theory and method has made seem scientific. No wonder that textbooks and the historical tradition they imply have to be rewritten after each scientific revolution.”

(Kuhn 2001, p. 240)

The situation described by Kuhn is also valid in a situation when we are convinced about remaining within the same paradigm and fail to notice the necessity of translating its cultural and social context. An example is provided by the emancipatory paradigm that is in use. The perspective of the present-day situation of a small child and the perspective of women from the 1950s, fighting for their voting rights, is different in such paradigm. The case is similar with the use of Goffman's stigma to assess the present-day situation of persons with disabilities, without paying attention to the fact that Goffman (1975) built his theory in the context of racial discrimination; or the Foucault's vision of an institution of a psychiatric hospital overlooking the present-day mechanism of social discipline. All these theories, which many researchers believe to be the sources of paradigms, should be treated with historical distance and translated to the modern context and language. Obviously, they may and should be used, in particular with respect to the identification of mechanisms described by their authors, yet one cannot thoughtlessly translate their interpretations, overlooking the modern socio-cultural context.

The situation of absence of a paradigmatic declaration also refers to works written today, where the author fails to see the necessity of referring to any changes, and the paper is written as if no differing paradigms were present. Unfortunately, this phenomenon still persists, not only among young academics. An example is provided by a monographic study entitled “Wartości w przystosowaniu osób niepełnosprawnych” (“Values in Adjustment of Persons with Disabilities”) (Korczyński, 2009). In the theoretical justification for his work, the author makes free references to several decades of pedagogy, psychology and sociology, spanning the period from the 1970s to 2000s. It is not known which paradigm is the starting point or what the premises are on which the methodological

declarations are built; nevertheless, this does not stop the author from putting forward some strong theses such as:

“Persons with disabilities are the same as others, yet their disability results in changes in the structure and functioning of their bodies, psyche and behaviour.”

(2009, p. 10)

From the point of view of scientific assessment, the work is not only a-paradigmatic, but in the context of the image of a person with disability, it is detrimental.

The lack of a paradigmatic declaration and the mode in which the author uses individual concepts and hitherto knowledge may tell us a lot about the quality of the analysed work, its theoretical and research premises, as well as the value of the performed studies.

### Works With Paradigmatic Declaration

Let us move on to the second group of works which are provided with a clear paradigmatic declaration. Here, the critical analysis may encompass three possibilities. The first one is related to the use of the paradigm category, the second one to the acceptance or rejection of its attributes (e.g. range, incommensurability, hierarchy, etc.), whereas the third one to a broader analysis of the pedagogical phenomenon with respect to a specific exemplar or disciplinary matrix.

In the context of the first possibility, it is obvious that a mere approach to the paradigm by individual researchers offers a significant potential for the evaluation of scientific projects. By being aware of the mechanisms and consequences of adopting a paradigm, we may look at the projects from the perspective of concepts that were used, their premises, interpretations or potential inconsistencies.

I will use an example from the sub-discipline that I am most familiar with, namely special education, i.e. the approach to the paradigm presented by Obuchowska, which has already been quoted here (1987, p. 29). The author distinguishes a number of paradigms, for example a self-revalidation paradigm, a paradigm of helping the helper, a paradigm of positive orientation, a biographic and subjective paradigm. Some of them have the form of postulates, others are meant to emphasise key issues. The author divides them into present and absent in special education, whereas their presentation, according to her, is meant to induce reflection and to designate directions of aligning actions to the changing reality.

Without going into a discussion whether the categories indicated by Obuchowska are paradigms in the strict sense or not, identification of meaning that the author wanted to communicate is important for special education practitioners. By being aware of what a paradigm is and what it is not, we can notice the postulative and diagnostic nature of a study, without however providing it with a status of a disciplinary exemplar or a disciplinary matrix that unites the community of special education practitioners. We know that these are the theses of the author which rather indicate the practical problems in educational activities, where the category of a paradigm is used, to stress the significance or potentially the superiority of the discussed issues.

However, the use of Obuchowska's postulates as disciplinary exemplars of special education leads a number of researchers to an erroneous belief about the direction in which the modern science in this sub-discipline is constructed. An example of such misunderstanding and combination of numerous different categories can be found in the work of Stefańska (in any case quite good in the empirical section) (2018, p. 105). In the theoretical assumptions of the paper, the author defines the modern concepts of special education as paradigms formulated by Twardowski, e.g. the paradigm of positive thinking and orientation or the paradigm of helping the helper. However, these are not paradigms and they are not even concepts in the epistemological sense. These pedagogical postulates do not form a tendency in the development of special education, they are not axioms agreed on in the milieu of academics and they do not form a part of the leading academic categories of this sub-discipline.

Whilst making use of a paradigm understood in compliance with a disciplinary exemplar in a critical analysis, acknowledged by the majority of researchers from a given discipline, we must be aware of the features of a paradigm and its consequences. In the clarification, I will make use of the phenomenon of paradigmatic incommensurability indicated by T. Kuhn, i.e. the untranslatability of the old theories to the language of a new paradigm (cf. Krause, 2014, p. 33). However, this phenomenon will be viewed more extensively, in the context of the lexical resources that are used, i.e. the absence of a possibility of transferring certain linguistic meanings from one paradigm to the other.

"Individual paradigms," claims Klus-Stańska "have a language that is typical for them, which forms one of the important instruments of their identification, as it defines the paradigmatic iden-

tity of theories. (...) The language of a paradigm comprises, first of all, the lexical resources (typical terminology, key terms, frequently used phrases) and the style of argument. (...) Apart from the dominant language, which comprises a set of typical terms, the absence of certain concepts is significant for recognition of a paradigm. These "white spots", which form an area of excluded lexicon, show what is rejected in a paradigm as non-academic, and what is least insignificant, marginal or just a minor anomaly."

(2018, p. 54)

The differences in lexical resources are best illustrated by two most often occurring methodological paradigms, objectivist, often called the quantity paradigm and interpretative, also known as the quality paradigm. Adoption of one of these paradigms not only entails a specific nature of studies, i.e. measurement or interpretation, but also adoption of its language and meanings, i.e. forms and contents of research premises and presentation of results. A frequent error often consists in simplified thinking about a paradigm on the level of a method or the size of a study sample, overlooking the ontological and epistemological premises with respect to the cognition of the nature of the social and cultural world. It sometimes seems that in some pedagogical works the decision about a research paradigm is made not after the analysis of what is going to be studied, but what sample size can be reached. In extreme cases, the declarations on adoption of a quality paradigm are accompanied by quantity-related research problems and their interpretations.

An example is a Ph.D. thesis reviewed by me, where the author, examining the efficiency of music therapy techniques, performs measurements in a group of eight persons, interpreting the results in a quantitative form (such as, e.g., "improvement was recorded in six cases") and verifying hypotheses in numbers. Interestingly, the author, being aware of the difficulties of paradigmatic triangulation of individualistic (as she calls them) studies, makes breakneck attempts at generalising the received results. Among others, she writes that in spite of such limitations (i.e. the quality paradigm, AK), she "wanted to compare the results of both groups in order to find out if there was a difference between the groups and the applied methods (...)."

When evaluating or making use of a paper with a specific methodological paradigm, attention should be drawn not only to its final theses, but to the consistency of the researcher, starting with the nature of examining a specific



phenomenon, through the language of assumptions and interpretations, up to the conclusions that were generated based on the collected material. The same mechanism refers to the construction of own research projects.

The broadest range of paradigm use in a critical analysis is the overview of a specific pedagogical phenomenon in its light. Klus-Stańska, when characterising perception of various phenomena at school, concludes that:

“(...) a paradigmatic difference means that the same facts are something different in the world of different paradigms (...). The same activities which, in the perspective of one paradigm, constitute teaching that is conducive to learning, in the light of another one, do not have much in common with learning, and may even be assessed as factors hindering the cognitive activity of pupils. What a representative of one paradigm believes to be the knowledge about the world, a representative of another one views as an arbitrarily dominant version of an image of reality.”

(2018, p. 43)

The above means that whilst making use of the characteristics of a given phenomenon or an educational situation prepared by other researchers, we have to be aware of the paradigmatic perspective of such overview. Without it, there is a risk of indicating premises or attributes that are mutually exclusive, leading to conclusions contradictory to the intention of the performed study.

I will illustrate it with two examples. The first and the simplest one is the commonly used category of a standard, as a concept applied in didactics, social pedagogy, rehabilitation pedagogy, development psychology etc. In the objectivist paradigm, we can look at it through measurement or description of meeting the standard or failure to do so. The consequences of a failure will primarily have individual nature, i.e. failure to fit within the standard, a deviation from the standard, a deficiency, a development deficiency, an aberration, social maladjustment, etc. Praxeology relying on such paradigm, will aim at accomplishing the standard via rehabilitation, therapy, re-adaptation, adaptation, etc. Compliance with the standard will be, in certain cases, perceived as normalcy or even social benefit, the goal of educational and care activities.

On the other hand, in the constructivist paradigm, the standard will be an effect of socio-cultural determinations of disciplinary nature. In this approach, the standard may be an excluding and stigmatising mechanism, whereas the pedagogical activities will not be aimed at

adjusting the individual to the standard, but at “expanding” the category of the standard. From this perspective, mere rehabilitation with the aim of correct social adaptation may be defined as an oppressive activity towards a person with disabilities.

Another example in the area of special education is integration of persons with disabilities. This is a phenomenon frequently described and studied through various theoretical perspectives. Polish literature presents approaches to integration from the perspective of three paradigms: biological (rehabilitative), social and cultural.

From the perspective of a medical paradigm (rehabilitative), researchers focus on improvement of the level of functioning of a person with disabilities, whereas the determinant of integration is the efficiency of the process of social adaptation. Such efficiency is measured most frequently, often in combination with individual features of a person. An example is a paper with a telling title in the context of the phenomenon of integration “Szansa na społeczną akceptację” (“Chance for Social Acceptance”), where in the introduction the author does not declare own paradigmatic standpoint, but makes a straightforward claim:

“Personal functioning can be determined as adequate or not. This means that it either adheres to the applicable standards, principles and customs in a given society or not. Adequate also means that it allows for acceptance in a given society.”

(Otrębski, 1997, p. 12)

The consequences of adopting such standpoint reflect what the author is examining and the claims that he/she is making. I do not assess the quality of such studies; I only wish to indicate that for the process of integration from this perspective, the level of social acceptance towards a person with disability and his/ ++her capacity to fulfil the requirements that are set, become the most important. Such assumption obviously has a series of theoretical and research consequences, determining both the perception of integration as a whole, as well as the directions of studies in this respect. The tasks of special education are defined in therapeutic categories such as improvement, correction or compensation of deficiencies. Some of the studies of this type are used to design social, occupational and rehabilitative policies for persons with disabilities, where integration becomes a goal for such activities.

Another perspective is offered by the social paradigm, which transfers the burden of liability for integration



on the determinants of social relations among fully able and disabled persons. Models in this paradigm draw attention to the social structure of disability, stigmatising manifestations of discrimination and social oppression of otherness (cf. Rzeźnicka-Krupa, 2019). The fact of social isolation leads to the construction of social inclusion integration models, among them a number of educational solutions proposing various forms of joint education. From this perspective, integration is an opportunity for a disabled person, which has to be provided to guarantee correct functioning. However, it does not mean that the social paradigm (as many of its advocates seem to forget) is deprived of oppression with respect to a disabled person. It is simply transferred from the level of individual deficits to the level of social constructs of disability.

On the other hand, integration from the perspective of a cultural paradigm may be fully perceived as a form of oppression of the dominant culture, as a situation of appropriation of disability by normalcy. In this vision, integration activities have a colonising nature, and the mandatory educational integration is the best confirmation of it.

Modern studies on the process of integration are carried out in each of these three paradigms. A critical analysis and ability to define them is not aimed at determining which of them are the most valuable, but only at becoming aware of the differences in such perspectives, especially when one of them may be used for construction of our own project.

## RECAPITULATION

Adequate paradigmatic awareness is indispensable in the modern pedagogy at least due to three reasons. First of all, it facilitates understanding of other researchers and reduces the consequences of failing to understand them. In particular in social sciences, the researcher has to account for the socio-cultural contexts of studies and the mode of their interpretation, especially when they were carried out several decades ago. Secondly, it allows for designating own perspective of the examined phenomenon through adequate paradigmatic discipline. Thus, the probability that our work will be correctly read and understood by others is growing. Thirdly, paradigmatic awareness makes it easier for us to analyse works as part of a scientific discourse. When defining a paradigm in the analysed work (or its absence), we may not only understand it better, but also criticise it. In some cases, upon exercising greater paradigmatic acuity, what origi-

nally seemed a reasonable research intention may turn out to be a worthless combination of assumptions, data and unauthorised interpretations. A critical analysis may not only allow us to unmask thoughtless “transition of knowledge” (theses, concepts and theories) among individual paradigms, but it may also prevent the creation of such knowledge.

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# A curriculum for students with intellectual disabilities in Jordan

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## ABSTRACT

This qualitative study describes the status of the curriculum for students with intellectual disabilities (SWID) in Jordan, from their teachers' perspectives and from field observations. Research data were analysed using content analysis methodology. These qualitative data were gained by interviews with 54 teachers and by field observations of classes of SWID. Data analysis revealed five major themes: teachers' perceptions of curriculum areas, teachers' perceptions of curriculum characteristics, levels of teacher professional competence and training needs and teachers' perceptions of problems of curriculum implementation and curriculum components. The study concludes that there is widespread confusion regarding the curriculum for SWID; genuine problems in access to the general curriculum for SWID; problems in SWID preparation for inclusion; and low expectations regarding SWID. Recommendations are provided regarding the importance of enhancing the SWID curriculum, and of improving teachers' professionalism and practices.

**Keywords:** curriculum; intellectual disabilities; special education; teachers

## INTRODUCTION

Intellectual disability (ID) is considered a neurodevelopmental disorder which limits the learning abilities of a person, because of difficulties in intellectual and adaptive functioning (Burack, 2012). Students with intellectual disabilities (SWID) face problems with memory, generalisation, conceptual skills, low motivation, social-emotional skills (Haegele & Park, 2016), self-confidence (Lee et al., 2009), speaking, logical thinking, and solving problems (Räty, Kontu & Pirttimaa, 2016). These characteristics thus have an influence on the learning of SWID and require the provision of appropriate education.

SWID have the same rights as students without disabilities, and in particular a right to suitable educational services (Dickson, 2013). One way to guarantee this right is through the provision of an appropriate curriculum. The curriculum, defined as the content of teaching or the knowledge and skills driving pedagogy and evaluation in instruction (Giroux, 1994) is an essential component in special education for SWID.

Al-Zboon (2013) reports that a curriculum for SWID includes numerous components, including, firstly, individual educational planning (IEP) which is pivotal to special education planning (Nilsen & Herlofsen, 2012). It is evident that SWID have unique abilities and their needs, interests, strengths and preferences differ (Wehmeyer, 2006). The IEP design is one of the most significant tools for guaranteeing effective teaching, learning and enhanced SWID performance (Thompson, Thurlow, Qunemoen, Esler, & Whetstone, 2001). IEP is considered a vital element in achieving accessibility for SWID to the general curriculum (GC) and supporting the educational progress of SWID (Coyne et al., 2012).

The second component is the general curriculum (GC), developed specifically for children without disabilities (Giangreco, 2017). Plessis and Ewing (2017) determine that teachers should focus on rational adjustments to the curriculum in order that it be individualised and inclusive. SWIDs, as individuals, experience difficulties in accessing the GC, due to inflexible teaching practices (Shurr & Bouck, 2013). Teachers need a high level of professionalism to be able to differentiate their instruction practice sufficiently to increase SWID accessibility to the GC at the appropriate year levels (Plessis & Ewing 2017). Although accessibility to the GC has been questioned by some researchers (e.g. Ayres, Lowrey, Douglas, & Sievers, 2011), the aim is that high expectations

will help improve the poor outcomes for SWID, including those with the most severe ID (IDEA, 2004).

The third component is the expanded core curriculum (ECC) for SWID, which contains core areas not covered by GC, such as assistive technology (AT), self-determination (SD) skills and independence skills. This component is an important resource for IEP team members when developing educational plans (Al-Zboon, 2013).

Shurr & Bouck (2013) report that available research on the SWID curriculum primarily emphasised functional life skills, with a recent growth in investigating cognitive academic content. The functional curriculum emphasises the requirements of the life of SWID, and activities that are of immediate use in the students' future (McGuire, 2001).

Increasing academic content is in line with the shift to accessing the GC, and highlights the emergent philosophical split between functional life skills and general academic content (Ayres et al., 2011). Saad et al. (2015) indicate a high probability of mastering this content if SWID are provided with materials of interest to them throughout the learning process. Shurr and Bouck (2013) indicate that recent literature emphasises academic subjects (arithmetic, science, social studies, reading, writing and spelling).

Alkhateeb et al. (2012) report that the SWID curriculum should include the following: academic skills (i.e. reading, writing, mathematics), daily life skills, vocational skills, communication skills, motion skills and social-emotional skills. Additionally, Algahtani (2017) reports these skills: independent living, handling money, time management, community engagement and vocational skills. Rose, McDonnell & Ellis (2007) cite recreational activities and physical activity as curriculum components of SWID. Additionally, nowadays inclusion is one of the primary topics of curricular content (Shurr and Bouck, 2013).

Modern literature emphasises self-determination (SD) as a component of the SWID curriculum (e.g., Al Hazmi, & Ahmad, 2018) in order to access the GC, as it is vital that SWID develop the ability to make decisions and choices that will enhance their overall quality of life and well-being. Alyazori (2017) reported that the SWID curriculum could be improved by harmonising content

and student mental and performance levels; allocating time in the lesson schedule based on significance of the content; and considering the coherence between the contents of the subjects horizontally and vertically.

The literature documents problems in areas of the curriculum fields and in teachers' training needs. Teachers of SWID need to gain the competences necessary to evaluate students' intellectual level in order to adapt their teaching tactics appropriately (Lampert, Graves & Ward, 2012). They face significant difficulties in areas of the curriculum such as preparing IEP and goals, while teacher training needs include current trends in the SWID curriculum and teaching methods (Alyazori, 2017).

McBride & Al-Khateeb (2010) report that teachers of SWID do not receive adequate training in the curriculum as part of their training programme, and engage in education without sufficient training to teach SWID. Giles (2009) observes that one of the most imperative training areas for teachers is curriculum-related competence.

A systematic review by Shurr and Bouck (2013) indicate a lack of research literature focused on the curriculum for SWID, despite an increasing academic interest in this topic. For example, Alyazori (2017) reports that the SWID curriculum has a low priority in the Arab world, resulting in a lack of resources and funding. The curriculum is weak, as it does not follow scientific basics or evidence-based practices, and faces further problems, such as a lack of teachers' guidebooks and publications that would increase the ability of teachers to teach SWID. Al-Zboon (2016b) reveals confusion concerning the curriculum for SWID, which needs a comprehensive reform. Additionally, research reveals problems in support services, such as physical and occupational therapy (Al-Qreny, 2007) and AT to facilitate implementation of the curriculum (Al-Zboon, 2019; Al-Zboon, 2020). Plessis & Ewing (2017) report that making rational modifications to a SWID programme is considered a constant, complex and continual effort throughout the instruction process. Coyne (2012) reveals that the main issue regarding the SWID curriculum is the selection of contents based on student-specific learning and intellectual ability (Coyne et al., 2012).

One study reports that increased SD among SWID leads to considerable improvements in academic and transition outcomes and in access to the GC (Shogren, Palmer, Wehmeyer, Williams-Diehm & Little, 2012).

Alkhateeb et al. (2012) reveal that the availability of SWID programmes of international standards in Jordan is low in the areas of family involvement, and inclusion and transition services. Coyne et al. (2012) reveal that SWID teachers evaluate content as the area in which they have least competence.

Al-Zboon (2016a) defines a set of curriculum components for students with disability (SWD): general and specific outcomes documentation, student textbooks, teacher textbooks and supported learning resources. Dababneh, Al-Zboon & Akour (2016) show that the most central teaching competency needing improvement is the development of instructional planning strategies. Al-Zboon (2015) recommends the development of a professional team to re-evaluate the curriculum for SWD.

In Jordan, the "Education Reform for the Knowledge Economy" was launched (Al-Zboon, 2016c), which focuses on reforming elements of Jordanian education, and in particular the curriculum. However, this reform process focuses on the GC, with no consideration of SWID. In 2013, MOE adapted curriculum outcome documents to be suitable for students with hearing impairments from kindergarten to fourth grade. Unfortunately, this process was not completed for other disability categories such as ID.

In 2018, the National Council for Curriculum (NCC) was founded, to improve the curriculum in line with the international contemporary practices, and the country's educational philosophy and needs.

Services for SWD in Jordan come in many different forms, including separate and inclusion programmes managed by the MOE, Community Based Rehabilitation (CBR) programmes, and day and residential centres managed by the Ministry of Social Development and the private sector (Ministry of Education (MOE), 2014).

The Jordanian Law on the Rights of the Persons with Disabilities of 2017 states that all residential institutions must close within ten years, and all related institutions should integrate their strategies and plans to guarantee inclusion of SWD (HCD, 2007). Furthermore, the 10-year Inclusive Education Strategy was launched in January 2020 to facilitate inclusion. This reforming environment in Jordan has raised the importance of the SWID curriculum in preparation for an inclusive era.



Further research regarding the SWID curriculum is necessary in order to continue to provide high quality opportunities and education for SWID. There is a lack of qualitative studies in the field of the curriculum (Shurr & Bouck, 2013); consequently, this study aims to investigate the current state of the SWID curriculum in Jordan through the perceptions of special education teachers and field observations.

## METHOD

### Participants

A purposive sample was adopted in the current study, and 54 (18 male and 36 female) teachers of SWID were purposively selected from day centres for SWID in Zarqa Conversance, Jordan. The educational level of the participants varied, some having attained a two-year diploma (n=14), bachelor's degree (n=37), and master's degree (n=3). Participants' teaching experience ranged from 3 to 16 years.

### Ethical considerations

Ethical approval was obtained from the Institutional Review Board (IRB) at Hashemite University, Jordan. Ethical principles considered in conducting this study included gaining official permission, and informed consent from the participants. All participants volunteered to participate and pseudonyms were allocated to each of them to ensure confidentiality.

### Data collection

Two qualitative techniques were used for data collection. First, semi-structured interviews were conducted. Creswell (2009) reported that the interview is a vital technique in collecting data on informants' opinions, beliefs and perceptions regarding a studied phenomenon. Interview protocols were prepared and the interviews conducted at a time of the teachers' choice in the SWID day centres. All interviews were tape-recorded and lasted between 30 and 50 minutes. Secondly, field observations were carried out by watching classes of SWID, to observe practices related to the curriculum, such as its content, learning resources and daily routine.

### Data analysis

To gain in-depth meaning from interview data and observations, a three-stage thematic analysis was used. First, the general themes were identified by an overview of the raw data; secondly, theme-categories were identified by

reviewing the documents; and thirdly, miscoded passages were checked by re-reading the data documents to review the evidence.

### Credibility

Certain activities are considered to increase the trustworthiness of the results (Stommel & Wills, 2004). In the current study, credibility was increased firstly by the triangulation of multiple methods for collecting data (e.g. interviews, field observation, literature review); secondly, by interview-related procedures (e.g. interviewer training, constructing the interview process in advance, listening to all the interview recordings, and ensuring that the interviewers had produced the transcripts reliably); and thirdly, by using peer researchers as a method of member checking.

## RESULTS

### Teachers' perceptions of curriculum areas

Data analysis revealed that SE teachers identified 14 curriculum areas for SWID: daily life skills (n=31); reading and writing (n=28); mathematical skills (n=26); perceptual skills (n=21); language skills (n=17); self-appreciations (n=16); motor skills, mainly fine motor skills (n=16); vocational skills (n=12); religious principles (n=3); science (n=2); inclusion preparation skills (n=2); English language (n=2); music (n=1); drama (n=1); sensory skills (n=1). Huna said, "the daily life skills are the most important domain as they lead to increase independence. The second important skill is Arabic language skills, i.e. reading and writing."

### Teachers' perceptions of curriculum characteristics

When asked about the characteristics of a SWID curriculum, most participants identified that the curriculum should be easy, simple, sequential, harmonised with the child's abilities, needs, interests and desires, rich in pictures and colours and focused on pre-reading skills, pre-writing skills, pre-math skills, functional and independence skills. Most teachers reported the lack of using the curriculum to student empowerment and preparing students for inclusion. Shadi said, "curriculum must be easy and simple, our centres follow CPL form and when students achieve all form goals then we implement KG curriculum."

### **Levels of teacher professional competences and their training needs**

Data analysis revealed that most SE teachers perceived themselves as having an acceptable level of professional knowledge in terms of curriculum. However, the data analysis demonstrated confusion among teachers in some curriculum issues. When asked about the curriculum used with SWID, the majority of teachers saw textbooks as the curriculum. Ahmed said, "Do you mean textbooks? We don't have specific textbooks." Additionally, they were unfamiliar with the ECC concept: 18 participants responded, "I don't know". When asked about IEP and IIP, many teachers responded that they used them. Classroom observations revealed confusion in curriculum practices, as most teachers depend on teacher-made worksheets or on student notebooks to write questions to be answered by the student. Many teachers depend on a form to identify specific tasks and skills for all students. Some MOE general text books exist for first, second and third classes which are used by teachers in some cases. Teachers experience difficulty in using the IEP and IIP as they are not based on nor implemented in reality and there is no effective collaboration between the IEP team. In many cases, design and implementation of the IEP is the responsibility of one teacher alone. There is no effective family involvement in the development of the IEP, and many centres do not have IEP team professionals, such as physical therapists, occupational therapists and communication therapists. The majority of SE centres does not use AT in curriculum implementation.

Additionally, data analysis of interviews and field observations revealed that teachers have multiple training needs with regard to the curriculum, including current trends in curriculum; designing individual plans based on modern international practices; using teaching aids to implement the curriculum in the classroom; modifying the curriculum based on individual differences; using the curriculum to prepare children for inclusion and child empowerment; choosing appropriate curriculum content for every SWID; using AT in the implementation of the curriculum; curriculum-based evaluation; and collaboration between the multidisciplinary team to implement the curriculum. Suha said, "I feel that I need training in designing a curriculum suitable for every student based on modern practices. Unfortunately, I have used the same worksheets and forms since 5 years."

### **Teachers' perceptions of the problems of curriculum implementation**

Participants indicated that they face many problems hindering the effective implementation of the SWID curriculum, including the lack of availability of strong evaluation tools to identify current performance levels of students; lack of family involvement in implementation; low expectations from family; lack of communication between family and professionals; incorrect diagnosis and classification of student disability; lack of materials and tools; difficulties in multidisciplinary team work; lack of funding; administration; resistance of teachers to new ideas and practices; lack of experience in using AT; heterogeneity among SWID, restricting teachers with specific contents to be applied; lack of student readiness to learn due to lack of early intervention programmes; lack of teacher competence in curriculum, designing learning aids, class management and behaviour modification; lack of effectiveness of teachers' pre- and in-service preparation programmes; students' behavioural and emotional problems; and problems in the physical environment. The following excerpts exemplify participants' sentiments on these issues.

Jamal said:

"I have many goals and ideas to implement with my students but I can't implement them effectively because of low available resources, material and AT."

Lama indicated:

"There isn't any support from family as they exclude themselves from the training process or have low expectations."

### **Curriculum components**

Data analysis revealed that participants reported the following as components of the SWID curriculum: work sheets (n=26); student's notebook (n=25); IEP (n=24); IIP (n=24); CPL form (n=18); attached learning resources (such as picture cards, alphabet and number boards, games, blocks, story series) (15); regular curriculum for kindergarten (n=8); teacher textbook (n=6); regular curriculum for the first three primary classes (n=4); student textbook (n=3), font notebook (n=2).

The majority of participants indicated "random" items as part of the curriculum, whereby "random" refers to teachers' personal work: there are no specific textbo-

oks for teachers or students, and any books used will be the teacher's choice, as textbooks are not considered a basic part of the curriculum. Additionally, the majority of teachers considered a set of work-sheets made by teachers as a SWID curriculum.

Some teachers mentioned the existence of Current Performance Level (CPL) forms that teachers use as a general framework for the curriculum. This form is distributed to special education centres by the Ministry of Social Development. These teachers mentioned that they use the KG curriculum after achieving the targets on the CPL form.

The majority of participants were unsure how to define the ECC for SWID, and had a limited awareness of the ECC components. However, the field observations revealed the existence of some practices related to ECC components, such as training in independence skills, low technology tools, and some social skills.

Content analysis and field observations revealed some confusion in curriculum practices and issues as there is no general framework document, reference book or teacher guidebook to help in designing or delivering the curriculum, or identifying the curriculum areas and goals.

Some teachers reported the importance of having a special comprehensive curriculum for SWID.

## DISCUSSION

This study employed a qualitative method to highlight the current status of the SWID curriculum. It finds that there is widespread confusion, and that the problem of a curriculum for SWID in Jordan has not been given sufficient attention. According to the perceptions of the study sample, the SWID curriculum should include many elements. The most frequently mentioned were daily life skills, reading, writing and mathematical skills, in line with worldwide studies showing the importance of these areas (e.g., Al Khateeb et al., 2012). Perceptual skills were cited with moderate frequency, and those areas mentioned less frequently included language skills, self-appreciation, motor skills (mainly fine motor skills) and vocational skills. Unfortunately, the elements cited least frequently were religious principles, science, music, inclusion preparation skills, English language, drama and

sensory skills. These findings indicate that the SWID programmes in Jordan focus only on basic academic subjects (reading, writing and mathematics). This is not in line with related literature (e.g. Algahtani, 2017; Epps, 2016), which highlights the non-academic elements as bringing important skills to the SWID curriculum. Giangreco (2017) reports that teachers should ensure the provision of directive instructions in numerous skill domains as well as in the GC to manage the deficiencies in intellectual functioning and adaptive behaviours.

Additionally, these findings do not align with modern literature that focuses on access to the whole curriculum, not only reading, writing and mathematics (e.g. ABrowder et al., 2007). However, the emphasis on increased academic content aligns, and is consistent, with the changed focus on access to the GC, and highlights the emergent philosophical split between functional life skills and general academics (Ayres et al., 2011). Teachers of SWID do therefore require strong competences to differentiate their teaching practice to increase SWID accessibility to the GC at appropriate year levels (Plessis & Ewing, 2017). Saad et al. (2015) emphasise languages, sciences and social studies as SWID curriculum components.

Inclusion is also one of the curriculum areas mentioned with least frequency, despite being considered nowadays a priority in SWID education, and one of the primary topics of curricular content (Shurr & Bouck, 2013). Additionally, these findings highlight the absence of other vital areas, such as SD, which is mentioned in current literature on the curriculum (Shogren, Palmer, Wehmeyer, Williams-Diehm & Little, 2012; Wehmeyer & Schalock, 2001). Jimenez et al. (2012) reported that increased SD among SWID leads to considerable improvements in academic and transition outcomes, and in access to the GC for SWID. Furthermore, another component missing from the participants' responses is AT, which is an important curriculum component (Al-Zboon, 2019). However, this is in line with many studies (e.g. Al-Zboon, 2019; Al-Zboon, 2020; Jimenez, Graf & Rose, 2007).

This state of confusion and concern regarding the SWID curriculum in Jordan could be explained by many reasons. First, the non-classification teachers' preparation programme is dominant in Jordan, which affects the competencies of teachers in the education of SWID. Secondly, topics such as access to the GC, inclusion,

SD, AT have only recently gained popularity worldwide. Thirdly, the separated model of SWID education is common in Jordan, which affects the curriculum situation. However, Jordan recently launched its 10-year Inclusive Education Strategy, so it may be expected that the status of education of SWID will change in line with current trends for inclusion. The importance of the current research appears therefore to lie in highlighting the importance of the SWID curriculum, increasing the access of these students to the GC and improving their SD to prepare them for inclusion.

Results reveal some indications of low expectations of SWID on the part of teachers. First, teachers described the characteristics of the SWID curriculum as easy and simple. Secondly, they reported sometimes using MOE general text books (especially Arabic language and mathematics textbooks) for first to third classes with SWID. Thirdly, some teachers mentioned that they used the KG curriculum after achieving the elements on the CPL form. These low expectations are mentioned in the literature and considered to be factors preventing the progress of SWID (McGrew & Evans, 2003). They indicate a risk, as these expectations are from teachers who are responsible for the programme's implementation. There is therefore a vital need to enhance teachers' expectations and raise their awareness regarding the ability of SWID, in order to increase the students' access to GC, the level of their performance and their preparation for inclusion. These low expectations should be considered especially in the light of the previous results which indicated confusion among teachers over some curriculum issues. However, this result is not consistent with the findings of Dababneh et al. (2016), who revealed that teachers do not think that they need to develop their competence in the area of attitudes and expectations of SWID.

In the current study, some confusion and low levels of teachers' professionalism regarding the curriculum are evident in a number of areas. Firstly, teachers consider textbooks themselves to be the curriculum (which contradicts the commonly approved view in the field that the textbook is only one component of the curriculum). Secondly, many participants are unfamiliar with the ECC concept. Thirdly, there is a random element in the curriculum as teachers devise their own resources and worksheets, and use student notebooks or standard forms to identify specific tasks and skills for all students. Fourthly, there are no general framework documents, reference books or teacher guidebooks to help in designing

or delivering the curriculum, or in identifying the curriculum content and goals. Al-Zboon (2016a) describes a collection of proposed curriculum components for SWID (e.g. a general framework and outcomes document; textbooks for children, textbooks for teachers; and associated learning resources).

All previous results documented on curriculum issues echo previous studies. Alyazori (2017) reveal that teachers evaluate content as of least importance in SWID programmes and programmes for SWID are weak as they do not follow scientific basics or evidence-based practice. These findings are similar to those of previous studies related to the curriculum for SWID in Jordan, which have also reported this confusion. For example, Al-Zboon (2015; 2016b) reveals confusion regarding the curriculum for students with disability and the need for a comprehensive reform process. Al-Zboon (2015) recommends the development of a professional team to review the curriculum for SWID. This result could be explained by Jimenez, Graf, & Rose's (2007) findings that the disability institutions do not receive sufficient funding to provide instruction tools and adapt the learning environment, especially as in the Arab world SWID programmes have not been seen as a priority, due to lack of resources and funding (Alyazori, 2017).

The results revealed many issues of concern regarding IEP. Firstly, a large number of centres do not have all the IEP team specialists, such as physical therapy, occupational therapy and communication therapy. Secondly, teachers experience difficulties in using the IEP and IIP as these are not based on reality. Thirdly, there is a lack of effective collaboration between the IEP team, as usually the IEP design and implementation is the responsibility only of the teacher. Fourthly, there is no effective family involvement in IEP development process and, fifthly, many teachers do not recognise the IEP and IIP as components of the SWID curriculum. These results are frustrating as IEP is considered a vital requirement in achieving access for SWID to the GC and in supporting the educational progress of SWID (Coyne et al., 2012). However, a number of previous studies reveal the same results: Al-Qreny (2007) reports that physical and occupational therapy are the services least supported in SWID centres in Saudi Arabia. Dababneh, et al., (2016) reveal that teachers report problems with team working. Additionally, al-Shamari & Hornby (2020) found a number of issues with teachers' competences and practices in IEP.



In addition, data analysis of interviews and field observations revealed that teachers have significant training needs related to the curriculum: current trends in curriculum, designing individual plans based on modern international practices, using teaching aids in delivery of the curriculum, modifying the curriculum based on individual differences, using the curriculum to prepare child for inclusion and child empowerment, selecting appropriate curriculum content for each SWID, using AT to deliver the curriculum, curriculum based evaluation, and collaboration between the multidisciplinary team to implement the curriculum.

This finding is supported by the related literature which reported the importance of in-service training programmes to meet teachers' training needs. Alyazori (2017) reports such needs as IEP design, especially goal writing, and current trends in curriculum and modern teaching methods while Dababneh et al. (2016) report instructional planning strategies, communication skills, assessment, managing the classroom environment and team working.

Participants indicated that they face a number of problems hindering the effective implementation of the curriculum with SWID. These problems are related to evaluation and diagnosis, poor family involvement, lack of materials, lack of tools and funding, multidisciplinary team work, administration issues, SWID characteristics, lack of teacher competencies and problems with the physical environment.

However, other studies concur with Alyazori (2017) who found that there is a lack of available guides and publications which are important in increasing the ability of teachers to teach SWID, a lack of tests to identify ID and a failure to respond to the outcomes of evaluation to make conclusions about SWIDs' learning (Plessis & Ewing, 2017) as evaluation enhances the effectiveness of educational programmes for SWID. Jimenez, Graf & Rose (2007) report that educational alternatives are not prepared with the necessary tools and services to address the individual needs of the SWID (Jimenez, Graf & Rose, 2007). Alkhateeb et al. (2012) reveal that, by international standards, SWID programmes in Jordan are low in the areas of family involvement, inclusion, and transition services. Coyne et al. (2012) observe problems in the selection of contents, teaching methods, and teachers' competencies (Coyne et al., 2012) while Plessis & Ewing (2017) determine that making rational modifi-

cations to a SWID programme (through the instruction process) is a constant, complex and continual process so problems may be encountered if stakeholders are not aware of the merits of the SWID curriculum.

Another important issue arising from the current study is the teachers' responses about components of SWID curriculum, with the most frequently cited examples being work sheets, student's notebook, IEP, IIP; examples cited moderately frequently being the CPL form, associated learning resources (such as pictures cards, alphabet and number boards, games, blocks, story series), regular curriculum for kindergarten. Finally, the components mentioned least often are teacher textbook, regular curriculum for the first three primary classes, student textbook, Font Notebook.

This finding is unsatisfactory as many teachers lack a comprehensive outlook on curriculum components. This highlights the importance of professional development programmes for teachers regarding curriculum and, more importantly, the need for all stakeholders (e.g. teachers, the principal, curriculum developer, decision-makers) to adopt a shared outlook regarding the curriculum. However, teachers' competencies reflect their own experiences gained from their work environment, the national environment and preparation programmes which do not provide experience of a curriculum model for SWID. There is therefore evidence that the reform process should be carried out at the level of the centres, the teachers' preparation programmes and the national level.

## RECOMMENDATIONS

### Based on the results of the current study,

there is an urgent need to improve the status of the SWID curriculum as a priority, primarily by enhancing teachers' professionalism and practices, as well as by developing curriculum-related documents such as a guide for teachers of ID, providing guidelines for instruction, reference books, general principles for teachers, theoretical knowledge about this disability, basic glossaries in the field and a document of the general and specific outcomes for SWID. The data support the importance of developing targeted curricula that include specialised areas for SWID, such as independence skills, functional academic skills, self-determination, AT skills and emotional-social skills.



In this era of inclusion, there is a vital need to focus on inclusion preparation, self-determination and more advanced academic skills, not just on daily life skills, reading, writing and mathematics. Additionally, there is a need to raise awareness regarding real expectations from SWID and to end the stigma and the stereotype that SWID have to be taught an easy, simple curriculum.

## CONCLUSION

The current study helps gauge the status of the SWID curriculum in Jordan. The results indicate confusion in the field of SWID education, which is dependent on teachers' personal efforts with no foundation of evidence-based practices or shared outlook between stakeholders regarding the curriculum. Teachers depend on worksheets, and there is no effective use of AT, and inadequate funding and resources. There is no effective team-working in designing IEP due to a lack of available multidisciplinary professionals and family involvement. There are real problems in accessing the GC for SWID, and also in preparation for inclusion, improving SD

and using AT. Teachers have low expectations regarding SWID. However, the findings of this study should be read cautiously as they depend on qualitative methods alone. There is a need for further studies to clarify the picture of the SWID curriculum using other methods and techniques, by investigating the problem from the perspective of other stakeholders, such as families, specialists, principles and the students themselves.

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## DISCLOSURE STATEMENT

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# Arab Prophylactic Measures to Protect Individuals with Disabilities from the Spread of COVID-19

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## ABSTRACT

This descriptive research is aimed to assess the prophylactic measures used to deal with individuals with disabilities (IDs) during the COVID-19 pandemic in Arab countries. The United Nations Economic and Social Commission report for Western Asia (ESCWA, 2020) has been reviewed. The report included prophylactic measures employed to protect IDs during the COVID-19 pandemic in 15 Arab countries. The methodology of the research included using an analysis method to identify the nature and viability of the prophylactic measures used in Arab countries during the pandemic. The result showed that 65% of the prophylactic measures were governmental, and 35% were non-governmental. 55% of these measures dealt with all disability categories, 30% with hearing impairment, 10.83% with intellectual and developmental disabilities, and 4.17% with visual impairment. Saudi Arabia and Jordan were the two Arab countries that provided the most prophylactic measures to IDs during the COVID-19 pandemic.

**Keywords:** Arab countries, COVID-19 pandemic, individuals with disabilities, prophylactic measures

## INTRODUCTION

The Coronavirus pandemic (COVID-19) is a global emergency affecting societies around the world. As a result, this pandemic has caused international concern and a state of health, psychological, and social emergency due to the potential for transmission of the virus from one person to another (Abdelfattah et al., 2021). Consequently, COVID-19 has become widespread and transcends international borders. It also became prevalent in rich and poor societies and among adults and children, males and females. The Covid-19 pandemic has revealed challenges in meeting health, education, and employment needs of IDs and in integrating them into various Arab countries. This pandemic provided an opportunity to reflect on the reconstruction of an inclusive society for IDs through a systematic change in the social, economic, educational, and health dimensions.

Countries around the world have implemented a set of prophylactic measures and issued instructions to limit the spread of the virus. Therefore, these countries have resorted to obliging people to social distance, home quarantine, and quarantine for those infected with the virus (Wilder-Smith & Freedman, 2020), as well as closing down public and private institutions (Lim et al., 2021). The large numbers infected with the virus contributed to affecting health services and may lead to humanitarian disasters and human, economic and financial losses (Usher et al., 2020).

Countries of the world must provide preventive measures that limit the spread of the virus to the socially marginalized. IDs and the elderly were subjected to marginalization and social exclusion before this pandemic. The policy of social exclusion of IDs is still practiced in some societies. The low opportunities for participation and interaction and their social marginalization are evidence that societies are still following this policy (Al-Otaibi et al., 2015). The programs and services provided to IDs in special education centers need to highlight social justice, job opportunities, and health care (Al-Zoubi & Bani Abdel Rahman, 2017).

The IDs, whose number amounts to around one billion worldwide, are among the groups most at risk of being affected by coronavirus. (Armitage & Nellums 2020). IDs are highly susceptible to respiratory diseases and complications (Proesmans, 2016), that are often a result of being infected with diseases associated with di-

sability. Likewise, IDs face obstacles that make them vulnerable to infection due to unhygienic lifestyles, such as rubbing, careless handwashing, and other daily activities (Cannella-Malone et al., 2011). Some of them have difficulty describing their health problems and symptoms of their illnesses to healthcare professionals (Ward et al., 2010). Individuals with visual impairment need to touch objects to obtain information (Withagen et al., 2013), while individuals with physical and health disabilities need physical support through occupational and physical therapy (Morris & Jenkins, 2018). These things may expose IDs to infection. Thus, educational programs based on multimedia contribute to teaching handwashing and other daily skills to IDs (Lee & Lee, 2014).

Internationally, IDs suffer from health inequalities, and their health needs are not met compared to persons without disabilities (Doherty et al., 2020). In this regard, parents of IDs expressed low satisfaction with telehealth, televisitation sessions, and telerehabilitation services that were provided to their children during the COVID-19 pandemic (Murphy et al., 2021). This pandemic may pose a threat and exert a negative influence upon the health and well-being of IDs, since they needed to be administered more medicines during the pandemic (Masi et al., 2021). The pandemic has negative educational, health, and social repercussions for IDs and their families, and these have not been adequately addressed internationally, whereas there have been numerous discussions dedicated to the elderly (Houtrow et al., 2020).

The IDs may face difficulties in adhering to social distancing and self-isolation due to their need for other forms of support. They are affected more than others by the pandemic due to the sudden halt of many of the services they depend on. They face significant barriers to accessing relevant health information and messages making it difficult for them to decide on how to protect themselves and how to obtain essentials and services during the quarantine period. For these reasons, concerted efforts must be made to prevent the neglect of IDs and to take advantage of preventive measures to protect against the spread of the COVID-19 pandemic. Moreover, the efforts should be also doubled to ensure that IDs have full access to the necessary information, health care services and forms of supports they need so that they may enjoy good health and safety.

In rural communities, special education services for IDs were significantly disrupted during COVID-19.

Factors that contributed to this were related to high rates of poverty, lack of funding and staffing for health care, chronic illnesses and barriers to e-learning due to lack of access to the internet and technology (Running Bear et al., 2021). The World Health Organization (WHO) has launched a policy to ensure that IDs benefit from the COVID-19 pandemic response plan and recover from it. The policy covered the inclusion of persons with disabilities, providing access to information, facilities, services and programs, and ensuring meaningful consultation with IDs and the need for their active participation, inclusion and use of mechanisms at all stages of the response and recovery process (United Nations, 2020). To achieve this policy, WHO divided these measures into three groups: measures directed to IDs, measures directed to the caregivers and measures which are the responsibility of the governments (WHO, 2020).

More than 100 million people with a percentage of 15%, in the Eastern Mediterranean Region, whose countries are members of the World Health Organization, suffer from some form of disability according to WHO statistics (World Health Organization, 2020). The data of the organization's global report on disability indicates that 50% of individuals with disabilities are unable to afford the costs of health care services as they face challenges that prevent them from getting access to those services. With the COVID-19 pandemic, it is imperative for all people, including IDs, to follow the basic measures to protect them from being infected with the virus. Social distancing and self-isolation are difficult for some individuals with disabilities. All caregivers must ensure that these individuals are not denied access to health services and various forms of care during COVID-19, but are treated with respect and dignity, without any form of discrimination.

In this context, the Economic and Social Commission for Western Asia (ESCWA), as part of its efforts to support Arab countries, integrates IDs into its policies and plans by conducting an analysis of the precautionary measures and preventive actions taken by the Arab governments, and by creating awareness materials, governmental and non-governmental websites that are relevant and accessible to IDs. This initiative motivated many stakeholders in Arab countries to take additional measures to overcome the barriers faced by IDs during COVID-19. As a result, more governmental measures were implemented and a large amount of appropriate educational, enlightening, and outreach materials were produced (ESCWA, 2020).

## ARAB PROPHYLACTIC MEASURES

According to the report of ESCWA (2020), Arab state governments (ASG) and Arab nongovernmental organizations (NGOs) have taken a set of preventive measures against the spread of COVID-19 in IDs. These measures focused on disseminating awareness among IDs and their caregivers. The following is a summary of the Arab measures against the spread of COVID-19 among IDs (ESCWA, 2020).

- Hashemite Kingdom of Jordan: The governmental institutions and NGOs joined efforts in presenting a set of health, social, educational and mass communication measures. These measures included the adaptation of general and higher education curricula, examinations, computerized educational programs, and educational channels on YouTube for IDs and their families. The Higher Council for the Rights of Persons with Disabilities enhanced the rights of Jordanian IDs during this pandemic. Additionally, the council has issued directives to the Ministry of Health on healthcare for IDs. It also had an effective role in facilitating the access of IDs to e-learning systems, in collaboration with the Ministry of Education and the Ministry of Higher Education.
- United Arab Emirates (UAE): The UAE has adopted a health program to protect IDs from COVID-19 and follow them in their homes. The program includes applying distance education through government institutions and associations. The Sharjah City for Humanitarian Services provided many services to IDs and their families, and the Dubai Future Foundation published educational material for IDs to preserve their health and safety of their family during Covid-19 pandemic.
- Kingdom of Bahrain: The Bahraini government has allocated an additional budget to support IDs and their families through the Ministry of Social Development. The Ministry of Education has activated distance education and contact with parents of IDs via WhatsApp.
- Republic of Tunisia: The Ministry of Social Affairs allocated a financial budget to IDs and their families. The media contributed to translating the Ministry of Health's instructions into sign language. Several Tunisian organizations, institutions and associations, in collaboration with UNESCO, have launched an online platform for IDs and their families.
- Republic of Sudan: The Ministry of Health and Sudanese associations provide health awareness campaigns and instructions in sign language for individuals with hearing impairment.



- Republic of Iraq: The Iraqi media and the WHO have contributed to spreading and promoting health awareness among individuals with hearing impairment about the pandemic by using sign language in television programs.
- Sultanate of Oman: The Ministry of Education launched the distance learning initiative in order to transfer the e-learning means among IDs. The decisions of the Omani committee in charge of dealing with COVID-19 pandemic were translated into sign language.
- State of Palestine: Preventive measures are the result of joint efforts between the Ministry of Health and the Ministry of Social Development, in collaboration with the United Nations. These measures aim at promoting the health rights of Palestine IDs during the pandemic. The associations and organizations of community-based rehabilitation (CBR) have also contributed to providing all forms of support to IDs and their families.
- State of Qatar: Implementing distance education for IDs in Qatari general and higher education institutions. The Ministry of Health launched an electronic platform to train families of children with autism spectrum disorder. In addition, psychological, educational and health services and counseling to families of IDs is provided through special education centers.
- State of Kuwait: The Committee on the Rights of Persons with Disabilities has developed awareness-raising materials and published them through social media. This Committee launched an initiative to prevent IDs from the COVID-19, in collaboration with institutions, associations and the United Nations Organization.
- Lebanese Republic: The Ministry of Health has translated awareness messages on ways to prevent COVID-19 into sign language. It Included IDs in the distance learning platform of the Ministry of Education and Higher Education.
- Libyan Arab Republic: The Libyan government has provided reports to support IDs during COVID-19. The National Planning Council prepares an emergency strategy to prevent COVID-19 outbreaks among IDs.
- Arab Republic of Egypt: The country has given special leave with full pay to IDs working in government sectors and mothers of children with disabilities. The National Council of Persons with Disabilities explains symptoms of the COVID-19 in sign language. Media programs, posters and educational leaflets about the pandemic are designed for IDs. Joint efforts are being undertaken by the Egyptian institutions, associations

and centers of special education to protect persons with visual and hearing impairments and autism from the pandemic.

- Kingdom of Morocco: The Ministry of Solidarity, Community Development, Family and Equality in Morocco, in partnership with the United Nations, launched a program to support IDs. This ministry, in partnership with national organizations and associations, has issued measures to support and ensure the continuity of education for IDs.
- Kingdom of Saudi Arabia: Institutions, associations and Authority for Persons with Disabilities have contributed to the issuance of educational and awareness-raising materials on the COVID-19 pandemic. The Ministry of Health provided health reports in sign language. Distance education has been provided to IDs, in addition to holding lectures and seminars on the methods of preventing the pandemic.

## METHODS

### Methodology

The analytical descriptive approach was used to determine the prophylactic measures taken by Arab countries to prevent the spread of COVID-19 among IDs. This approach used the content analysis method of the report issued by ESCWA (2020).

### Participants

The participants consisted of 15 Arab countries. The report of ESCWA (2020) included only those Arab countries which provided precautionary and prophylactic measures for IDs during the COVID-19 pandemic.

## DATA COLLECTION

A content analysis card was designed. The card includes three elements related to the type of disability, level of measures, and the country that issued these prophylactic measures to verify the face validity. Three faculty members at Sultan Qaboos University have reviewed this card. Subsequently, 95% of reviewers indicated that the card elements were consistent with the contents of the ESCWA's report. Inter-rater reliability was used to assess the reliability of the card. The authors of this research applied card elements to the ESCWA report. The mean of the agreement between authors reached 87% using Cooper's test.

Table 1. Descriptive analysis according to level of measures

Level of Measures	Frequency	Percentage %
Governmental	78	65
Non-Governmental	42	35
Total	120	100

## RESULTS

Table 1 showed the percentage and the frequency of the Arab prophylactic measures according to the level of measures. The percentage of the governmental institutions was 65% as opposed to 35% of non-governmental organizations in Arab countries.

Table 2 showed differences in the percentage of the Arab prophylactic measures according to the type of disability. Table 2 indicates that 55% of prophylactic measures were intended for all disability categories. However, merely 4.17% was intended for individuals with visual impairment.

Table 3 showed differences in the percentage of the Arab prophylactic measures according to the country. Table 3 indicates that 20.83% of the Arab prophylactic measures were undertaken in the Kingdom of Saudi Arabia, while it was 1.67% in Bahrain, Lebanese, Libyan, and Sudan.

## DISCUSSION

Results showed that Arab prophylactic measures undertaken by the governments to safeguard IDs from the spread of COVID-19 are more comprehensive and accessible than those of the nongovernmental organization. This means that the category of IDs, similarly to other non-

Table 3. Descriptive analysis according to the country

Country Name	Frequency	%
Saudi Arabia	25	20.83
Jordan	21	17.5
Morocco	16	13.33
Egypt	14	11.67
Qatar	7	5.83
Oman	6	5
Kuwait	6	5
Palestine	5	4.17
UAE	5	4.17
Tunisia	4	3.33
Iraq	3	2.5
Bahrain	2	1.67
Lebanese	2	1.67
Libyan	2	1.67
Sudan	2	1.67

disabled people, is receiving the same attention and interest when it comes to prevention and measures applied to the COVID-19 pandemic in Arab countries. Governmental measures included considerable efforts undertaken to protect IDs from COVID-19 when compared with the non-governmental ones due to many factors: firstly, the governments have diverse financial resources required to cover the costs of these measures, secondly, the governments have the political and military authority that should be imposed in order to implement the necessary restrictive measures and maintain the public order. Thirdly, the governments have authority and supervision over the majority of institutions of special education. Fourthly, the governments also have the authority over the general and higher education institutions, mass media, social media, and the Internet. Moreover, the governmental measures occupied bigger space due to the fact that COVID-19 turned into a pandemic, and constituted a human and health crisis worldwide. Therefore, the governments of Arab countries imposed more severe and restrictive measures related to social distancing, comprehensive closure, and curfew. These measures seem effective in containing the spread of the virus and infection in individuals with and without disabilities. Arab countries realized that the deprived, the poor, the IDs, and the disadvantaged are the categories that bear the heaviest burdens because of the negative health, psychological, and social effects of the pandemic.

Table 2. Descriptive analysis according to type of disability

Disability Type	Frequency	Percentage %
All disabilities	66	55
Hearing impairment	36	30
Intellectual & developmental disabilities	13	10.83
Visual impairment	5	4.17
Total	120	100

Arab governments also realized that the health care needs of IDs surpass those of individuals without disabilities. Consequently, Arab governmental institutions have taken the prophylactic measures mentioned earlier in the ESCWA report (2020), which implies that IDs need more urgent health and rehabilitation services. This interest is due to the lack of professional providers and caregivers in special education. The pandemic led to more complications for IDs in getting access to these services. These complications placed a heavy burden on IDs and their families working as caregivers.

Arab governmental measures came to create and maintain social equity among IDs and individuals without disabilities, in spite of economic, financial and social challenges in some Arab countries. Achieving social equity for Arab IDs came as a response to the International Convention on the Rights of Persons with Disabilities (Al-Zoubi et al., 2021) which was originated to fully protect the rights of these individuals comprehensively. Health was one of the dimensions covered by this convention; according to the Convention, IDs have the right to health services without any bias or discrimination. Additionally, Arab governmental measures were implemented as a response to the Arab Decade for the IDs issued in 2003 by the Arab League (Al-Hadabi et al., 2021). This decade included a set of health services for IDs (Broderick & Ferri, 2019).

The results in table 2 showed that Arab prophylactic measures were directed respectively to all disabilities, hearing impairment, intellectual and developmental disabilities, and visual impairment. This implies that the majority of Arab institutions and centers of special education include all categories of disabilities, so Arab measures have been directed to all disabilities in general. This does not mean that other disabilities have not received sufficient interest and attention from the Arab governments. It is evident that hearing impairment ranked second in receiving preventive measures because people with this impairment primarily need hearing to become familiar with health information issued by government agencies and pandemic knowledge disseminated through the mass media. This requires translation into sign language which is being used in all news and channels. Accordingly, Parents of IDs have played an important role in caring for and teaching their children during this pandemic. There are many reasons why parents prefer home education. Some are not satisfied with the current educational opportu-

nities while others believe that children are not gaining an advantage in traditional school settings (Martin 2020). Others parents believe that all forms of home education of their children with disabilities during the COVID-19 pandemic are essential (Cahapay, 2020). During the pandemic, parents used sign language to translate to their children with hearing and intellectual disabilities the information coming from the television or the phone messages or to simplify this information for them (Mbazzi et al., 2020). However, individuals with hearing impairment have limited access to important public health information since much of the information was not translated into accessible formats (Qi & Hu, 2020).

Therefore, it is important to provide informational, educational and health materials to limit the spread of this virus among IDs (Jalali, et al., 2020). Hence, measures must be also focused on assistive technologies, critical services, adaptive learning methods, and other social services for IDs (Cahapay, 2021). Therefore, digitized societies, digital and social media, and platforms have played a key role in determining how IDs have dealt with COVID-19 (Goggin & Ellis, 2020). In order to enhance facilitative measures for IDs, a sign language interpreter should be used at press conferences during this pandemic (Meng 2020). Furthermore, targeted health education interventions should be directed to this vulnerable population during COVID-19 (Al-Hanawi et al., 2020).

Goggin and Ellis (2020) demonstrated that digital societies, digital and social media, and platforms have played a major role in determining how individuals with disabilities cope with the spread of COVID-19. Qi and Hu (2020) noted that due to the rapid spread of COVID-19, people with hearing impairments had limited access to important public health information since much of this information was not well organized, coordinated, and presented in such a way that it was accessible. They also stressed that the situation only improved when some local organizations and networks of persons with disabilities undertook the initiative to produce informational videos in sign language with accessible texts. To improve the necessary measures that help people with hearing impairments access the valuable information they need in China, the Beijing municipal government held a press conference that was translated into sign language for the first time to make information available to people with a hearing impairment. This conference was considered as a supportive gesture from the government (Meng 2020).

The results also showed that the Kingdom of Saudi Arabia and the Hashemite Kingdom of Jordan are the two Arab countries that have provided the best measures to cope with the pandemic. This may be due to the higher bodies/institutions for IDs, such as the Authority for Persons with Disabilities in Saudi Arabia, and the Higher Council for the Rights of Persons with Disabilities in Jordan. These bodies mainly contributed to the development of health policies in both countries. These policies were positively reflected in all health, social and educational, and psychological services provided for them. Whoever examines the ESCWA (2020) report will notice that this report covers all categories of ID, and this in turn proves that Jordan and Saudi Arabia have outstanding experience in dealing with these categories during the pandemic.

## CONCLUSION

Internationally, it seems clear that continuous recommendations of the WHO related to efforts used to combat the spread of COVID-19 worldwide contributed to enhancing the prophylactic measures in all countries. It is noticed that measures used to combat the pandemic worldwide have been taken both governmentally and institutionally. However, these measures may vary in nature, continuity, severity or stringency of implementation, and sustainability. People with disabilities may not

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# Tracing conceptual understandings and misunderstandings of science by students with and without vision impairment through a pilot study: the case of density and heat

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## ABSTRACT

The purpose of this pilot study was to describe and analyze the perceptions and alternative ideas of individuals with and without vision impairments regarding the concepts of “density” and “heat”. The perceptions of sighted, age- and gender-matched participants were compared with those of visually impaired participants (two groups). Semi-structured interviews were conducted, and the analysis of the data followed the method of tracing and developing categories and sub-categories. The analysis revealed that the two groups held diverse understandings about “density”, while most participants seemed to identify “heat” as “temperature” and vice versa. The results are presented in the form of conception correlation matrices highlighting common concepts and alternative ideas towards the notions of “density” and “heat”. The findings demonstrate that in both groups there are common patterns of alternative ideas, which may lead to the assumption that vision loss or blindness and proficiency in science do not constitute a causal relation. The results may lead to useful implications for differentiated instruction regarding the comprehension of science in an integrated educational setting in conjunction with technological advances and inclusive practices.

**Keywords:** blindness; science; heat; density; alternative ideas;  
expanded core curriculum; differentiated instruction

## INTRODUCTION

Based on relevant research, it is documented that students with vision impairment, exhibit the same range of cognitive abilities and intellectual capacities as their sighted peers (Kumar, Ramasamy, & Stefanich, 2001). Students with vision impairment have the potential and the capacity to master higher-order science concepts as do their sighted peers, provided that the obstacles they encounter are being alleviated (Jones, Minogue, Oppewal, Cook, & Broadwell, 2006; Kumar, Ramasamy, & Stefanich, 2001; Sahin & Yorek, 2009). The role of assistive technology has played pivotal role in science learning regarding students with vision impairment. All of the technological advances that have been designed, developed, and used in the education of students with vi are aimed at one universal goal: access to information. Such examples may be the following: embossers (printers which produce tactile graphs and diagrams), tape or digital recorders, talking calculators, scanners, 3-D printers, computer with specialized software such as Jaws or Supernova, other braille software, handheld magnifiers, braille displays, optical characters recognition systems, synthetic speech software, Kurzweil reading machine, braille, and other low vision aids such as closed-circuit television (Argyropoulos & Ravenscroft, 2019; Nkiko, Atinmo, Michael-Onuoha, Ilogho, Fagbohun, Ifeakachuku, O., Adetomiwa B., Usman, 2018; Azeta et al., 2018; Eligi & Mwantimwa, 2017; Beal & Rosenblum, 2015; Matchinkski & Winters, 2016).

Although assistive technological advances seem to be very promising regarding the removal of barriers in the learning process, science teachers receive inadequate level of preparation regarding the use of assistive technology (Ambrose-Zaken & Bozeman, 2010; Maguvhe, 2015; Wild & Allen, 2009). Hence, evidence-based data regarding science coupled with teaching materials and teaching strategies for students with vision impairment are rather limited (Jones, Minogue, Oppewal, Cook, & Broadwell, 2006; Maguvh, 2015). Moreover, the number of studies that have sought to examine how people with visual impairments approach and conceptualize scientific concepts is limited (Jones, Taylor, & Broadwell, 2009). More specifically, the studies which have investigated blind students' scientific concepts fall into the following thematic areas: linear size, measurement and scale (Jones, Forrester, Robertson, Gardner, & Taylor, 2012; Jones, Taylor, & Broadwell, 2009), nature of matter (Smothers & Goldston, 2009), features of living

organisms and life science (Fraser & Maguvhe, 2008; Jaworska-Biskup, 2011; Wild, 2010), seasonal change (Wild & Trundle, 2010), colors, natural phenomena, physical processes (Jaworska-Biskup, 2011), chemical reactions (Micklos, Lewis, & Bodner, 2013), geological concepts (Wild, Hilson, & Farrand, 2013), as well as nature and sound (Wild, Hilson, & Hobson, 2013).

For example, notions such as dissolution, chemical change, expansion, condensation, rotation and orbits, gravity, mass, and weight, have been investigated in the above studies with samples consisting of students with and without vision impairments (Smothers & Goldston, 2009; Wild, 2010; Wild & Trundle, 2010). It was found that students with blindness or severe vision impairments tended to develop two mind maps (Smothers & Goldston, 2009); one for the internal functional system of the particles and another one for the external function, namely the interaction of the particles of a body with its environment. Also, it was conjectured in many studies that specialized support was vital to the enhancement of blind students' understanding and conceptualization of science, such as pin-dot diagrams, 3D diagrams, 3D models as well as modeling kits (Betts & Cross, 2010).

The finding of the above studies cannot be generalized because the samples were very small; nevertheless, there was a common outcome that participants who had vision impairment had developed a science notion system which consisted of correct and incorrect ideas; the latter is known as "alternative ideas". It has to be mentioned here that the term "alternative ideas" indicate students' ideas regarding nature, physical phenomena and reasoning which may differ from the theories the science teacher may wish to develop. These ideas are referred to as alternative conceptions (Wandersee, Mintzes, & Novak, 1994) and usually deviate from textbooks which constitute the dominant teaching tool in schools and colleges. Additionally, these ideas may be developed without instruction or with very little guidance from teachers and, as a result, they are also called naive theories as they usually incorporate misconceptions (Rosengren & Brawell, 2002).

Alternative ideas have been traced in all students with and without vision impairments and many researchers have arrived at conflicting outcomes regarding the existence of same or different patterns of alternative ideas in both populations. So far, pilot studies with students with and without vision impairment have been conducted, which investigate concepts related to matter, space

and time, motion and forces, chemical equations, optics and light, and sound.

To our knowledge, no research has investigated how individuals with vision impairments conceptualize and elaborate the concepts of “density” and “heat” and the characteristics of matter at different physical states (solid, liquid, gas).

### **Hence, the research objectives of the present study are as follows:**

1. To investigate blind and sighted students’ ideas about the concepts of “density” and “heat” and find out –if any- common patterns among them
2. To investigate blind and sighted students’ alternative ways of thinking about the concepts of “density” and “heat” by categorizing and comparing them

## **METHOD**

### **Participants**

Eight individuals participated in the present study and were equally divided in two subgroups. Members of the first subgroup were individuals with severe vision impairments (i.e. congenitally blind), they did not have additional disabilities and they were enrolled in a mainstream high school (12th graders, three females and one male students). Members of the first subgroup were of the same age and were efficient braille readers. The second subgroup consisted of sighted individuals, and the two subgroups were matched by two factors: a. gender, and b. age.

According to the Greek National Curriculum, the notions of “heat” and “density” are introduced to students beginning with the 5th grade, and they are working out these notions throughout school years, in their science classes. Thus, all participants were familiarized with the notion of “heat” and “density”, respectively.

Also, it has to be mentioned that the authors followed the ethical principles of the Declaration of Helsinki and obtained signed consent from the participants using the appropriate forms and procedures suggested by the World Medical Association.

### **Instruments**

Data were obtained via face-to-face semi-structured interviews (Merriam, 2009). The authors developed two interview guides structured on three main axes: a. de-

inition(s) and descriptions of the physical concepts in question (i. e. heat and density), b. relations between physical concepts and their appearance in the physical world, and c. physical properties. All items in the interview guides were organized according to the previous main axes and included open-ended questions. The purpose of using open-ended questions rather than rating items was to obtain as much information as possible about the participants’ insights and experiences towards the specific notions of heat and density. In addition, the authors examined in advance that these specific notions of heat and density had been taught in the participants’ classes, according to the National Curriculum, and the use of Greek textbooks provided the basis for formulating the conceptual questions from which the two interview-guides were developed.

The topics of the interviews were based on the respective content of the Science textbooks of the Greek public primary schools. In order to ensure the external validity of the tool (Cohen, Manion, & Morrison, 2007), the questions were evaluated in terms of scientific content and wording - by two experienced science teachers who were working at the university- and were updated on the basis of the data obtained. Questions were also modified during pilot studies with other students who did not participate in the main study. The studies took place before the main research

### **Research Design**

Individual meetings were set up and the number of meetings differed depending on each participant’s availability. Most interviews were conducted at the participants’ schools or at their homes. The authors asked the participants questions about their knowledge of these very distinct science concepts (i. e. heat and density) and then the authors proceeded into secondary questions based upon participants’ responses. The whole session lasted approximately one hour per participant and all dialogues were recorded.

### **Data Analysis**

The authors used Dey’s (1993) recommendations in developing categories into broad categories, “middle-order” categories, and sub-categories using the “bit-by-bit” data analysis. The analysis began with the verbatim transcription of the interview recordings. Then, the transcribed interviews were clustered in sentences, phrases, and words. Finally, the authors organized the data into broad categories based on the core themes of the semi-structured interviews.

Table 1. **Blind participants' common concepts towards notions relevant to "density".**

	Sub-category	Key - conceptions	B1F	B2F	B3M	B4F
Category: DENSITY	Characteristics of matter	Solid state is a state of matter	•	•	•	•
		Liquid state is a state of matter	•	•		•
		Gas state is a state of matter	•	•		•
		Air is everywhere	•	•	•	•
		Air can be perceived only by the senses	•	•	•	•
		Solid bodies have fixed shapes	•	•	•	•
		Liquids do not have fixed shapes	•	•	•	•
		Gases have fixed shapes	•	•	•	•
		Solids do not have a fixed volume	•	•	•	•
		Liquids have a fixed volume	•		•	•
		Gasses have a fixed volume	•	•	•	•

Anonymity of the participants was obtained through allocation of a three-character code (two letters and one digit) per each individual. The first character (letter) of each code indicated the presence of vision impairment or not ("B" for Blind/Visually Impaired and "S" for Sighted participants). The second character (digit) indicated the seriation of each participant. The third character (letter) indicated the gender of the participant ("F" for female, "M" for Male).

Both authors read the transcribed data and developed all types of categories and then compared them. When a discrepancy in coding or in categorization was traced, the specific item(s) was/were revised on the basis of the original data. The authors separately developed categories and subcategories during the qualitative analysis of the obtained data. In order to ensure reliability, they measured the inter-individual concordance rate (Robson, 2002) twice. The initially calculated concordance rate was 90%, and after discussion, the concordance rate reached 98% for all category types.

## RESULTS

Two criteria were used to present the results. The first one refers to participants' common conceptions about density and heat and the second one refers only to participants' alternative conceptions. Hence, the below tables constitute an aggregated description of these conceptions providing input from both groups (i. e. students with and without vision impairment). This approach has adopted elements of a between and within study without following the rigorous character of an experimental de-

sign. It is based on pragmatic content formulating conception correlation matrices (Soltanifar & Ansari, 2016).

### Investigating Concepts about "Density"

The interviews covered a variety of topics, such as states of matter, characteristics of matter at different physical states, volume, and density of a physical body. All participants were invited to reflect on these topics and make their own statements based on their knowledge or their understanding. Table 1 presents blind participants' common notions towards density through characteristics of matter, whereas no common concepts were found regarding definitions of volume and density.

Most participants with vision impairment acknowledged that all physical bodies may be found in solid, liquid or gaseous state (states of matter). Participants seemed to share a common understanding about the shape and the volume of a solid body. They held the view that the shape of a solid body is fixed, while its volume may differ depending on its placement within the environment. It seems that they had developed a notion of relationship between the location of solid objects and their volume (i. e. alternative idea). Regarding the shape and volume of a liquid body, most of the participants held the same view (i. e. "Liquids do not have fixed shapes" see Table 1) and this view was in line with all common science textbooks.

Concerning gas bodies, most participants with vision impairment stated that their shape and volume is definite (i. e. alternative conception). Finally, what is interesting to mention here is that nearly all participants with vision impairment were not happy with the idea that ga-

Table 2. Sighted participants' common concepts towards notions relevant to "density".

Category: DENSITY	Sub-categories	Key - conceptions	S1F	S2F	S3M	S4F
	Characteristics of matter	Solid state is a state of matter			•	•
		Liquid state is a state of matter			•	•
		Gas state is a state of matter			•	•
		Air is everywhere	•	•	•	•
		Air can be perceived only by the senses	•		•	•
		Solids have fixed shapes	•	•	•	•
		Liquids do not have fixed shapes	•	•	•	•
		Gases have fixed shapes	•	•		•
		Solids have fixed volume	•		•	•
		Liquids have fixed volume	•		•	•
		Gases have fixed volume	•	•	•	•
	Definition of volume	Space occupied by a physical body	•			•
	Definition of density	Distances between atoms	•	•	•	•
		Something to do with the volume of a substance	•	•	•	•
		Something to do with the mass of a substance	•	•	•	•
		Something to do with the weight of a substance	•	•		

ses are matter with no shape or size. They believed that air was enclosed in spaces, and people could recognize its presence by its mass when the wind blew.

The content of Table 2 depicts the corresponding common conceptions of the sighted participants towards "density". Based on the conducted analysis, three sub-categories emerged; that is, characteristics of matter, definition of volume, and definition of density.

When the sighted participants were invited to describe the states in which physical bodies can be found naturally, only two of them referred to three states of matter (i. e. solids, liquids and gases). The other two participants believed that it is wrong to categorize substance into specific states of matter. It is worth emphasizing here that when the sighted participants were asked to elaborate on the shape and volume of gases, they supported the view that they are definite (see Table 2). This conception constitutes an alternative idea and there were members from both groups (participants with and without vision) who embraced it.

Unlike participants with vision impairment, members from the group of the sighted participants, attempted to define the concepts of volume and density of objects, whereas none of the participants who were blind attempted to do so. According to their definitions, volu-

me is the amount of space occupied by the object, and density reflects the distance between the atoms which compose the object (see Table 2). In addition, the participants S3M and S4F were closer regarding the fundamental characteristics of the notion "density", whereas S1F and S2F, seemed to have adopted an intuitive rather than a scientific understanding about density. To conclude, despite the fact that the sighted participants referred to critical variables of "density" (i. e. mass and volume), they did not carry on to a quantitative approach (e. g. ratio) or to a qualitative approach (e. g. density is a valid measure to identify a substance).

### Investigating Common Concepts about "Density"

Table 3 incorporates common conceptions from both groups. Three sub-categories were also traced in this conceptual correlation matrix: a. characteristics of matter, b. definition of volume, and c. definition of density. Most participants acknowledged three states of matter (i. e. solids, liquids, and gases), and held the view that air exists only in enclosed spaces and the only way to trace its presence is when the wind blows. Differences were also traced between the members of the two groups. Regarding solid objects, almost all participants stated that their shape is fixed. On the contrary, when they were asked to comment on their volume, sighted participants claimed that solids can hold their own shape, whereas



Table 3.

An aggregated conceptual correlation matrix regarding common concepts towards notions relevant to “density”.

Category: DENSITY	Sub-categories	Key - conceptions	B1F	B2F	B3M	B4F	S1F	S2F	S3M	S4F
	Characteristics of matter	Solid state is a state of matter	•	•	•	•			•	•
		Liquid state is a state of matter	•	•		•			•	•
		Gas state is a state of matter	•	•		•			•	•
		Air is everywhere		•	•	•	•	•	•	•
		Air can be perceived only by the senses	•	•	•	•	•		•	•
		Solids have fixed shapes		•	•	•	•	•	•	•
		Liquids have fixed shapes	•				•			
		Liquids do not have fixed shapes		•	•	•		•	•	•
		Gases have fixed shapes	•	•	•	•	•	•		•
		Solids do not have fixed volume	•				•		•	•
		Solids do not have fixed volume		•	•	•		•		
		Liquids have fixed volume	•		•	•	•		•	•
		Liquids do not have fixed volume		•				•		
		Gases have fixed volume	•	•	•	•		•	•	•
	Definition of volume	Space occupied by an object				•	•			•
	Definition of density	Something to do with the volume of a substance				•		•	•	•
		Something to do with the weight of a substance				•	•	•		
		Something to do with the space occupied by the substance			•		•			•
		Something to do with the material of the substance			•			•		

most participants with vision impairment held the view that the shape of solids depends on their placement in the environment. In addition, almost all participants agreed that liquids assume the shape of the part of the container which they occupy, whereas they held the view that gases retain a fixed shape (see Table 3). Finally, the number of common conceptions regarding volume and density is much smaller, compared with the other two sub-categories - and it seems that the participants without vision impairment elaborated more on these notions.

### Investigating Alternative ideas about “Density”

According to the participants with vision impairment, air is conceptualized as an “entity” without substance (“non-material body”, see first column of Table 4) and according to them, its existence can be traced only by its flow. As far as the notion of shape is concerned, some participants argued that the shapes of liquids and gases are fixed, whereas solids do not retain a fixed shape. Their shape depends on their orientation in the environment. Also, it seems that the participants with vision impairment, for some re-

ason, have developed certain intuitive notions regarding the notion “volume” which was contrary to formal science education they had received (see Table 4). Finally, what is interesting to underline is the causal relationship which participants with vision impairment have adopted; that is the bigger an object is, the higher the density and vice versa (see first column of Table 4).

The alternative ideas of the sighted students are quite similar to the ideas expressed by the participants with vision impairment (see second column of Table 4). It seems that the characteristics of gases, liquids, and solids, such as shape and volume, creates confusion to individuals irrespective of the vision condition. In terms of the notion “density”, the participants who had no vision impairment had many misunderstandings regarding relationships between density and weight as well as between density and volume (see statements in second column of Table 4).

Comparing the first two columns of Table 4, it is conjectured that the common alternative ideas between

Table 4. **Alternative ideas of participants with and without vision impairments (vi) towards “density”.**

	participants' statements (with vi)	participants' statements (without vi)	Common statements
<b>AIR</b>	“Air isn’t something that you can touch...it’s non-material body” “The existence of the air is justified when the wind blows”	“You can recognize the air only by air currents”	“Air isn’t something that you can touch...it’s non-material” “The existence of the air is justified when the wind blows” “You can recognize the air only by air currents”
<b>SHAPE</b>	“When you change the orientation of a solid in the environment then its shape also changes” “Liquids and gases have fixed shape”	“Liquids and gases have fixed shape”	“When you change the orientation of a solid in the environment then its shape also changes” “Liquids and gases have fixed shape”
<b>WEIGHT</b>	–	“The weight of a solid substance decreases when it turns into liquid” “The weight of a liquid increases when it turns into solid”	–
<b>VOLUME</b>	“Gases retain a fixed volume” “The volume of a solid changes when you fold it, for example a piece of paper” “The volume of a solid may change when you change its position” “The volume of a liquid changes when you change its container”	“Liquids do not retain a fixed volume” “Gases retain a fixed volume”	“Gases retain a fixed volume” “The volume of a solid changes when you fold it, for example a piece of paper” “The volume of a solid may change when you change its position” “The volume of a liquid changes when you change its container” “Liquids do not retain a fixed volume” “Gases retain a fixed volume”
<b>DENSITY</b>	“Density depends exclusively on the mass of the substance” “Small objects have low density; big objects must have higher density”	“Density is identical to volume” “Density is linked to the weight of the object” “The density of a solid substance decreases when it turns into liquid”	–

Table 5. **Common patterns in the elaborations of participants with vision impairment towards the concept of “heat”.**

	Sub-categories	Key - conceptions	B1F	B2F	B3M	B4F
<b>Category: HEAT</b>	heat	Sun is a source of heat	•		•	•
	temperature	Objects have constant surface temperature	•			•
		Extreme temperature events are those below 00 C		•	•	•
		Temperature changes are due to natural phenomena			•	•
	temperature changes	When a liquid turns into solid then its temperature decreases		•		•
		When a solid turns into liquid then its temperature decreases	•			•
		When a liquid turns into gas then its temperature increases		•		•
		When a liquid turns into gas then its temperature decreases	•		•	

participants with and without vision impairment were traced in the notions of the air, shape and volume (see third column of Table 4).

### Investigating Concepts about “Heat”

The analysis of the comments and reflections of the participants with vision impairments upon the notion of “heat” revealed three sub-categories: a. the notion of heat, b. the notion of temperature, and c. temperature changes (see Ta-

ble 5). All participants were invited to express their opinion upon definitions of heat, temperature as well as to make comments on temperature changes during changing states of matter. Their reflections and elaboration on these entities were more intuitive rather than scientific. For example, when they were asked to comment on temperature changes when matter moves from one state to another, keeping pressure constant, their responses seemed to be very confusing without a robust reasoning (see Table 5).

Table 6.

Common patterns in the elaborations of participants with no vision impairment towards the concept of “heat”.

	Sub-categories	Key - conceptions	S1F	S2F	S3M	S4F
Category: HEAT	heat	It is the procedure of transfer	•	•		
		Heat is about how cold or how hot a substance is		•		•
	temperature	Objects have different surface temperature	•		•	•
		Temperature has an impact on the state of a substance			•	•
		Temperature changes relate to weather changes		•		•
		Extreme values of temperature are considered those found in icebergs or heat waves		•		•
	Temperature changes	When a liquid turns into solid then its temperature decreases	•	•	•	•
		When a solid turns into liquid then its temperature increases	•	•	•	•
		When a liquid turns into gas then its temperature increases	•		•	•
		When you boil a substance then its temperature increases			•	•

Table 7.

An aggregated conceptual correlation matrix regarding common concepts towards the notions relevant to “heat”.

	Sub-category	Key - conceptions	B1F	B2F	B3M	B4F	S1F	S2F	S3M	S4F
Category: HEAT	Heat	Sun is the source of heat	•		•	•			•	
		Heat means body warmth	•				•			
		Heat is a measure to understand how cold a body is			•				•	
		Touch transfers heat			•					•
	Definition of temperature	Objects have different surface temperature	•				•		•	•
		Objects have constant surface temperature	•			•		•		
		Extreme values of temperature mean heat wave				•		•		•
		Temperature changes relative to different states of a substance	•							•
	Thermal energy	Thermal energy relates to solar energy		•				•		
	Temperature changes	When a solid turns into liquid then its temperature increases		•			•	•	•	•
		When a liquid turns into solid then its temperature decreases		•		•	•	•	•	•
		Temperature of a body changes after its conversion from liquid to gas			•			•		
		When a liquid turns into gas then its temperature increases		•		•	•		•	•
		When a liquid turns into gas then its temperature decreases	•		•			•		
		When a liquid turns into gas then its temperature remains the same				•			•	
		When a gas turns into liquid then its temperature changes			•			•		
		When a gas turns into liquid then its temperature increases				•				•

The responses of the sighted participants were closer to scientific explanations but still confusion was traced mainly between the concepts of heat and temperature (see Table 6).

### Investigating Common Concepts about “Heat”

The following table (Table 7) constitutes an aggregated depiction of the common conceptions of participants with and without vision impairments regarding “heat”. It seems that confusion between heat and temperature is prevailing in both groups, whereas sighted participants outperformed their blind counterparts in concepts relevant to temperature change.

### Investigating Alternative ideas about “Heat”

A plethora of blind students’ alternative ideas concerned the notions of heat, temperature, thermal energy, boiling and the temperature values of a body from one state to the other (the first column of Table 8). The analysis sug-

gested that the conceptual boundaries between the first three concepts are blurred. Heat and thermal energy are both defined as the temperature of a physical body (or of a space) and vice versa.

The alternative ideas of the sighted participants were organized in four categories. It seems that heat, temperature, and thermal energy are terms that the sighted participants used interchangeably, as if they were the same. A common feature was also the partial understanding of how temperature of a body fluctuates between the physical states (see second column of Table 8). The alternative ideas that were explicitly or implicitly stated by members of both groups are displayed in the third column of Table 8. The common component of those ideas was the use of the terms “heat” and “temperature” as conceptually equivalent. The transfer of heat from a cold body to a warmer one and the identification of “heat” with “thermal energy”, were another two commonly shared ideas between the two groups.

Table 8.

**Alternative ideas of participants with and without vision impairments (vi) towards the concept of “heat”.**

	participants’ statements (with vi)	participants’ statements (without vi)	Common statements
<b>Heat</b>	“Heat is when something is hot” “Heat is the temperature of a space or of an environment” “Heat and temperature are the same” “Heat is a material body that changes its temperature” “Heat is equated with a warm object” “Heat can be transmitted from a cooler to a warmer object”	“Heat is something warm” “Heat can measure how cold a body is” “Heat flows from the cooler to the warmest body” “Heat and temperature are the same” “Cold can be transferred between different bodies”	“Heat is something warm” “Heat and temperature are the same” “Heat flows from the cooler to the warmest body”
<b>Temperature</b>	“A cold body will have a temperature below zero” “A warm body will have a temperature of over 20° C” “Temperature of water falls after its conversion from ice to liquid water”	“The temperature measures cold and hot” “Changes in temperature affect liquids rather than solids” “Temperature is hot or cold”	–
<b>Thermal energy</b>	“Thermal energy is the energy of heat” “Thermal energy is the temperature to be transferred to a body”	“Thermal energy and heat are the same” “Thermal energy is the energy transferred from a warm body to a different one”	“Thermal energy and heat are the same” “Thermal energy is the energy transferred from a warm body to a different one”
<b>Temperature after phase changes</b>	“Temperature of a body falls after its conversion from solid to liquid” “Temperature of a body falls after its conversion from liquid to gas” “Temperature of a body remains stable after its conversion from liquid to gas” “Temperature of a body rises after its conversion from gas to liquid”	“Temperature of a body falls after its conversion from liquid to gas” “Temperature of a body remains stable after its conversion from liquid to gas” “Temperature of a body rises after its conversion from gas to liquid”	“Temperature of a body falls after its conversion from liquid to gas” “Temperature of a body remains stable after its conversion from liquid to gas” “Temperature of a body rises after its conversion from gas to liquid”

## DISCUSSION

The main objective of the present study was to investigate the ideas and understandings of individuals with vision impairments about “density” and “heat”. Sighted individuals were also part of the investigation so that comparisons could be drawn between the two groups. The overall analysis indicated many points of shared understandings between the two sub-groups.

The results showed that the two subgroups had quite different understanding regarding “density”. In particular, the students who were visually impaired provided explanations about “density” based more on their feeling and instinct rather than on theory. This may be due to the fact that “density of a physical body” is an inherently complex concept, as it is unperceivable by the senses and its understanding requires the comprehension of many intricate concepts (e.g. ratio or proportion) (Xu & Clarke, 2001). On the other hand, sighted participants’ elaborations revealed a primary understanding of the concept. This discrepancy is possibly an indicator of the role of restrictions imposed by the loss of vision in constructing the “density” concept.

While there was no common ground about density in the elaborations of participants with vision impairment, many shared ideas emerged about matter characteristics, which was due to everyday experiences in constructing knowledge about matter properties (Jaworska-Biskup, 2011). These results document the need for teachers to provide their students with many opportunities to explore and examine the properties of matter at different physical states. This is more crucial and necessary for students with vision impairment whose prior knowledge may be limited since incidental learning (Hyams & Sadique, 2014) is restricted and fragmented. According to Ross and Robinson, “students with visual impairments are unable to take full advantage of unplanned learning” (Ross & Robinson, 2000, p. 331). This is why it is important to ensure that students with vision impairment receive appropriate instruction regarding science education in order to develop exploratory skills and compensate for the absence of incidental learning (Ross & Robinson, 2000).

Regarding “heat”, it seemed that most participants held alternative ideas about the related concepts. There are several factors that may hinder the scientific meaning of the concepts in the context of school science (Sözbi-

li, 2003). These concepts are used in everyday life interchangeably, as if they were the same (for example, heat and temperature), but they have a distinct meaning in the context of school science. Daily life experiences as well as the instruction provided in these content areas may also promote or reinforce alternative ideas.

In conclusion, participants with vision impairments held numerous alternative ideas about the two concepts. The same pattern was noticed in the group of their sighted peers. On the other hand, the results revealed many points of common understanding between the two subgroups, but also some points of divergence. Whatever the differentiations or adaptations may be in science labs, teachers need to investigate blind students’ alternative ideas in advance and work them out with them. In addition, students with vision impairment observe first the parts of a phenomenon or of an experiment and then they are invited to mentally construct the whole, which is a more challenging way to learn and hence to elaborate (Millar, 2006). Therefore, science teachers’ education should be consistent and aligned with current educational trends so that teachers can use effective instruction, appropriate technological advances, and differentiated content. (Argyropoulos & Gentle, 2019). According to Maguvhe (2015), the science curriculum is usually inaccessible to students with vision impairments and science teachers are not trained to teach students with vision impairments. What is more, there are no specialized labs to support students with vision impairment. Since, the vast majority of students with vision impairment are enrolled in general educational settings, the necessity of having trained science teachers, adapted science labs, availability of assistive technology and differentiated curricula is crucial and vital. The example of the expanded core curriculum may serve all the above needs very well and set basic principles into an integrated school where students with vision impairment are enrolled (Brown & Glaser, 2014).

Finally, it has to be mentioned that researchers have criticized comparative methods as inadequate and unstable (i. e. students with visual impairments and sighted peers, Warren, 1994) since these methods seek comparisons between different populations instead of seeking explanations within a population. However, the information which has been obtained by comparative studies concerning scientific concepts should not be rejected altogether as it constitutes the main source of data. In relation to this, Lewis and Collis (1997) support the view



that the opinions concerning cognitive development are bound to be influenced by comparative studies with the “norm”. Warren (1994) advocates this as well, assuming that one should not completely dismiss the information that is obtained from comparative studies by taking the sighted population as the „norm” because:

The development of all children is governed to some degree by maturation, and since development occurs within environments that, though they differ in specifics, have major domains in common, we should expect some basic commonalities of development among all children...the principles and basic dynamics of development are fundamentally the same for children with and without visual impairments (p4-5).

Since, the findings demonstrated that there were common patterns of alternative ideas in both subgroups, it may lead to the assumption that vision loss or blindness and proficiency in science do not constitute a causal relation.

## LIMITATIONS AND CONCLUSION

One basic limitation is the fact that with such a small number of participants, these results cannot be generalized. Also, another limitation that may have impacted the results is the fact that age, development, years of exposure to the topic (i.e. density and heat) were not taken into account in this pilot study. Nevertheless, although the outcomes of the present study cannot be generalized due to the small sample, they support the idea of expanding the general science curriculum by adding additional purposeful hands-on experiences in conjunction with advanced technological advances in order to promote blind students’ scientific thinking and learning (Darrah, 2013; Nam, Li, Yamaguchi, & Smith-Jackson, 2012; Supalo, Isaacson, & Lombardi, 2014; Siu & Morash, 2014).

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# Psychological correlates of parental burnout in hearing mothers of deaf children: personality, satisfaction with life, and posttraumatic growth

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## ABSTRACT

A child's disability is a risk factor for its parents experiencing parental burnout (PB). Here we investigate this problem in hearing mothers of deaf and hard of hearing (DHH) children. We look at the psychological dimension of the mothers' personality in terms of the Big Five model, satisfaction with life (SWL), and posttraumatic growth (PTG). The study takes account of the sociodemographics of the mothers and their children and other factors related to the child's deafness and their type of hearing assistance. The study was conducted through letters sent to 559 hearing mothers of which 29% responded. Responding mothers completed several questionnaires: the Parental Burnout Measure (PBM-12), International Personality Item Pool–Big Five Markers-20 (IPIP-BFM-20), Posttraumatic Growth Inventory (PTGI), and a general questionnaire. A VAS scale was used to assess SWL and satisfaction with the child's rehabilitation.

Results showed that the level of PB the mothers experienced was significantly lower than in mothers of children with non-deafness disabilities. SWL and emotional stability, intellect/imagination, agreeableness, extraversion, and satisfaction with the child's rehabilitation were inversely correlated with PB, but only SWL and emotional stability were significant PB predictors. PTG in the mothers was at an average level and not correlated with PB. Similarly, the sociodemographic characteristics of mother and child and child's deafness-related factors were not correlated with PB. Low levels of emotional stability and SWL are associated with vulnerability of the mothers to PB. Our finding of a lack of relationship between PB and PTG suggest that some mothers of deaf children may experience "illusory PTG", which is related to avoidance-oriented coping strategies including denial coping.

**Keywords:** parental burnout; hearing mothers; deaf children; personality; satisfaction with life; posttraumatic growth

## INTRODUCTION

Parental burnout (PB) afflicts about 4% of parents in Poland (Szczygieł et al., 2020). It can be defined as “a state of intense exhaustion related to one’s parental role, in which one becomes emotionally detached from one’s children and doubtful of one’s capacity to be a good parent” (Mikolajczak et al., 2019). This psychological state is an effect of intense, prolonged parental stress that the parent cannot effectively cope with. Usually, it coexists with symptoms of depression and/or anxiety (Lebert-Charron et al., 2018; Roskam et al., 2017; Mikolajczak & Roskam, 2020; Sánchez-Rodríguez et al., 2019; Sekułowicz, 2013; Szczygieł et al., 2020). In other words, PB is an indicator of difficulty in coping with parenthood, of being a mother (or father) of the child (Bornstein, 2020; Kobosko & Zalewska, 2011; Kobosko et al., 2021). Mothers are particularly prone to PB (Mikolajczak et al., 2018; Mikolajczak & Roskam, 2018; Sekułowicz, 2013; Szczygieł et al., 2020). PB inevitably affects the child and the quality of the parent–child relationship, causing increased emotional distance between the parent and the child or escalation of neglectful and perhaps violent behavior towards the child (Mikolajczak et al., 2019; Szczygieł et al., 2020).

PB reflects dysfunction in the family, especially relating to the parental couple (Lebert-Charron et al., 2021; Szczygieł et al., 2020). The type of parenting is also relevant, including parental practices and agreement between the parents about parental decisions (Mikolajczak et al., 2018; Szczygieł et al., 2020). In terms of protection against PB, important factors include psychological functioning of the parents with their attachment style (Mikolajczak et al., 2018), as well as the parents’ personality profiles, particularly their emotional stability (Le Vigouroux et al., 2017; Le Vigouroux & Scola, 2018; Mikolajczak et al., 2018; Sekułowicz et al., 2019; Szczygieł et al., 2020). Other factors conducive to the risk of PB include the sociodemographics of the parents and the child, notably the sex of the parent (female), having a child younger than 5, being a single mother, and having a part-time job (Lebert-Charron et al., 2019; Mikolajczak et al., 2018; Szczygieł et al., 2020). Other characteristics of the child, such as having a disability or severe disease, are also significant, giving increased risk of PB (Lindström et al., 2010, 2011; Mikolajczak et al., 2018; Sekułowicz, 2013; Sekułowicz et al., 2019; Szczygieł et al., 2020). Notwithstanding, a Finnish study (Sorkkila, 2018) showed that sociodemographic factors explain only about 8% of PB variance.

## Disability of the child and PB

Parents who have a child with special needs that interfere with family life tend to more often experience PB. The degree of PB may also depend on the type and severity of the child’s development disorder (Olsen et al., 2014; Sekułowicz, 2013). Venkatesan and Varghese (2013) have found that a higher degree of hearing loss is associated with a higher level of PB in mothers. Similarly, among caregivers of children with autism spectrum disorder (ASD), a feeling of being burdened has been shown to correlate with higher levels of the child’s disability (Cetinbakis et al., 2020). Concerning types of disability, the highest level of PB is found in parents of children with ASD compared to parents of children with any other type of disability (Kwiatkowski & Sekułowicz, 2017; Sekułowicz, 2013; Venkatesan & Varghese, 2013). At the same time, Çengelci (2009) did not find any difference in PB between mothers of children with ASD and those with Down syndrome. The level of PB may be higher if the child is a boy (Sekułowicz, 2013), but the age of the parent or the age of the child do not correlate with PB (Ahmadi et al., 2021; Kwiatkowski & Sekułowicz, 2017). Higher PB has been found in incomplete families (Sekułowicz, 2013), although some studies have shown the opposite (Ahmadi et al., 2021; Kwiatkowski & Sekułowicz, 2017). Lower education level of the parent of a child with a disability or severe chronic condition is related to increased risk of PB (Ahmadi et al., 2021; Çengelci, 2009; Cetinbakis et al., 2020; Sekułowicz, 2013).

## Personality and PB

Different personality traits of parents are related to PB: a lower risk of PB is correlated with higher self-efficacy, emotional intelligence, resiliency, and sense of coherence, regardless of the child’s developmental disorder (Kwiatkowski & Sekułowicz, 2017; Sekułowicz, 2013; Szczygieł et al., 2020). Studies performed using the Big Five Model show a positive relationship between PB and neuroticism, and a negative one between PB and agreeableness and conscientiousness (Le Vigouroux et al., 2017). In the Polish population, higher extraversion, but not conscientiousness, relates to lower levels of PB (Szczygieł et al., 2020).

## Satisfaction with life and PB

Satisfaction with life (SWL) in parents with PB is reduced (Szczygieł et al., 2020), in the same way as parents of children with a disability (Aktan et al., 2020; Cetinbakis et al., 2020; Sekułowicz, 2013), including mothers of deaf children before the child has received a cochlear implant (Yiğit et al., 2018). It has been shown that PB is less likely if the



mother of a child with a disability has higher SWL (Aktan et al., 2021; Çalışkan et al., 2021; Sekułowicz, 2013).

### Posttraumatic growth and PB

Parents of children with disabilities often experience posttraumatic growth (PTG) following what is a highly stressful and sometimes traumatic life event – diagnosis of a disability in their child. PTG means “a positive psychological change experienced as a result of the struggle with highly challenging life circumstances” (Tedeschi & Calhaun, 2004). In such parents, PTG has an average level of intensity regardless of the type of impairment (Byra et al., 2017, 2021; Cetinbakis et al., 2020; Kobosko, 2016; Laufer & Isman, 2021). Among hearing parents of deaf children, 41.9% have obtained a high level of positive change and 32.4% a medium level. In mothers of deaf children, the level of PTG was higher than in fathers (Kobosko, 2016). Considering that there is an inverse correlation between burnout and PTG found in such groups as pediatric nurses (Hamama-Raz et al., 2020), a similar relationship between PB and PTG may be expected in mothers of children with disabilities.

## THE CURRENT STUDY

This study of the psychological determinants of PB in hearing mothers of deaf children poses the question about the relationship between PB and certain other measurable factors: the Big Five personality traits, SWL, PTG, as well as sociodemographic factors concerning the mothers (age, marital/partnership status, education, having one or more children), their children (sex, age), and other factors related to the child's deafness (degree of hearing loss, number of cochlear implants, additional disability, mother's satisfaction with the child's rehabilitation, and mother's satisfaction with the decision about cochlear implantation).

## METHODS

### Study participants and procedure

The study involved 162 hearing mothers of deaf and hard-of-hearing (DHH) children (51.25% were boys) aged between 7 months and 17 years (mean 85.35 months). The children were diagnosed with hearing loss (severe or profound) according to BIAP; the mean age at diagnosis was 11 months. Among the 162 children, 144 (88.8%) were users of one or two cochlear implants (CIs), with

**Table 1. Sociodemographic characteristics of mothers and their DHH children, and data on the children's deafness and hearing amplifying devices**

<b>Mothers of DHH children (n = 162)</b>	
Age (years) – M (SD) (min–max)	36.93 (5.87) 23–57
Marital/partnership status In a relationship – n (%) Single – n (%)	147 (90.7) 15 (9.3)
Education Lower (secondary or post-secondary non-tertiary) – n (%) Tertiary – n (%) Missing data – n (%)	62 (38.3) 99 (61.1) 1 (0.6)
Number of children One child – n (%) More than one child – n (%)	50 (30.9) 112 (69.1)
<b>DHH children (n = 162)</b>	
Sex Boys – n (%) Girls – n (%)	83 (51.2) 79 (48.8)
Age (months) – M (SD) (min–max)	85.35 (40.6) 7–204
Age Young children (< 5 years old) – n (%) Older children (5 years old and over) – n (%)	49 (30.25) 113 (69.75)
Age at deafness confirmation (months) – M (SD) (min–max) Missing data (n)	11.14 (15.61) 0.1–94 2
Degree of hearing loss Severe – n (%) Profound – n (%)	39 (24.1) 123 (75.9)
Additional disability Present – n (%) None – n (%)	29 (17.9) 133 (82.1)
Age when fitted with a HA (months) – M (SD) (min–max) Missing data (n)	15.81 (18.75) 1–132 7
Type of amplification One CI – n (%) Two CIs – n (%) Hearing aids – n (%)	87 (53.7) 57 (35.2) 18 (11.1)
Age at first CI (months) – M (SD) (min–max) Missing data (n)	30.37 (25.38) 6–177 3
Age at second CI (months) – M (SD) (min–max) Missing data (n)	55.49 (30.0) 18–192 4

bilaterally implanted children comprising 32.7% of all implanted children. Age at first cochlear implantation was, on average, 30.3 months. DHH children raised in incomplete families comprised 9.3% of the group. Detailed sociodemographic information about mothers and their DHH children, their deafness, and CI-related information are presented in Table 1.



This study was conducted via mail in the years 2017–19. It is based on mothers of DHH children who were patients of the Institute of Physiology and Pathology of Hearing in Warsaw, Poland. Mothers received a pack of questionnaires with a cover letter inviting their anonymous participation in a research study. The response rate was 29%. The Institute's Bioethics Committee approved the project.

Statistical calculations were done using Statistica v. 12 (StatSoft Inc., Tulsa, OK, USA). The following tests were used: t-test, Mann–Whitney U-test, Pearson correlation coefficient, and multiple linear regression (for assessing which variables were predictors for PB). A 95% confidence level ( $p < 0.05$ ) was chosen as the criterion of significance.

## MEASURES

Parental Burnout Inventory (PBI-12), developed by Sekułowicz and Kwiatkowski (2013), is a Polish tool for assessing PB. It is a version of the Maslach Burnout Inventory (MBI) for assessing job burnout, adapted for parents of children with disabilities. It comprises 12 items on a 4-point Likert-type scale, with responses from 4 (very often) to 1 (never). Factor analysis singled out two key scales on PBI-12: exhaustion (E) and helplessness (H), containing six items in each scale. The authors recommend using just one factor, the total of all the items, and it ranges from 12 to 48 points. The higher the score, the more severe the PB. In a study on mothers of children with disabilities, Cronbach's alpha for PBI-12 was 0.90 (Sekułowicz et al., 2019).

Polish adaptation of the Short IPIP-BFM-20 (Topolewska et al., 2014) was used to assess the mothers' personality dimensions. This questionnaire is an abbreviated version of Goldberg's Big Five Markers from the International Personality Item Pool (IPIP-BFM-50) (Goldberg, 1990). It includes five scales, 4 items in each, assessing extraversion, agreeableness, conscientiousness, emotional stability, and intellect/imagination. Responses are scored on a five-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). A higher score means a higher intensity of a particular personality dimension.

Posttraumatic Growth Inventory (PTGI) by Tedeschi and Calhoun (1996) in Polish adaptation (Juczyński & Ogińska-Bulik, 2010) is a tool that can be used to assess positive changes that people go through because of

traumatic experiences (such as in our study the diagnosis of deafness in the child) – for example 'I more clearly see that I can count on people in times of trouble'. PTGI comprises 21 items that in Polish adaptation are divided into 4 scales: changes in perception of oneself, relationships with others, greater appreciation for life, and spiritual changes. Responses are scored from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis). The overall score is a total of responses ranging from 0 to 105 points. The higher the overall score, the higher the posttraumatic growth the person went through. Cronbach's alpha in our study was 0.95.

The information survey included questions related to sociodemographic data about the child (sex, age) and the mother (age, marital/partnership status, education, number of children), information related to the child's deafness (child's age at the time of diagnosis, degree of hearing loss, child's age when provided with a hearing aid (HA) and CI, number of CIs, and child's age at the first and second cochlear implantation and experience with one and two CIs). The survey also included items for assessing the mothers' satisfaction with life, with their DHH child's rehabilitation, and with the CI or CIs provided. These three kinds of „satisfaction” were scored on a scale from 1 (I am very dissatisfied) to 10 (I am very satisfied).

## RESULTS

### Descriptive statistics

For the mothers of DHH children, descriptive statistics for the analyzed variables – parental burnout (PBM-12), personality dimensions (IPIP-BFM-20), posttraumatic growth (PTGI), satisfaction with life (VAS), satisfaction with rehabilitation (VAS), and satisfaction with CI (VAS) – are presented in Table 2.

In the whole group of mothers of DHH children, the global level of parental burnout (PBM-12) was significantly lower than in mothers of children with disabilities other than deafness reported in other studies, as shown in Table 2.

Using global parental burnout (PBM-12) findings, intergroup comparisons were made based on the following categorical variables. These were variables describing the mothers – education (lower/tertiary), marital/partnership status (in a relationship/single), number of children (one child/more than one child) – and variab-

les describing their DHH children [(sex and age (<5 years / ≥5 years)] and those related to deafness [degree of hearing loss (severe/profound), additional impairments (yes/no), being a CI user (yes/no), number of CIs (one/two CIs)]. A Mann–Whitney U-test was used with a correction because the dependent variable (parental burnout) was not continuous. Overall parental burnout was found to be similar in all groups. An exception involved mothers where the DHH children had two CIs, in which case it was lower ( $M = 22.1$ ;  $SD = 7.29$ ) than in children with one CI ( $M = 24.57$ ;  $SD = 7.64$ ), and here the trend was statistically significant ( $U = 1677.0$ ;  $p = 0.05$ ).

All personality dimensions were found to be lower in mothers of DHH children than in the general population (Bojanowska & Urbańska, 2021). Their satisfaction with rehabilitation was on a similar level as in another study of mothers of small DHH children (Kobosko et al., 2021), and their satisfaction with the CI was similar to that recorded in an earlier study of parents of DHH children who used a CI (Kobosko, 2011) (Table 2). However, there is no existing data on SWL measured with a VAS scale in mothers of DHH children.

Global posttraumatic growth (PTGI) in mothers of DHH children was in the range of average results according to standards for people experiencing various kinds of trauma, including parents confronting their child's disability or a severe disease (Juczyński & Ogińska-Bulik, 2010).

### Correlations

Table 3 shows Pearson's correlation coefficient between PB global score and the individual variables describing mothers of DHH children, including personality dimensions (extraversion, agreeableness, conscientiousness, emotional stability, and intellect/imagination based on IPIP-BFM-20), posttraumatic growth, satisfaction with life, rehabilitation, and CI (measured with VAS). We found a statistically significant negative correlation between PB global score and 4 of the personality dimensions – the strongest, al-

Table 2. **Descriptive statistics for the variables: parental burnout (PBM-12), personality dimensions (IPIP-BFM-20), posttraumatic growth (PTGI), satisfaction with life (VAS), satisfaction with rehabilitation (VAS), and satisfaction with CI (VAS) in mothers of DHH children.**

Variable/Measure	N	M (SD) (min–max)	Standards
Parental burnout (PBM-12)			Mothers ( $n = 246$ ) <sup>1</sup>
Exhaustion (E) (range 6–24)	162	11.85 (4.04) *** (6–23)	13.9 (4.49)
Helplessness (H) (range 6–24)	162	11.65 (3.83) *** (6–23)	13.63 (3.8)
Total (sum) (range 12–48)	162	23.53 (7.46) *** (12–45)	27.53 (7.68)
Personality dimensions (IPIP-BFM-20)			General population ( $n = 1161$ ) <sup>2</sup>
Extraversion (range 4–20)	160	11.07 (3.49) ** (4–18)	12 (3.36)
Agreeableness (range 4–20)	162	13.85 (2.65) ** (4–18)	14.6 (2.62)
Conscientiousness (range 4–20)	162	13.38 (2.87) *** (6–18)	14.3 (2.82)
Emotional stability (range 4–20)	160	9.66 (2.84) *** (4–18)	11.5 (2.99)
Intellect/Imagination (range 4–20)	161	12.22 (2.75) *** (4–18)	14 (2.66)
Posttraumatic growth (PTGI)			Women ( $n = 368$ ) <sup>3</sup>
Changes in perception of oneself (range 0–45)	159	29.17 (9.53) ** (3–45)	26.18 (9.54)
Relationships with others (range 0–35)	155	22.01 (8.58) (0–35)	22.11 (7.65)
Greater appreciation for life (range 0–15)	156	11.12 (3.45) * (0–15)	10.38 (3.56)
Spiritual changes (range 0–10)	157	4.99 (3.09) (0–10)	5.27 (2.81)
Total (range 0–105)	150	67.49 (22.27) # (7–105)	63.95 (19.84)
Satisfaction with life (VAS) (range 1–10)	159	7.97 (1.76) (1–10)	–
Satisfaction with rehabilitation (VAS) (range 1–10)	151	8.18 (1.78) (1–10)	Parents of DHH children ( $n = 64$ ) <sup>4</sup> 8.22 (1.69)
Satisfaction with CI (VAS) (range 1–10)	143	9.61 (1.17) (1–10)	Parents of DHH children ( $n = 93$ ) <sup>5</sup> 9.55 (1.27)

#  $p < 0.1$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Standards are listed in the last column:

for PBM-12 standards are from <sup>1</sup>Sekułowicz et al., 2019;

for IPIP-BFM-20 from <sup>2</sup>Bojanowska & Urbańska, 2021;

for PTGI from <sup>3</sup>Juczyński & Ogińska-Bulik, 2010;

for Satisfaction with rehabilitation (VAS) from <sup>4</sup>Kobosko et al., 2021;

and for Satisfaction with CI (VAS) from <sup>5</sup>Kobosko, 2011

Table 3. **Correlation coefficients between parental burnout (PBM-12) and personality dimensions (IPIP-BFM-20), satisfaction with life, rehabilitation and CIs (VAS), and posttraumatic growth (PTGI) of mothers of DHH children.**

Variable	Parental burnout of mothers of DHH children (PBM-12)
Personality dimensions (IPIP-BFM-20)	
Extraversion	-0.26*
Agreeableness	-0.23*
Conscientiousness	-0.1
Emotional stability	-0.56*
Intellect/Imagination	-0.35*
Satisfaction with life (VAS)	-0.55*
Posttraumatic growth (PTGI)	-0.15
Satisfaction with rehabilitation (VAS)	-0.19*
Satisfaction with CI (VAS)	-0.01

\* Significant at  $p < 0.05$

though only moderate, with emotional stability, and the weakest with agreeableness and extraversion. A similar correlation was found between PB and emotional stability, and between PB and the mothers' satisfaction with life. However, there was no correlation between PB and posttraumatic growth.

### Regression analysis

Regression analysis was performed between PB and the variables that significantly correlated with PB. The obtained regression model was found to be statistically significant (multiple  $R^2 = 0.429$ ,  $F = 15.294$ ;  $p < 0.001$ ). The predictors included in the analysis explained about 40% of the variability of the dependent variable. Results are presented in Table 4. Only two predictors introduced to the model were found to be significant: the mothers' emotional stability and SWL. The interpretation is that

mothers of DHH children who were emotionally stable and satisfied with life had a lower risk of PB.

## DISCUSSION

This study addresses the issue of the parental burnout (PB) of hearing mothers of DHH children and the mothers' psychological conditions such as personality, satisfaction with life (SWL), and posttraumatic growth (PTG) related to their child's deafness. The study also takes into consideration the mothers' sociodemographic data, their satisfaction with the child's rehabilitation, and their satisfaction with the CI if the child was a CI user. Children's characteristics addressed in the study included sociodemographic and deafness-related factors. So far, there are no published studies on this subject concerning hearing mothers of DHH children.

PB in mothers of DHH children was found to be significantly lower than in mothers whose children had disabilities other than deafness, which have been reported in other Polish studies using the same tool, PBM-12 (Kwiatkowski & Sekułowicz, 2017; Sekułowicz, 2013; Sekułowicz et al., 2019). Possibly, this reduced PB relates to the fact that mothers of DHH children largely had a psychological type of burnout, while mothers of children with ASD had strong physical burnout (Varghese & Venkatesan, 2013). This indicates that mothers of DHH children can more effectively cope with stress, notably parental stress, than can mothers of children having other disabilities (Pisula & Barańczuk, 2020).

A clear majority of DHH children from the study group (88%) used one or two CIs, which means they had undergone cochlear implantation, a highly effective medical intervention that is presently standard procedure in

Table 4. **Regression model of predictors of parental burnout (PBM-12) of mothers of DHH children.**

	Beta	SE Beta	B	SE B	t	p
Satisfaction with life	-0.3534	0.0861	-1.4196	0.3457	-4.1065	<0.001*
Extraversion	-0.0478	0.0843	-0.0974	0.1716	-0.5676	0.571
Agreeableness	-0.0221	0.0755	-0.0671	0.2285	-0.2934	0.770
Emotional stability	-0.3543	0.0777	-0.9066	0.1990	-4.5564	<0.001*
Intellect/Imagination	-0.1038	0.0854	-0.2752	0.2265	-1.2152	0.227
Satisfaction with rehabilitation	0.0149	0.0788	0.0600	0.3172	0.1892	0.850

Dependent variable: parental burnout; \* Significant difference

Poland (Skarżyński et al., 2018). No doubt implantation helped improve the child's functioning, particularly in the areas of speech, language, and communication development (Quittner et al., 2016; Sharma et al., 2020); it probably also helped the psychological functioning of their parents (Kobosko et al., 2014; Yiğit, et al., 2018). However, our data on PB intensity cannot be compared to the general population of parents of typically developing children, as there are no studies on this subject using PBM-12.

No significant relationship was found between PB and the sociodemographic data of the mothers and DHH children included in this study. Similarly, PB did not correlate with any additional impairments in DHH children. This lack of correlation is similar to findings concerning mothers of children having impairments other than deafness (Sekułowicz, 2013; Kwiatkowski & Sekułowicz, 2017) – although some of these factors are significant in the general population, for example, the child's age (Mikolajczak et al., 2018; Szczygieł et al., 2020). The degree of the child's hearing loss was also irrelevant to PB, although the number of CIs was significant at the level of a statistical trend – mothers of DHH children who had two CIs were less likely to suffer from PB.

We found that lower PB was correlated with higher maternal satisfaction with their child's hearing and speech rehabilitation; in other words, mothers who can see progress in their child's rehabilitation are less burnt out (or not burnt out at all). Earlier studies reported a statistically significant relationship between satisfaction of mothers with rehabilitation and developmental outcomes of their DHH children (Kobosko et al., 2021). This relationship can involve a feedback effect, so that mothers who function better psychologically in turn create better conditions for their children's development. For example, mothers who are more emotionally attuned to their children create an environment where their children develop a better sense of self (Kobosko & Zalewska, 2011; Stern, 1995; Zalewska, 1998).

Satisfaction with life is a component of well-being, and in mothers of DHH children, the level is similar to that of the general Polish population (Janoś-Kresło, 2017). SWL is a significant predictor and a protective factor for PB, as it also is in mothers of children with other disabilities (Sekułowicz, 2013). In mothers of autistic children, SWL is also a protective factor for relieving the burden of caregiving (Cetinbakis et al., 2020).

Mothers who are more satisfied with life are less depressed and anxious (Gigantesco et al., 2021) and, as the results of this study show, also less inclined to be burnt out. This finding corresponds with the results of other studies using PBM-12 (Sekułowicz, 2013) or other tools (Aktan et al., 2021; Çalışkan et al., 2021; Szczygieł et al., 2020). Previous studies show that SWL also correlates with social support and dyadic adjustment of the parents (Cetinbakis et al., 2020). Thus, the results of the present study give an indication of how best to target parental support interventions (MacKenzie & Eack, 2021): the focus should be on psychological counseling, psychotherapy of the marital relationship (Kobosko, 2013; Szczygieł et al., 2020; Zalewska, 1998), and the mother's ability to create and maintain a support system (Stern, 1995). All these factors are conducive to improved satisfaction with life and reduce the risk of PB.

Regarding the Big Five personality traits, mothers of DHH children score lower on all studied traits than do the general population, indirectly indicating a lower level of well-being (Bojanowska & Urbańska, 2021). Almost all the personality traits of mothers of DHH children are important, to various degrees, for coping with the risk of PB. Emotional stability and intellect/imagination are the strongest negative factors for PB risk, less so for extraversion and agreeableness. These results are somewhat different to those obtained in a study of the general Polish population, which showed that the protective personality traits for PB are higher levels of extraversion and agreeableness, and lower levels of neuroticism (Szczygieł et al., 2020). In a study on the general population of Spanish parents, the factor most strongly correlated with PB was, significantly and negatively, conscientiousness (Le Vigouroux et al., 2017), not extraversion as in this study. In the light of these results, it is possible to conclude that, for mothers of DHH children, intellect/imagination (interpreted as openness to experience) is a specific personality trait that is protective for PB. Thus, those mothers of DHH children who are cognitively active, open to experience, creative, imaginative, and have wide-ranging interests are less prone to suffer from PB (Goldberg, 1990).

However, among the Big Five, only emotional stability is a significant and predictive factor for PB in mothers of DHH children. That trait is related to excitability and emotional balance, emotional resilience, and tolerance to frustration; it is inversely correlated with depression and anxiety (Rodríguez-Ramos et al., 2021).

Posttraumatic growth of mothers of DHH children was at an average level (Juczyński & Ogińska-Bulik, 2010), indicating that in response to their child's deafness, they experienced positive changes at an average level, similar to mothers of children with other disabilities or severe health conditions (Ahmadi et al., 2021; Byra et al., 2017, 2021; Laufer & Isman, 2021). In this context, it was surprising to find no relationship between PB and PTG. In mothers of DHH children, PTG was not a preventive factor for PB, as it is in pediatric nurses (Hamama-Raz et al., 2020). A possible explanation for this result is the two-component (Janus-faced) model of PTG in which two sides of that phenomenon are distinguished: a real, constructive PTG and an illusory PTG, which operate in tandem (Zoellner & Maercker, 2006). We think it is likely that in some mothers of DHH children, illusory PTG prevails, and this is related to avoidance-coping strategies such as denial, which in the longer term are harmful to well-being and health (Livneh, 2016) and, hence detrimental to coping with PB. The relationship between PTG and PB requires further study, including clinical psychological interviews, in groups of mothers having children with various disabilities and conditions.

## CONCLUSIONS

In mothers of DHH children, SWL and the Big Five model personality traits play an essential role in PB, especially emotional stability and SWL, which were fo-

und to be predictive of PB. The psychological well-being of the mothers, in terms of avoiding PB, is also correlated with their satisfaction with progress in the hearing and speech rehabilitation of their DHH children and, as a statistical trend, with the fact whether their child has a bilateral cochlear implant. No relationship was found between PB and PTG.

Offers of help to mothers of DHH children should include various forms of psychological intervention to bolster their emotional stability – such as psychoeducation, psychological counseling, and psychotherapy. At the same time, mothers of DHH children should receive support to boost SWL and their DHH children's rehabilitation. Together, these factors are likely to be effective in countering parental burnout.

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# Robot-Mediated Interventions to Enhance Communication and Social Abilities of Children and Youth with Disabilities: a Review of the Literature

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## ABSTRACT

**Objectives:** The current paper presents a review of the literature discussing the trends in research that conducted robot-mediated interventions to enhance communication and social abilities of children and youth with disabilities. **Method:** Thirty-two dissertation or research articles published after 2000 were selected and divided into thematic categories for analysis, including participants, setting, research method, characteristics of robot-mediated interventions, roles of robots, and the results of studies. **Results:** First, the research most frequently focused on children and youth with Autism Spectrum Disorders. Second, most of the research was conducted in educational settings. Third, most research used quantitative research design, in particular a single-subject research design method was the most common. Fourth, in most of the research humanoid robots assisted the intervention, acting as an interaction partner of participants and as an instrumental medium to prompt the participants to demonstrate desirable behavior. Finally, most studies reported positive effects of robot-mediated intervention in the communication and social abilities of children and youth with disabilities. **Conclusion:** The paper provides the outcomes and limitations of robot-mediated interventions for children and youth with disabilities and the implications for future research.

**Keywords:** robot-mediated intervention, children and youth with disabilities, literature review, humanoid, communication, social ability

## INTRODUCTION

In the field of special education, the use of robots began in 1970 for the purpose of engineering to provide walking assistance for people with visual impairments and those with physical disabilities including the elderly. Among the first robots used were the walking aid robot „Sil-Bo” developed in Korea, the robot suit „HAL” in Japan, „Care-O-bit” in Germany, and „Nursebot” in the US (Kim & Song, 2012). In addition to engineering applications, robots can also be used for the purpose of assisting the education and therapy of children and youth with disabilities or motivating and promoting their participation (Kim, Lee, Shin, Kang, Kim, Choi, & Song, 2012).

Robots generally enable simple, consistent, and predictable interactions with users through systematic programming, and they also promote interactions with the users such as providing children and youth with immediate feedback (Choi, 2015). The physical appearance of robots induces children's and youth's interests and curiosity, and their audiovisual stimuli can themselves serve as rewards. Furthermore, the mobility and fluidity of the robots enable active interaction with the users, such as touching and manipulating body positions and thus, providing a sense of vitality (Choi, 2015). These characteristics of the robots were found to have positive effects on promoting social interaction and improving communication skills of children and youth with disabilities (Kim, Lee, Chang, & Bae, 2011; Kim & Shin, 2014). Moreover, robots have positively impacted children's and youth's psychological aspects, for example, children and youth who have interacted with robots recognize them as friendly objects or experience decreased anxiety (Kim & Han, 2005).

Many domestic and international research teams have developed robots for educational and therapeutic purposes of children and youth with disabilities (Choi, 2015). The „KASPAR” of the AuRoRa Project, the „Bandit” robot, and the „Keepon,” were developed abroad; and a humanoid robot named „Engkey,” initially developed for English education, and intelligent robots such as „Irobi” and „Pleo” were developed in Korea for language and communication skills, eye contact and facial expression reading skills, and social behavior of children and youth with ASD (Kim, Lee, Shin, Kang, Kim, Choi, & Song, 2012; Kim & Song, 2012; Yun et al., 2015).

Children and youth with ASD, who have appeared most often as participants in robot-related research, exhi-

bit limited, repetitive, and stereotyped behaviors, interests, and activities (Kim, Lee, Chang, & Bae, 2011). Moreover, children and youth with ASD do not appear to use or hardly use non-verbal communication behavior, such as eye contact or facial expressions, and due to lack of social communication skills—such as lack of emotional sharing with others, imitation, and joint attention skills—they can experience difficulty in social interactions (Lee & Park, 2011). Examining the research that conducted robot-mediated interventions for children and youth with disabilities, it has been reported that children and youth with ASD were not afraid of robots; rather, they seemed to feel psychologically stable from the simple and predictable behavior of the robot, as seen in the observation of children interacting well and imitating the behavior of the robot even when they were in unfamiliar contexts (Dautenhahn & Billard, 2002).

Furthermore, several studies have reported that robots appeared to play a role of social mediator in facilitating communication and social interactions among children and youth with ASD (Fachantidis et al., 2020; Kim, Lee, Chang, & Bae, 2011). For instance, Fachantidis and his colleagues (2020) conducted a robot-mediated cooperative activity program for a small group of children and youth with ASD and their peers without disabilities. It was found that children and youth with ASD showed improvement in their social skills and communication skills and a decrease in challenging behaviors, and also the peers without disabilities who participated in the intervention perceived children and youth with ASD more positively than before. These research studies show that robot-mediated intervention positively affects initiative, autonomy, preference exploration, and the formation of new methods of interaction among children and youth with ASD. It also reduces teachers' efforts to conduct behavioral modeling or to analyze the task when guiding children and youth with ASD. Accordingly, the research indicated that these interventions increased the concentration and participation rate of children and youth with disabilities and their peers who participated in the intervention by stimulating their interests and curiosity (Charron, Lewis, & Craig, 2017; Kim, Lee, Chang, & Bae, 2011).

As discussed above, the results of studies show that children and youth with ASD are more engaged in interactions with automatic and fluid robots than rigid, repetitive, and non-interactive toys and to date, numerous studies on robots for children and youth with ASD have been reported (Choi, 2015). However, considering the



importance of inclusive education settings, in which children and youth with disabilities and their peers without disabilities are integrated, robot-mediated interventions need to be applied to children and youth with diverse disabilities. According to some previous studies, robots have appeared to facilitate acquisition of communication skills including articulation, voluntary conversation, and verbal participation of children with disabilities (Silvera-Tawil, Bradford, & Roberts-Yates, 2018). In addition, there is an increasing interest in the field of socially-assistive robotics, which improves communication skills and social abilities of children with disabilities through practical social interactions with robots (Silvera-Tawil & Roberts-Yates, 2018).

Children and youth having emotional and behavioral problems, for example, can experience difficulties in social interactions with people around them and engage in behavior that is undesirable and inappropriate for the situation and their age due to various causes such as lack of social skills and performance (Kim & Shin, 2014). With regard to this, researchers have aimed to improve social skills of children and youth with disabilities and provide them with diverse learning opportunities by utilizing various functions of robots such as expressing emotions very similar to those of humans, having diverse and active interactions through mobility and fluidity, and providing immediate feedback according to the student's reaction to the robots (Kim & Shin, 2014; Shin & Kim, 2014). Moreover, a recent study examined the effectiveness of animal-type social robots (iJINI) on improving verbal and social interactions of children and youth with physical disabilities and the satisfaction of their parents with regard to the robot (Song, Kim, & Kwak, 2020).

Thus, research using robots, which until recently was only in its early stages, seems to be gradually diversifying the area of robot use, reflecting over time the different individual needs and requirements of users. In the past research, robots have been mainly used in social technology-oriented programs, but they are used increasingly more often in the areas of language, cognitive and academic skills, and behavior (Kim & Shin, 2014). As discussed above, research studies that conducted robot-mediated interventions for children and youth with disabilities are expanding further in terms of the diversity of targeted children and youth and functions of robots. The introduction and the uses of robot technology in the educational field is a strategy that can provide useful support in the education and therapy of children and

youth with diverse and complex needs, such as the areas of concentration, motivation, social abilities and repetitive learning (Choi, 2015).

In this study, we searched for and selected research that employed robots as a medium for interventions targeting communication and social abilities of children and youth with disabilities for the past 20 years, and we conducted a systematic analysis by categories. Through this, we examined the outcomes and limitations of robot-mediated interventions for children and youth with disabilities and presented the implications for future research. Moreover, this study endeavors to provide robot developers with a basis for developing functions that can be practically applied to interventions for children and youth with disabilities and to provide educational experts, who develop content for robot-mediated interventions, with a knowledge base to be considered when they develop contents and strategies for those interventions.

The research questions for this study are as follows: first, what has been the overall trend of research using robots to improve communication and social abilities of children and youth with disabilities in Korea and other countries since 2000? Second, what is the trend in research by category, especially with regard to the types and roles of robots and the main subjects of the independent variables?

## METHOD

### 1. Search strategy and the research selection process

The review is based on dissertations or research articles that conducted robotic interventions for children and youth with disabilities and were originally published between January 2000 and September 2020. The electronic databases searched were ERIC, RISS, and Google Scholar, and the keywords used to identify the articles were (a) "disability\*," "autism," "ASD," "intellectual disability\*," or "ADHD"; and (b) "robot," "artificial intelligence," and "AI." The search on Google Scholar was implemented as an initial step, and then the formal search was done in the rest of the databases, including ERIC and RISS. Looking at whether articles retrieved on Google Scholar could be selected for analysis based on the title and abstract of each article, it was found that a large number of articles were not directly related to the entered keywords and the selection criteria of this study. Accordingly, a formal search of the remaining databa-



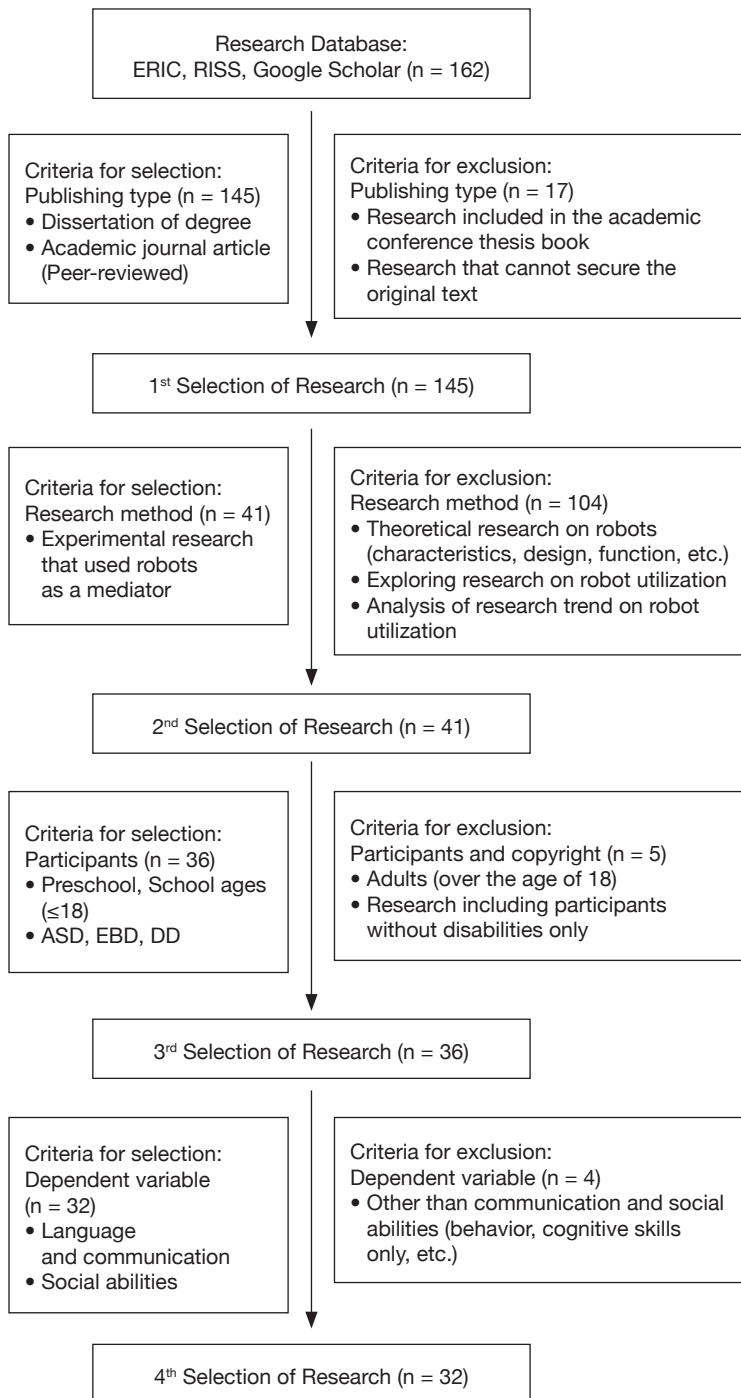


Figure 1. Procedure for selecting research to be analyzed

ses was conducted. A total of 1,384 articles were exported from the electronic database search. After reviewing the article titles and abstracts, any research articles that were not related to disability and robots were excluded, and if the dissertation was published in an academic journal, it was considered appropriate for the study. This search process yielded 162 articles. Overall, it was found that many studies were focused on communication or social abilities of children and youth with disabilities.

The following inclusion criteria were employed: (a) dissertation or academic journal articles that were published after January 2000; (b) articles on experimental studies that directly utilize robots for interventions, such as a robot leading or assisting the intervention; (c) articles on studies that include children and youth with disabilities as participants; (d) articles examining communication and/or social abilities as a dependent variable. The following exclusion criteria were employed: (a) articles published only at academic conferences and articles where the original text cannot be secured due to the lack of copyright consent; (b) theoretical studies related to robots, research on the possibility of using robots, and research on trends in using robots; and (c) articles on research using robots only for adults and children and youth without disabilities. This process resulted in 32 research articles in total for the systematic review (See Figure 1).

## 2. Analysis methodology

The selected 32 studies were analyzed by classifying them into categories such as participants, environment, types and roles of robots, types of independent variables, dependent variables, and overall research findings. In order to understand the trends of participants, age, school level, disability types, and number of participants in each study were examined. To examine the trends in the intervention settings, the study was coded as “schools”, “controlled settings such as therapy rooms”, “mixed settings including more than one place”, “home”, and “settings not specified”. In addition, the research method was analyzed by categories including a quantitative research, a qualitative research, and a mixed research design. In order to understand the current status of robot technology being used for communication and social intervention of children and youth with disabilities, the types of robots used in the intervention were coded as “a humanoid robot” and “a non-humanoid robot”, and the roles of the robots in the intervention were coded as “an intervention assistant” and “an intervention leader”. Types of interventions using robots were examined according to language,

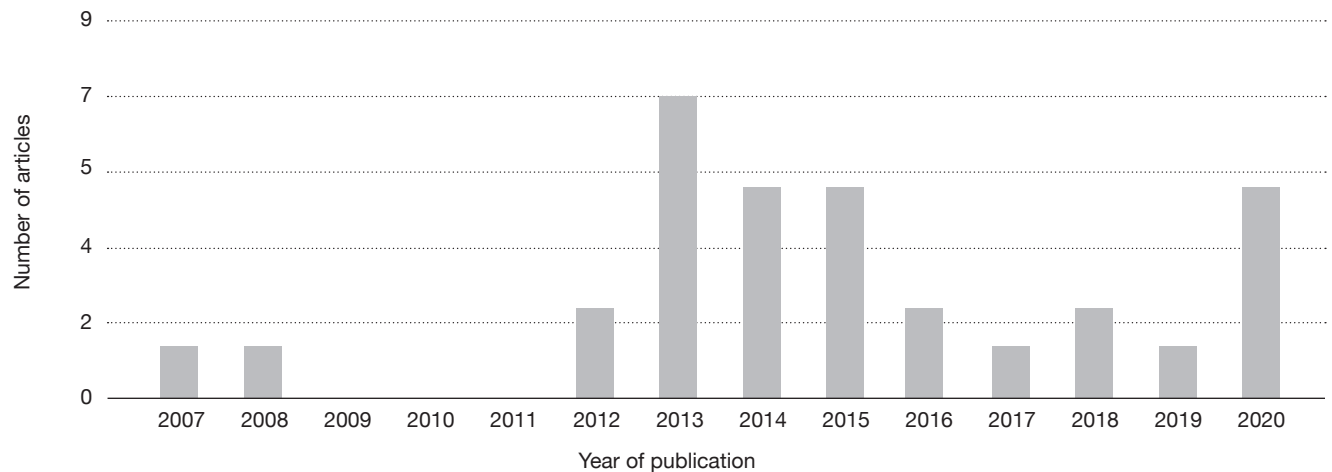


Figure 2.

Number of articles by the year of publication

academic skills, and social emotional competence. The dependent variables were coded as communication and social abilities; and social abilities were in turn subdivided into social interaction, joint attention, social interaction behavior in play, and others.

### 3. Inter-rater reliability

While there are literature review studies in which raters independently analyze studies based on variables and calculate its consistency, this study conducted an analysis based on the previous study (Fettig & Barton, 2013) that measured the inter-rater reliability in a unanimous manner through consultation. The authors developed definitions for each analysis variable and used a spreadsheet to record information from the 32 studies. The following variables were coded across 32 studies: “the participants”, “the settings”, “the types(name) of the robot” and “its roles in the intervention”, “independent variables”, “dependent variables”, and “overall outcomes”. At least two authors independently coded each study and compared the spreadsheet with each other. Disagreements were discussed until authors reached a consensus. However, such disagreement only occurred twice in determining whether the robot in two studies played an actual role in the intervention. The overall agreement between the two authors was calculated by dividing the number of agreements by the number of agreements plus disagreements. The overall agreement was 99%.

## RESULTS

Looking at the overall trend of 32 selected articles by the year of publication, the largest number of articles on

robot-mediated interventions was published in 2013, followed by five articles, each in 2014, 2015, and 2020. None of the articles published between 2009 and 2011 met the selection criteria for this study, and over the rest of the period, at least one article was published that met the selection criteria for this study (See Figure 2). The results of the analysis of 32 articles are summarized in Appendix 1.

### 1. Analysis of study by category

#### 1-1. Participants

According to the review of 32 articles, 15 studies were conducted on preschoolers, accounting for 46.9% of the total, whereas 11 studies on elementary school students accounted for 34.4%. There were five studies (15.6%) conducted on a mixture of preschoolers and elementary school students, and one study (3.1%) was conducted on middle school students.

In terms of the type of disability among the study participants, ASD was the most common among 26 studies (81.3%), followed by EBD in three studies (9.3%). In the others, there were two studies (6.3%) on developmental delay (DD) and one (3.1%) on “minimally verbal” children.

#### 1-2. Setting

The research settings were analyzed by five categories including 1) educational settings such as general education classrooms, special education classrooms, and daycare centers, 2) controlled settings such as therapy rooms and laboratories, 3) mixed settings including more than one place such as natural settings and controlled settings, 4)

home, and 5) settings not specified. Among 32 studies, 15 studies (46.9%) took place in the educational settings and 11 studies (34.4%) in therapy rooms and laboratories. Two studies (6.3%) were conducted in more than one place including daycare centers and laboratories, and only one study (3.1%) was conducted in the participants' home. Other than that, three studies (9.3%) did not specify the research settings.

### 1-3. Research method

According to the result of analysis, the most common research design was quantitative research, which was used in 27 studies (accounting for 84.4% of the total), followed by four studies (12.5%) using a qualitative research design. In addition, there was also one study (3.1%) using a mixed research design that conducted both quantitative and qualitative research. In 27 quantitative research studies, 21 studies examined the intervention effect on a single subject and six studies proving the intervention effect through comparison between the groups. Furthermore, among the experimental design methods used to prove the effect of robot-mediated intervention in single-subject research studies, the reversal design and the multi-baseline design across subjects proved the most popular, followed by the pretest-posttest control group design.

## 2. Analysis of independent variables

### 2-1. Types of robots used for intervention

The robots used in the intervention could be classified into (1) humanoid robots that have human-like facial and physical features and that can perform functions like humans, such as interactions, and (2) non-humanoid robots, including robots with animal or character shapes. Seven types of humanoid robots were used in 28 studies (87.5%), of which two types of humanoid robots were used in the studies of Yun et al. (2015) and Lee et al. (2016). Six types of non-humanoid robots were used in six studies (18.8%), of which both a humanoid robot and a non-humanoid robot were used in the study of Lee et al. (2016).

### 2-2. Types of robot-mediated interventions

The types of interventions using robots were categorized into language, academic skills, and social emotional competence, including joint attention, expression, imitation. There were seven studies using robots to develop language and academic skills of children and youth with disabilities, and 27 studies were focused on the social emotional competence area (duplicate analyzed studies included).

Among the 27 studies using robots in the social emotional competence area, nine studies focused on improving joint attention skills. It can be inferred from this that there has been an attempt to apply the method of using robots in interventions to improve the skills that children and youth with ASD, who have most often appeared in robot-related studies, have the most difficulty with.

### 2-3. Roles of robots in intervention

The roles of the robots used in the intervention was categorized into leading intervention and assisting intervention. In 15 studies (46.9% of the total), the role of "leading intervention" was given for minimizing the involvement of teachers in general and allowing the robot to lead the content for each session. Robots played a role of presenting learning content and stimuli in the process of conducting activities with children and youth or while providing responses and feedback according to the actions of children and youth. In particular, the robot-driven instruction is programmed in advance to output the input content or allow the researcher to remotely control the class while viewing the class situation through the camera built into the robot to immediately respond to children's and youth's behavior and provide a feedback (Bekele et al., 2014; Charron et al., 2017; Huskens et al., 2015; Pop et al., 2013; Yun et al., 2015; Zheng et al., 2020).

However, when the robot was used as an assistant, it was most often used as a social mediator or peer to the participants to promote the target behaviors of children and youth (eight of 17 studies). Subsequently, in another eight studies, the teacher controlled the content loaded into the robot in advance, allowing the robot to output it at the appropriate time during class, or used the robot as one of the classroom tools, such as for augmentative and alternative communication (AAC) or as a student modeling target. In addition, the robot presented quiz questions related to classroom activities and played a role in checking whether the children's answers were provided correctly (Jeong, 2015).

## 3. Analysis of dependent variables

The dependent variables of 32 articles were categorized into communication and social abilities. The results of the analysis of dependent variables are shown in Table 1. Ten studies examined the effectiveness of robot-mediated intervention in improving communication skills—such as self-directed questioning, sight word acquisition,

Table 1.

## Analysis of dependent variables

Dependent Variable	Category	Research	n
Communication	Language and Communication	Shin (2012) *, Bae et al. (2013a) *, Huskens et al. (2013), Kwon et al. (2013), Jeon (2014), Lee (2014), Han (2015), Jeong (2015), Saadatzi et al. (2018), Fachantidis et al. (2020) *	10
Social Abilities	Social interaction	Robins et al. (2007), Duquette et al. (2008), Pop et al. (2014), Bekele et al. (2014), Yun (2015), Simut et al. (2016) *, Charron et al. (2017), Kim (2018), So et al. (2019) *, Conti et al. (2020), David et al. (2020), Zheng et al. (2020)	12
	Joint attention (initiating and responding behavior)	Kim (2012), Shin (2012) *, Bae (2013) *, Kim et al. (2013) *, Kim et al. (2014), Shin et al. (2014), Lee et al. (2016) *	7
	Social interaction behavior in play	Bae (2013) *, Bae et al. (2013a) *, Bae (2013b), Kim et al. (2013) *, Lee et al. (2016) *, So et al. (2019) *	5
	Others	Shin (2012), Huskens et al. (2015), Park et al. (2015), Simut et al. (2016) *, Fachantidis et al. (2020) *, Kostrubiec et al. (2020)	7

\*Research article with duplicate analysis

and the ability to express phrases—of children and youth with disabilities through interactions with robots.

Among the selected studies, 25 studies had social abilities as a dependent variable, and these studies were categorized based on which part of the social abilities was targeted. Accordingly, social abilities were again classified into four categories, including social interaction, joint attention (initiating and responding behavior), social interaction behavior in play, and others. Most of the studies, including Duquette and her colleagues (2008), conducted robot-mediated interventions to improve the social abilities of children and youth with disabilities. Among them, most (12 studies) confirmed their effectiveness in social interactions, such as imitation, eye contact, and turn-taking skills, followed by seven studies that focused on improving initiating and responding behavior (joint attention). Five studies examined participants' social interaction behavior in play, such as the selection of play materials and diversity of play methods through interacting activities with robots. Moreover, seven studies confirmed the effectiveness of robot-mediated interventions in other subcategories of social ability, such as caregiving behavior, cooperative behavior, and task performance.

#### 4. Analysis of study results

Most of the studies reported positive effects of robot-mediated intervention in communication and social abilities. In eight out of 10 studies that conducted robot-mediated interventions related to communication, the intervention improved children's and youth's expression behavior and syntax expression, in particular it contributed to an increase in average length of story, and also promoted the

acquisition of sight words, resulting in an increase in the rate of reading words accurately and a decrease in the rate of not being able to read words within a given period of time. It also improved the vocalization of children and youth with minimal speaking, increased communication using AAC and other various communication functions, and increased the number of sentences used.

Next, most of the studies conducted robot-mediated intervention and confirmed the effectiveness of utilizing robot on enhancing social abilities of children and youth with disabilities. First, after participating in the robot-mediated intervention, children and youth's social interactions - such as imitation, eye contact, turn-taking performance, participation, selection, and so on - and initiating and responding behaviors (joint attention) increased significantly. The same was true for the use of various play methods and symbolic play-related behaviors. Furthermore, in a study that examined the effects of robot-mediated intervention by comparing the outcomes between robot-mediated intervention and human-led intervention, children's joint attention and adaptive behavior significantly increased under the robot-mediated intervention condition compared to human-led intervention. Accordingly, it appeared that the robot-mediated intervention was effective for children's social abilities, such as showing very high satisfaction in the interaction with robots (Kostrubiec et al., 2020; Pop et al., 2013).

However, some studies reported that there were no intervention effects found on children's and youth's cooperative behavior, eye contact, symbolic play-related behavior, and joint attention skills when working with their siblings without disabilities (Huskens et al., 2015;

So et al., 2019; Yun et al., 2015; Zheng et al., 2020). In some other studies, it was confirmed that robot-mediated intervention showed lower effects, when compared with the effects of using non-robot media, such as humans or computers. Also, some researchers reported that they did not see any significant effect of robot-mediated intervention by confirming that there was little difference in the outcomes of the conditions for the dependent variables (Jeong, 2015; Kwon & Kim, 2013).

## DISCUSSION

In this section, we will discuss the implications of these results for future robotic research.

First, it was found that robot-mediated intervention for children and youth with disabilities was most applied to elementary school students in terms of age and to children and youth with ASD in terms of disability types. Only one among 32 studies was conducted on secondary students with disabilities. Since intervention using robots is still in its infancy

It is considered more appropriate for elementary school students who can cover simpler content than secondary students because. However, the fact that 81.3% of the analyzed studies were conducted on children and youth with ASD seems to be the result of the research trends that continued to some extent as the previous research using robots for the intervention in children and youth with disabilities was also centered on children and youth with ASD (Diehl, Schmitt, Villano, & Crowell, 2012). Furthermore, considering the characteristics of ASD, which hinder social interactions, including eye contact with others, the fact that robot-mediated intervention is more advantageous for ASD than for any other disability appears to have contributed to this research trend. However, considering that technology, including robots, has recently been used in interventions among all age groups, it is desirable that the intervention using robots is extended to children and youth of various ages and types of disabilities (Chelvam, Zamin, & SylviaSteele, 2014; Katz, 2015).

Second, the educational settings and controlled laboratory environments were the most frequent research settings where robot was used for interventions. It is highly desirable that robot-mediated interventions were conducted in real-world educational settings. The fact that

more than a third of the selected studies conducted the interventions in controlled settings raises concern. This is not only because the laboratory is more advantageous in creating space and building facilities necessary to control and manipulate robots compared to the actual training sites but also because the laboratory is relatively easy to safely store robots and auxiliary equipment that are expensive and require careful storage. However, considering that robots are already widely used in various daily activities (e.g., robot cleaners) or human services (e.g., robot nurses), more efforts are needed to utilize it in natural environments. In order to take advantage of modern technology, including robots, in the adult lives that children and youth with disabilities will find themselves in after high school, robotic intervention programs should be devised in a natural environment, not just in a defined way for a limited time.

Third, studies that conducted robot-mediated intervention used various research methods, but the most frequently used design was a single-subject design. There were only six group comparison studies, and among them, five used a randomized controlled trial. This is because a considerable number of analyzed studies have conducted interventions in a one-on-one form with a small number of robots because it required considerable cost and manpower to produce several robots at once and apply them to a large number of children and youth. Considering that robot-mediated intervention in the special education field has not yet accumulated enough evidence to become an evidence-based practice, this trend of research design is understandable. Four out of 32 studies used qualitative research methods, mainly to observe children's and youth's reactions to robots. Although the number of studies is not extensive, it is considered encouraging to attempt to examine the effects of robot-mediated interventions in a qualitative manner, rather than relying solely on quantitative measurements. Children's and youth's reactions to the existence of robots themselves and their responses to robot-mediated interventions require an in depth qualitative consideration, and it is necessary to study how to improve the social validity of robot-mediated interventions by qualitatively exploring the perceptions of children and youth, teachers, and parents about robots used in educational practices through interviews or participatory observations.

Fourth, most of the robots used for the intervention were humanoid robots, and the representative areas were joint attention and social interaction skills. In addition,



robots led the intervention in about half of the analyzed studies, and in the other half, robots assisted the teacher. Joint attention and social interaction skills are representative difficulties of children and youth with ASD, and the most frequent interventions aimed at these areas are likely linked to the fact that children and youth with ASD were the largest number of participants in the analyzed studies. Based on the literature gathered so far, it is difficult to assess whether leading or assisting interventions prove to be more effective and efficient. Future research will need to consider how to distribute roles between robots and teachers to maximize the educational effect.

The limitations of the study are as follows: firstly, it was difficult to control the quality level of the studies because they were chosen based on the selection criteria of research that conducted interventions using robots for children and youth with disabilities. Some of the selected studies did not provide specific details, requiring analysis as it contained limited information. If robots are more actively used in the education and intervention of children and youth with disabilities in the future and more research is conducted, it is necessary to select studies based on a certain level of qualitative indicators (e.g., Gersten & Edyburn, 2007) and conduct a literature analysis. Secondly, this study did not elaborate on the technical aspects of robots because the purpose of this study was to examine the use of robots in educational settings. Robots do not think, judge, and intervene autonomously like humans but, rather, have a built-in system and intervene through external control, which includes a considerable amount of robotic engineering procedures. Although this study has not conducted such an engineering analysis, it is necessary to analyze the engineering aspects of robots used for intervention for children and youth with disabilities through transdisciplinary research with robots and artificial intelligence experts in the future.

Despite the above mentioned limitations, the present study is meaningful since the author selected studies that used robots to improve communication and social abilities of children and youth with disabilities over the last two decades to examine the effects of robots in the interventions described. Additionally, it provided a general overview to understand the trends of the interventions. Furthermore, this study examined in detail the types of robots used for interventions and their roles. It is no longer new or unfamiliar to actively utilize artificial intelligence-based technologies, including robots, for intervention and education of children and youth with disabilities. Now, our mission is to maximize the access and

efficiency of technology so that it can have a direct effect on the motivation, learning, communication, and social abilities of children and youth with disabilities. To this end, transdisciplinary research that encompasses special education, artificial intelligence, and robotics, needs to be conducted, and financial aid should be provided to enable the introduction of these advanced engineering technologies to special education setting.

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#### **DISCLOSURE STATEMENT**

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Appendix 1. Overall characteristics of research using robots for children and youth with disabilities

No	Author (Year)	Participant(s) Diagnosis/ Age range (Yr. -Mo.)/ School level/N	Setting	Robot Name/ Role	Research method	Independent variable (Name of Intervention)	Dependent variable	Results
1	Robins et al. (2007)	ASD/ns/E/3	ED	Humanoid (Robota)/IA	QN (single)	Role of a social mediator	Social interaction skills	Increased interaction with the robot
2	Duquette et al. (2008)	LF-ASD/ 4-5/ P/4	TL	Mobile Robot (Tito)/IL	QN (single)	Imitation play with a robotic and with a human mediator	Shared Focused Attention, Shared Conventions, Absence of Sharing, Other Phenomenon	<ul style="list-style-type: none"> <li>- increased shared focused attention and imitation in robot condition</li> <li>- Higher forms of shared conventions and of familiar actions in human condition</li> <li>- No group difference in absence of sharing</li> </ul>
3	Kim (2012)	ASD/ 3.58-3.83/P/2	ED	Telepresence Robot (Engkey)/IL	QL	Expressive activities through presented material via robot	Child Response: Attention, Imitation, Initiative, Expression	<ul style="list-style-type: none"> <li>- Increased attention, imitation of sounds and movements, initiation, and expression of emotions and feelings in robot condition</li> </ul>
4	Shin (2012)	ASD/ 5, 7, 9/ P & E/3	TL	Dinosaur-shaped Robotic Animal (PLEO)/IA	QN (single)	Caregiving behaviors using a social robot	Caregiving Behavior, Verbal Initiation	<ul style="list-style-type: none"> <li>- Increased caregiving behaviors and verbal initiations toward robot or regarding caregiving behavior</li> </ul>
5	Bae (2013)	ASD/ 4-5/ P/3	ED	Telepresence Robot (Engkey)/IA	Mixed 1. QL 2. QN (single)	Study 1. Interaction with a robot Study 2. Robot- based play intervention program	Study 1. Response of Child Study 2. Play Behavior, Non-play Behavior	<ul style="list-style-type: none"> <li>- Study 1. Increased expression of interest and emotions as well as active exploration</li> <li>- Study 2. Increased play behavior and non-play behavior of ASD children</li> </ul>
6	Bae et al. (2013a)	ASD/ 4-5/ P/3	ED	Telepresence Robot (Engkey)/IA	QL	Musical activities with robots	Intention Expression/ Exchange Behavior	<ul style="list-style-type: none"> <li>- Increased behavior of expressing intention and behavior of exchanging intention</li> </ul>
7	Bae et al. (2013b)	DD/3-5/ P/3	ED	Telepresence Robot (Engkey)/IL	QL	Robot- based play intervention program	Play Behavior	<ul style="list-style-type: none"> <li>- Increased play behavior using play materials and imitation of play behavior - Increased interest in play materials and behavior of peers during play</li> </ul>
8	Huskens (2013)	ASD, ADHD -NOS, PDD -NOS/ 8-12/E/6	TL	Humanoid Robot (NAO)/IL	QN (single)	ABA-based intervention conducted by a robot	Self-initiated questions	<ul style="list-style-type: none"> <li>- Increased number of self-initiated questions for both experimental groups</li> </ul>
9	Kim et al. (2013)	DD/4-6/ P/3	M	Telepresence Robot (Engkey)/IA	QN (single)	Intervention program using robot for social behaviors and play activities	Social Behavior (Initiative, Response Behavior), Play Behavior (Selection of Play Material, Play Method, Non-play Behavior)	<ul style="list-style-type: none"> <li>- Increased social initiative, response behavior, selection of play materials, and interest in learning play method</li> <li>- Decreased non-play behavior</li> </ul>
10	Kwon et al. (2013)	ASD/8/ E/1	ED	Intelligent Robot (Irobi Home)/IA	QN (single)	Three settings (robot-mediated instruction, special education, inclusive education)	Language Environment, Verbal Interaction	<ul style="list-style-type: none"> <li>- No differences among three conditions as for language environment and verbal interactions</li> </ul>
11	Pop (2013)	ASD/ 4-9/ P & E/20 (Ex: 13, C: 7)	NS	Monster-shaped Social Robot (Probo)/IL	QN (group)	Social stories	Social Response	<ul style="list-style-type: none"> <li>- Increased independency of ASD children in exhibiting social competence</li> </ul>

12	Bekele (2014)	ASD/2.78-4.9/P/6 (C: No disabilities/2.18-4.96/P/6)	TL	Humanoid Robot (NAO)/IL	QN (group)	Closed-loop, adaptive robot-mediated system (Joint attention prompts)	Gaze directed at the administrator, Level of Prompting (PL), Target Success, Hit Frequency	<ul style="list-style-type: none"> <li>- ASD group's increased level of interest in robot trials</li> <li>- Both groups required a higher level of prompting in robot trials</li> <li>- Increased rate of success in human administrator</li> <li>- Hit frequencies were not different across conditions</li> <li>- Higher frequency of communication</li> <li>- Increased communication attempts using vocalization and AAC</li> </ul>
13	Jeon (2014)	Minimal speaking/2-6/P/4	TL	Intelligent Robot (Irobi Home)/IA	QN (single)	Humanoid-robot-assisted AAC intervention	Communication skills	<ul style="list-style-type: none"> <li>- Increased social initiating behavior and decreased challenging behavior</li> <li>- Positive response patterns of peers who did not participate in the study</li> </ul>
14	Kim et al. (2014)	EBD at risk/10-12/ E/5	ED	Telepresence Robot (Engkey)/IA	QN (single)	Social skills program using a telepresence robot	Social Initiating Behavior, Linguistic Characteristics	<ul style="list-style-type: none"> <li>- No change in the number of words spoken</li> <li>- Increased sentence length and percentage of using communication functions</li> </ul>
15	Lee (2014)	ASD/10/ E/1	ED	Intelligent Robot (Irobi Home)/IA	QN (single)	Multimedia activity utilizing an intelligent robot	Number of Words Spoken, Sentence Length, Complex Communication Function	<ul style="list-style-type: none"> <li>- Increased response to empathy and adjustment attempts and more diverse type of responsive behavior</li> </ul>
16	Shin et al. (2014)	EBD/10-11/ E/4	ED	Telepresence Robot (Engkey)/IA	QN (single)	Robot-assisted social skills program centered on virtue	Responsive Behavior to Empathy and Adjustment Attempts	<ul style="list-style-type: none"> <li>- Increased average length of stories and phrases and number of cohesive devices (diversification)</li> <li>- No change in the ratio of complex sentences</li> </ul>
17	Han (2015)	ASD+ID/12-13/ M/3	H	Intelligent Robot (Irobi Q)/IA	QN (single)	Story intervention using educational humanoid robot	Average Story Length, Average Phrase Length, Complex Sentence Ratio, Number of Cohesive Devices	<ul style="list-style-type: none"> <li>- No change in initiation of interaction and response behavior</li> <li>- increased playing together behavior (Only one pair of child-sibling)</li> </ul>
18	Huskens et al. (2015)	ASD+ADHD/5, 9, 10/ns/3; Sibling w/o disabilities/7, 10, 11/E/3	TL	Humanoid Robot (NAO)/IL	QN (group)	Robot-mediated intervention based on Lego therapy	Collaborative Behaviors (Interactions, Initiations, and Responses, Play Together)	<ul style="list-style-type: none"> <li>- Increased number of emotional words in the robot condition</li> <li>- No difference between intervention media in vocabulary diversity</li> </ul>
19	Jeong (2015)	HF-ASD/6-12/E/14 (PC 7, Robot 7)	M	Intelligent Robot (Irobi Q)/IA	QN (group)	Story intervention using media (humanoid robot vs. PC)	Expression of Emotional Vocabulary, Vocabulary Diversity	<ul style="list-style-type: none"> <li>- General education T's evaluation: Intervention was effective in three out of five elements of social competence and effective on four out of five students</li> <li>- Special education T' evaluation: Intervention was effective in all elements of social competence and effective on all students</li> </ul>
20	Park et al. (2015)	EBD/10-12/ E/5	ED	Telepresence Robot (Engkey)/IA	QN (group)	Telepresence robot-assisted social skills program	Factors of Social Competence (Based on the Evaluation of General and Special Education Teachers)	<ul style="list-style-type: none"> <li>- Increased level of interest in the robot in the beginning, but decreased with repeated sessions - Increased percentage of correct answers for reading facial expressions</li> </ul>
21	Yun et al. (2015)	ASD/4-5/ P/8	NS	Intelligent Robot (Irobi Q) & Clinical Assistant Robot (CARO)/IL	QN (single)	Robot-assisted behavioral intervention system	Eye Contact, Reading Facial Expressions	<ul style="list-style-type: none"> <li>- Increased cooperative relationship between children with disabilities and children without disabilities</li> </ul>
22	Lee et al. (2016)	ASD/4/ P/2; Peer w/o disabilities/4/ P/3	ED	Animal-shaped Robot (Genibo) & Humanoid Robot (Irobi Q)/IA	QL	Play-centered activities using an intelligent robot Interaction Behavioral	Response Between Children with and without Disabilities	

No	Author (Year)	Participant(s) Diagnosis/ Age range (Yr. -Mo.)/ School level/N	Setting	Robot Name/ Role	Research method	Independent variable (Name of Intervention)	Dependent variable	Results
23	Simut et al. (2016)	ASD/5-7/ ns/30	ED	Monster-shaped Social Robot (Probo)/IA	QN (group)	Making fruit salad	Task Performance, Social behavior, Interaction	- Increased eye contact
24	Charron et al. (2017)	ASD/8/ E/1	ED	Humanoid Robot (NAO)/IL	QN (single)	Joint attention (initiating/responding behavior)	Joint Attention Skills	- Increased initiating and responding behavior to joint attention
25	Kim (2018)	ASD/7/ P/2	ED	Telepresence Robot (Robotjiang)/IL	QN (single)	Multimedia contents for self-determination activities	Behavior (Engagement, Selection, Preference expression)	- Increased engagement in free play time - Increased behavior of selecting and expressing preferences in class
26	Saadatz et al. (2018)	ASD/6-8/ ns/3	TL	Humanoid Robot (NAO)/IA	QN (single)	Virtual Environment and Pedagogical Agent/ Sight Word Instruction	Words Read Correctly, Errors Made by the Participant	- Increased percentage of words read correctly - Decreased rate of misreading or making errors in a given word
27	So et al. (2019)	Ex: ASD/ Ave.5.06/P/12; C: ASD/ Ave.5.35/P/11	TL	Humanoid Robot (NAO)/IL	QN (group)	Robot -based play -drama intervention	Joint Attention Skills, Symbolic Play	- Increased initiating behavior to joint attention - No changes on the responding behavior to joint attention and symbolic play
28	Conti et al. (2020)	ASD/ 10.04/ ns/1	TL	Humanoid Robot (NAO)/IL	QN (single)	TEACCH	Affect Recognition	- Increased recognition of others' emotions and feelings
29	David et al. (2020)	ASD/3-5/ ns/5	TL	Humanoid Robot (NAO)/IL	QN (single)	Turn-taking task	Turn-taking Performance (Social Interaction)	- Both conditions increased turn-taking performance - Increased recognition of robot partner as being more interesting than their human partner
30	Fachantidis et al. (2020)	ASD/9/ E/1; No disabilities/ 9/E/ 21	ED	Robot Bicycle (3D „LEGO robot”)/IL	QN (single)	LEGO therapy program	Social Skills, Communication Skills, Challenging Behavior	- increased social skills, communication skills, and positive attitudes of peers without disabilities - Decreased challenging behavior
31	Kostrubiec et al. (2020)	ASD/6-10/ns/ 20 & TR/15	NS	Sphere-shaped Robot (ns)/IA	QN (group)	Requesting and turn-taking intervention	Social Skills, Robot Acceptance	- Increased level of interest and response to support and reinforcement of robot - Increased pro-social behavior in the presence of a ball (i.e., the condition without robot)
32	Zheng et al. (2020)	ASD/ Ave. 2.5/ ns/20 (Ex: 11, C: 9)	TL	Humanoid Robot (NAO)/IL	QN (group)	Robot-mediated intervention	Joint Attention Skills	- No difference between conditions

Note. P = Preschool; E = Elementary school; M = Middle school; TR = Teacher; Ex = Experiment group; C = Control group; ED = Educational settings (schools and daycare); TL = Therapy room and Laboratory; M = Mixed settings; H = Home; NS = Not specified; IA = Intervention Assistant; IL = Intervention Leader; QL = Qualitative research; QN = Quantitative research

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# Sense of Support in the Work of Early Education Teachers from Big Cities and Small Towns / Villages: Perspective of Inclusive Education Children with Disabilities in Poland

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## ABSTRACT:

Inclusive education is a challenge for educational systems around the world. The major issue affecting inclusive education is the limited support for teachers in implementing inclusive education and working with diverse students. The primary aim of this study was to define the differences in the subjective sense of professional support (institutional and non-institutional) of early education teachers from big cities and small towns/villages in Poland via the survey research method.

There is a significantly higher reported sense of support in the workplace for early education teachers from big cities compared to small towns/villages in Poland. Regarding the investigated institutional support categories, only support from trained professionals in the education of students with special educational needs (outside the didactic process) and support from other teachers (within the didactic process) was significantly different and ranked higher in teachers from big cities. For the non-institutional support categories, only support from friends and acquaintances was significantly higher in the early education teachers from big cities. Moreover, the poor network of specialist support in small towns/villages in Poland may further exacerbate the inequalities observed in the success of implementing the inclusive education idea.

**Keywords:** elementary school teacher; inclusive education;  
support in the workplace

## INTRODUCTION

The topic of support during the pandemic has gained considerable importance. It is of social interest whether the experience of global crisis caused by the SARS-CoV-2 virus will result in greater social integration, a stronger sense of unity, support, or whether it will only exacerbate the social inequalities and hence, become a threat to implementing many developmental strategies, including inclusive education.

What underpins inclusive education, as is the case with many other policies, is the idea of social fairness. According to it, it is believed that all students, regardless of their capabilities and developmental difficulties, have the same right to education without any formal restrictions. This moral imperative is reflected in initiatives undertaken throughout the world (UNESCO, 2005). However, understanding the concept of inclusive education differs depending on the region of the world. It continues to evolve as the implementation steps are being taken (Ruppar et al., 2018). Depending on the level of inclusive actions in different countries, the main areas of chances/barriers are also identified differently.

The success of inclusive education is largely dependent on the attitude of teachers directly involved in the process. (Mittler, 2000; Avramidis & Kalyva, 2007; Jordan et al., 2009; Rakap & Kaczmarek, 2010). Teachers who have a positive approach towards inclusive education are more willing and more effective in supporting the children in the process of adaptation. Considering their capabilities and needs, teachers modify the curriculum to enable the students to master it (Buell et al. 1999). Inclusive education has no chance of success without the support of teachers (Ross-Hill, 2009). It is further highlighted by the reported importance of supportive approaches and attitudes of teachers towards the idea of inclusion (Black-Hawkins et al., 2010). Other factors, however, such as teachers' fears connected with including students with special needs in regular classes (Forlin, 2001), affect the effectiveness of inclusive education. These difficulties can be overcome by the cooperation among the teachers (Hamaidi et al., 2012; Bouillet, 2013), including exchange of the ideas, or designing actions adjusted to the needs of a child (Robinson & Buly, 2007).

Despite all the evidence of difficulties and approaches mitigating them, the main barrier remains the lack of knowledge and competencies to work with children with

special needs (SEN). Teachers from the majority of countries claim that they do not have the required competencies to work with disabled children (Westwood, 2013). They also point towards the lack of preparation on higher education levels to work in inclusive education conditions (Mitchell & Hedge, 2007). All of this relates to teachers' sense of professional support. There is no doubt that more substantial support facilitates a better, more optimistic vision of work (Lee et al., 2015). However, numerous studies also point to the connection between teachers' subjective sense of support and professional burn-out (Brudnik, 2009; González-Morales et al., 2010; Maslach et al. 2001).

The sole notion of social support is ambiguous. Social support can be perceived structurally or functionally. In the first case, either the subjective characteristics (the size of support, cohesion, accessibility) or the sources of support (family, friends, work environment) are measured (Halbesleben, 2006). Depending on the situation in which the support is being given, different factors play the leading role. Consequently, in the case of professional conditions, the support from the superiors (Russell et al., 1987) or co-workers (Burke & Greenglass, 1993) seems to be the most relevant. Instead, the functional approach focuses on the quality of support rather than the number of social interactions under challenging situations. Due to the context of social exchange, the following types of support are mostly mentioned: emotional, informative, instrumental, and financial (Cohen & Wills, 1985). These are often inter-connected (Frese, 1999). Past reports point to social support's vital role in counteracting professional burn-out (Van Dick & Wagner, 2001; Bakker et al., 2007).

The present study aims to define the differences in the subjective sense of professional support (institutional and non-institutional) of early education teachers from big cities and small towns/villages in Poland.

### **The research problems are embedded in the questions derived from the aim of the study.**

- How do the early education teachers from big cities and small towns/villages differ in the subjective sense of support in the workplace and outside of it in the perspective of inclusive education?
- How far is the workplace of early education teachers (big city – small town/village) differentiated

ting the perception of the chances of success of inclusive education of specific groups of students with special educational needs?

The results obtained will provide a valuable resource to understand the needs of teachers and some of the aspects conditioning the success of inclusive education regarding the students with SEN connected with the sense of professional support. Therefore, the results would be of the utmost importance for implementing inclusive education in Poland. It would also allow us to distinguish between acceptance and non-acceptance of inclusive education as a beneficial solution for students with SEN, including disabilities.

## METHODS

### Study participants

The study was conducted using the survey research method applied by the early education teachers of widely accessible primary schools from big cities (above 500,000) and smaller towns/villages (below 20,000). The criteria for inclusion were: the place of work of the teacher – city above 500,000 citizens or a city below 20,000 citizens/village; educational stage the teacher is working at – years I-III of primary mainstream school. The exclusion criterion was the teacher's inexperience in working with a disabled child at a mainstream school (in the school where the teacher works, the student was never a disabled child).

In the first phase, randomly selected schools were contacted from the southern, northern and central regions of Poland. Two to three schools from big cities (between six and nine schools in total) and four to six from small towns/villages (between twelve and twenty-four schools in total) were contacted from each region. Out of forty schools contacted, only 75% agreed to participate in the survey: ten schools from big cities and twenty from small cities/villages. Eighty-five early education teachers from big cities, and sixty-one early education teachers from small towns/villages were contacted. Sixty-four early education teachers from big cities and forty-six early education teachers from small towns/villages responded and partook in the study.

The study was conducted within the frames of a naturalistic paradigm (quantitative) and as an exploratory (diagnostic) research (Guba & Lincoln, 1982). The questionnaire was developed considering the specific politi-

cal and socio-cultural conditions of the education system in Poland. The systemic transformations of the 1990s were the beginning of a change not only in the political but also educational system. At that time, a new type of school appeared in Poland – the “integration school”. An integrated class consists of twenty students, including up to five people with disabilities and two teachers, one trained in providing service for students with special educational needs. However, due to the insufficient number of integration schools in relation to the needs, only a fraction of students with disabilities in Poland attended this type of school. Since 2005, as a result of legislative changes, mainstream schools have been obliged to admit students with disabilities, thus creating the “inclusive school”. However, thus far, mainstream schools in Poland lack solutions such as field teachers or student support. Therefore, in the Polish educational system, the “integration school” and the “inclusive school” are not synonymous.

The questionnaire consists of two sub-scales: 1) the sense of support at the workplace and 2) the sense of support outside of the workplace. The first sub-scale includes such categories as: didactic support of special teachers (support in terms of teaching methods, content of education, organizational forms of education adjusted to needs and possibilities of students with special educational needs – SEN); upbringing support of teachers in everyday educational classes (support related to the behaviour of students with SEN in classes and outside of them, peer relations: students with SEN and without SEN); didactic-educational support of psychologists (diagnosis of needs, didactic and educational possibilities, problem solving in peer relations); cooperation in terms of professional development on the school premises (team solving of didactic and educational problems, class observations, supervisions, developing workshops on the school premises); support of the head of school (support in solving individual didactic and educational problems of specific teachers, emotional, motivational support, support of interpersonal relations within the team, support in professional development). The second subscale is connected with support outside of the workplace and includes the support of friends/acquaintances (motivational, emotional, instrumental support); the teacher's own family (motivational, emotional, instrumental support), and the students' parents (motivational, emotional, instrumental support, cooperation). The questionnaire's theoretical and content-related accuracy is based on the research results and related to the phe-

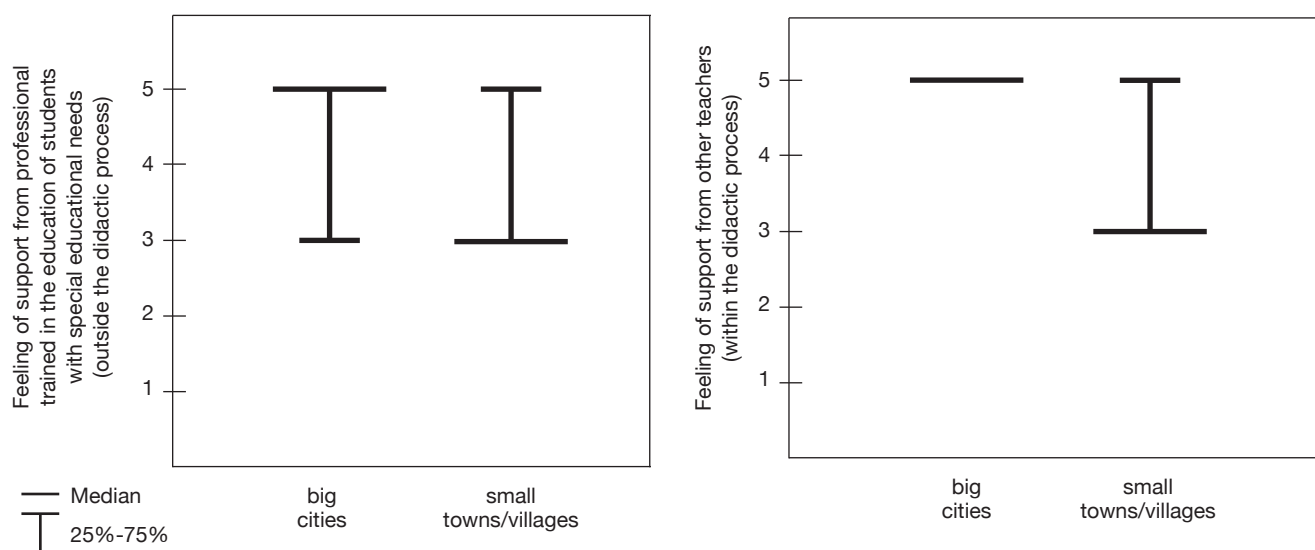


Figure 1.

**Sense of professional support (institutional support)  
– in the opinion of teachers from big cities and small towns/villages**

nomenon of professional stress or burn-out (Antoniou et al., 2000; Center & Steventon, 2001; Kyriacou & Chien, 2004; Pines, 2000). The questionnaire was constructed and verified by a team of competent judges from the Institute of Special Educational Needs, Department of Educational Studies of the University of Adam Mickiewicz in Poznan.

The subjective sense of support and personal opinion on chances of successful inclusive education in 12 groups with special educational needs were measured using a five-point Likert scale.

## THE DATA ANALYSIS

The results from Likert scales were evaluated using non-parametric methods. In order to compare the differences between the groups, the Mann-Whitney U test was

applied. The correlation between the perceived chances of introducing inclusive education for SEN students and the sense of support was investigated using Spearman correlation. For group comparisons, median, 1st and 3rd quantile were provided; for the correlations, Spearman's Rho was reported. P-values of less than 0.05 were statistically significant; correction for multiple testing was applied according to the Bonferroni-Holm method. Statistical analysis was performed in Microsoft Excel (2017) and Statistica 13.1 software.

## RESULTS

Altogether, sixty-four early education teachers from big cities and forty-six early education teachers from small towns/villages responded to the study questionnaire. We observed a significant difference in the subjective sense of support in the workplace within early education teachers

Table 1. **Selected correlations between the categories of support received by early education teachers from small towns/villages and the chances of students' groups with SEN in inclusive education**

	LID	M/SID	HH	D	VI	B	A	AS	PhD	MD	CD	ChI
teacher support in solving individual problems - headmaster	.37*	.36*	.73***	.48***	.66***	.28	.60***	.48***	.59***	.46**	.63***	.56***
support for teacher's professional development – headmaster	.37*	.25***	.70***	.51***	.64*	.31***	.49**	.39***	.53	.37*	.53***	.50***

p\* <.05, \*\* <.01, \*\*\*<.001; LID – student with low intellectual disability, M/SID – student with moderate/significant intellectual disability, HH – student with hard of hearing, D – deaf student, B – blind student, A – autistic student, AS – student with Asperger syndrome, PhD – student with physical disability, MD – student with multiple disability, CD – student with communication disability, ChI – student with chronic illness



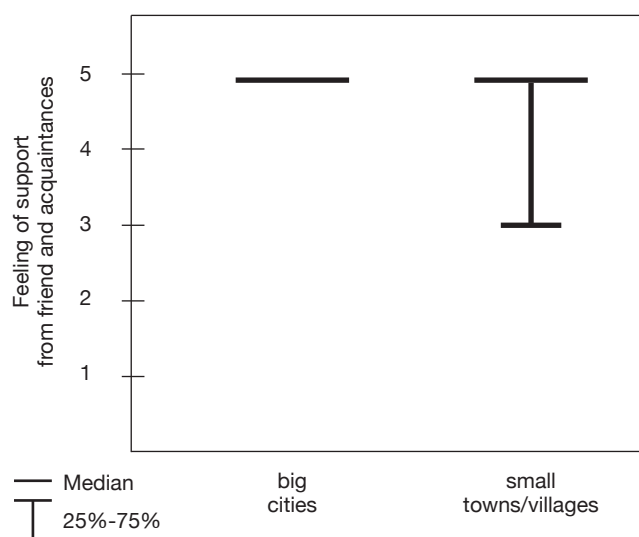


Figure 2. **A sense of professional support (non-institutional support) – in the opinion of teachers from big cities and small towns/villages**

(big cities median: 42.25%-75%: 35.5-45; small cities/villages median: 37; 25%-75%: 27-45;  $p=2.99e-2$ ). Teachers from bigger cities presented higher responses for the sense of support from professionals trained in the education of students with special educational needs (outside the didactic process) and from other teachers (within the didactic process) ( $p=6.07e-4$ ,  $7.82e-4$ , respectively).

The overall sense of support outside of the workplace was lower for small towns/villages than for big cities. However, the results did not reach significance (median: 14.25%-75%: 13-15; median: 13.25%-75%: 9-15,  $p=9.57e-2$ ). Significantly higher responses were observed only for the sense of support from friends and acquaintances ( $p=1.09e-3$ ).

The lowest sense of support in both groups was reported for the support provided by students' parents (big cities median: 4.25%-75%: 3-5; small towns/villages median: 3.25%-75%: 3-5).

The sense of support may directly or indirectly affect the teachers' perceived chances of successfully introducing inclusive education. Therefore, Spearman correlation was applied to determine the impact of self-assessment of subjective sense of support on the perceived chances of success to test these relations. Only subscales displaying significant relevance to the perceived chances of success in at least 3 SEN groups after the correction for multiple testing were presented below.

Teachers from small towns and villages presented a higher association between the sense of support from the head of school, while it was less relevant for teachers from big cities. However, in teachers from big cities, the support from special educators (didactic support and upbringing support) and psychologists' support highly influenced perceived chances of success for inclusive education.

## DISCUSSION

A relatively positive picture emerges regarding the sense of support received by the teachers in the workplace. Regardless of the support category in a workplace, its perception is higher in the group of teachers from big cities than in the group from small towns/villages (the differences are statistically important). It means that it is actually in these environments where actions are needed to intensify the support. It is quite important as in Poland, according to the data from 2018, more than 20 million (20.3 million) people live in small towns/villages which is more than 50% of the country's population. According to the General Statistical Office (GUS) the-

Table 2. **Selected correlations between the categories of support received by early education teachers from big cities and opinions about students with SEN in inclusive education**

	LID	M/SID	HH	D	VI	B	A	AS	PhD	MD	CD	ChI
Special educator – didactic support	.40**	.24	.50***	.57***	.28*	.37**	.23	.24	.36**	.35**	.28*	.39**
Special educator – upbringing support	.46***	.39**	.47***	.58***	.28*	.44***	.28*	.15	.41***	.52***	.45***	.57***
Psychologist support	.46***	.32**	.68***	.63***	.44***	.39**	.28*	.29*	.33**	.52***	.35**	.48***

$p < .05$ , \*\*  $< .01$ , \*\*\*  $< .001$ ; LID – student with low intellectual disability, M/SID – student with moderate/significant intellectual disability, HH – student with hard of hearing, D – deaf student, B – blind student, A – autistic student, AS – student with Asperger syndrome, PhD – student with physical disability, MD – student with multiple disability, CD – student with communication disability, ChI – student with chronic illness

re are about 1.419 million primary school students in cities and almost 1.239 million in villages (Education in 2017/2018, 2018, 127-128). Thus, lower sense of support received by teachers in small towns can affect their work quality and, what is more, the educational situation of over 46% of primary school students, including students of 1st - 3rd grades. The latest international research results are also worrying TIMSS-2019 (Mullis et al., 2020). The results show that the level of mathematics and science competencies of Polish students of 4th grade is visibly lower than in the year 2015. In the case of mathematics, the drop is by 15 points and in science by 16 points which, according to experts, is a significant change (Mullis et al., 2020, 17 & 88).

The results of the research show that regardless of whether the teacher works in a big city or a small town/village one of the highest indicators of sense of support refers to the support received from the head of school. Similar results were obtained in research done in China (Xu & Malinen, 2015). The authors point out that high indicators in the case of this category of support can result from the will of presenting their superiors in a positive light. Other research from this region also confirms this tendency (Wang et al., 2013).

The results reveal that Polish teachers are rather content with the support they receive (4.1 – the bottom level for the high sense of support in big cities; and 3.9 – top level for an average sense of support in small towns/villages). International research TIMSS-19 shows, however, that the sense of support in the work of Polish teachers is one of the lowest among 64 countries taking part in the research. Only 32% of Polish teachers are very satisfied with work (this is the second lowest result in the research), and as much as 18% are unsatisfied. This is definitely the highest result in comparison to all other countries (Mullis et al. 2020, 405-406).

The connections between the support categories and the evaluation of chances of respective groups of students with SEN in inclusive education show that it is the support of the head of school which constitutes a significant variable in the group of teachers from small towns/villages. On the other hand, in the case of big cities, it is the support of specialists such as special educators and psychologists. It is a result of differentiated work conditions in each of the environments. In big cities specialists working in multiple clinics, that is, psychological-pedagogical, are more easily accessible. The network of these places secures the needs of teachers and students. The

contact with specialists can be systematic, ongoing and constant. It is different in the case of small towns/villages where the contact with specialists often requires covering large distances. The possibilities are smaller in terms of ongoing help (support) in dynamically changing situations. That is why the support of the head of school as a direct superior is so valued. The teachers expect that the head of school will support them personally or will undertake a systemic action, to which he is authorized, in order to resolve difficult situations within the school. The problem of insufficient support of specialist staff supporting teachers working with SEN students is also discussed by researchers from other countries (Koutrouba et.al., 2006).

## CONCLUSIONS AND RECOMMENDATIONS

The results show that the higher the level of sense of support the bigger the chances for a positive perception of SEN students' chances in inclusive education by early education teachers. However, different aspects seem to be important for each group of teachers in the context of chances of success of the inclusive actions towards students with SEN. In the group of teachers from big cities it is the sense of support from specialists, special educators, and psychologists which exerts the biggest influence on the positive perception of the chances in inclusive education of students with SEN. In the case of teachers from small towns/villages – it is the support received from the superior (the head of school). The differentiation of the results is an effect of the research that was conducted in each of the groups. There is no doubt, however, that cooperation with different specialists, depending on the needs of the student, would be a better solution for a more effective and high-quality work. In particular, working in inclusive education settings and with a differentiated group will require support from a variety of professionals. Its character will differ, and in some cases, it will be an ongoing effort while in others, it will be more incidental depending on the students' individual needs and the level of intensity of support. Sometimes, there will be a need to support the everyday activity of the teacher and the student while in other cases, it could be limited to guidance or workshops. A lower sense of support received by the teachers from small towns/villages, with poor network of specialist support, can have negative consequences on the development and implementation of the idea of inclusive education. It needs

to be remembered that inclusive education is one of the options in Poland, the educational path is chosen by the student's parents based on, amongst other things, the conditions offered. It is possible that they may favour a specialist in integrated education over inclusion, simply because specialized support in these forms of education is legally guaranteed.

As far as recommendations are concerned, attention should be drawn to the model of education for all, currently being discussed in Poland, which provides, in addition to various support mechanisms for the teacher, the need to employ specialists, in proportion to the number of students (these specialists would include special educators, psychologists, speech therapists). If this model meets with a positive outcome of public and institution-

nal consultations, it is possible that also schools in small towns/villages will gain permanent support in the form of specialists. It is vital since, as the results of the research conducted on teachers from big cities show, this cooperation has a valid and positive impact on the perception of educational chances of students with SEN.

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# Trust is knowing that...

## The subjective meanings and senses of experience-based foundations of trust of students with intellectual disabilities

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### ABSTRACT

Trust refers to daily life facilitating factors, to social integration, to a sense of security or quality of life. So far, there have been no studies analysing the trust of students with intellectual disabilities. The analysis of trust of young persons with intellectual disabilities was not attempted. Therefore, a question was formulated: what meanings and senses do students with these disabilities assign to their experiences of the foundations of trust? The study features qualitative research interviews (in-depth and non-structured). The theoretical and empirical assumptions apply the interpretive/constructivist paradigm and phenomenological-hermeneutic perspective based on Alfred Schütz's social theory. The empirical material was obtained based on 11 interviews conducted with students with mild intellectual disabilities of 6th – 8th grades of special needs comprehensive school. The basis for trust is everyday knowledge manifested in: the knowledge about the essence of trust, knowledge of the study's participants – their skills and capabilities, the cause that leads to a specific result. Knowledge as the foundation of trust is common and non-reflective, but also authentic and dynamic, revealing ways of coping with everyday life. The meanings and senses assigned to objects, humans and relationships are not a direct representation of the social world, but they constitute in fact the way of life of the subjects.

**Keywords:** intellectual disabilities, social theory, Alfred Schütz, trust



## INTRODUCTION

Trust is recognised as one of the factors of interpersonal relations in social situations (Żółkowska, 2014). Trust is a subject of studies in the areas of various scientific disciplines: sociology, psychology, pedagogy, economics, political science, etc. It is analysed in terms of the concept, structure, bases, function and the creation of culture of trust (Sztompka, 2007). To-date research has been focused on trust of “fully able” people, without any additional attributes in the form of dysfunctions, whether psychological or physical. What is more, studies on trust of students with intellectual disabilities, including those with mild intellectual disabilities, have not been attempted.

The subject of the research was the experiences of students with intellectual disabilities and, in particular, the subjective meanings and senses assigned by them to their own experience-based foundations of trust and their experiences of culturally defined structures and practices of everyday life. Foundations of trust, whereby trust is recognised as the relationship with other people, are understood here as certain knowledge regarding a particular person whom one intends to trust. The said knowledge can either be true or false, correct or incorrect. The proper attribution of trust is more likely to increase with growing amount and variety of information about another person (Sztompka, 2007, p. 152).

## THE OBJECTIVES OF THE RESEARCH

An objective of the research was to recognize, understand and describe the subjective meanings and significance attributed by students with mild intellectual disabilities to their experiences of trust and to interpretively read the hidden meanings and significance of experiences of cultural structures and practices of everyday life of the participants of the research as sources of constructing experiences of trust (the expectations). Additionally, the study intends to point to the rules, theoretical basis of the cultural construction of the experience of trust in the tested group to specialists, parents, and others who work with persons with moderate intellectual disabilities.

The following questions have been identified: 1) What subjective meanings and senses were assigned to the experience-based foundations of trust by students with intellectual disabilities who participated in the research? 2) Which subjective meanings and senses assigned

to the structures and practices of culturally-oriented everyday reality, in which the experiences of trust occur, can be found in statements provided by the respondents?

The questions are formulated according to the interpretive/constructivist paradigm and the phenomenological-hermeneutic perspective based on the social theory by Alfred Schütz (2008), both in terms of how trust is defined, assigning meanings to the experience-based foundations of trust, as well as in terms of covering the hidden meanings and senses assigned by students to the cultural context in which their trust experiences occur. This was founded on the assumption that the creation of meanings and senses is determined by the context in which the main role is played by culturally-oriented structures and practices of everyday life, rooted in everyday reflection of society on disability, in power relations as well as the established and “the only fair” social order.

In defining the subject of the study, I assumed that the basic criterion for selecting research group was not the degree of intellectual disabilities, but the fact that a person has an intellectual disability as well as the age and social status of the participants (Borowska-Beszta, 2013). In fact, it was assumed that the subject of research is not intellectual disabilities as such, but the experiences of persons invited to the study whose denomination, way of functioning and experiences are constructed by the socio-cultural practices of everyday life. Therefore, the interpretation of the results excluded the level of intellectual development and the adaptive behaviours. (Schlallok et al., 2010)

## METHODS

### Research project

The study was conducted using qualitative research interview (unstructured in-depth interview) and participant observation (Fontana, Frey, 2009, p. 95). This was founded on the assumption that qualitative research interview is a setting where knowledge is jointly constructed by interviewer and interviewee (Kvale, 2004, pp. 60-62). The knowledge created in the interviews was set off against the empirical phenomenological-hermeneutic perspective.

The research was conducted in 2020 through professional and private contacts with people with intellectual disabilities who live in a special needs comprehensive school and with their families.

The concept of the research and the recruitment methods, research tools, and then the analysis of the research results were consulted with the Ethics Committee operating at the Polish Association for Persons with Intellectual Disability in Szczecin.

## METHODS OF RESEARCH.

### Trustworthiness and Credibility

#### Semi-structured interviews

Interview questions were general in nature, their form and content adjusted to individual capabilities. All interviews were conducted individually. Firstly, I obtained an informed consent to participation. I only interviewed persons who were interested in the subject and were willing to participate in the research. All respondents were assured about the confidentiality of their data. I also took care to ensure that there would be no consequences of participation for the respondents on the part of their parents, assistants, therapists, physiotherapists, job coaches, facility management as well as peers. The research tools and concept, and the further analysis of the results have all been consulted with the Ethics Committee at the Polish Association for Persons with Intellectual Disability in Szczecin and conforms with the Declaration of Helsinki. Personal data have been coded and changed. The only information kept was the age and the data on intellectual disabilities. Furthermore, the data on the facilities was coded and disguised, leaving only the facility type (SHCC, OTW, VDC, SWH, SH, IL) and family placement (FH, IL).

I treated respondents as subjects having their own opinions and views, persons who can describe their experiences and interpret their actions, actions of others or refer to the experiences of their social world. Upon encountering a problem of verbalising thoughts, I repeated the issues in order to be sure that both me and the topic were properly understood. In line with the hermeneutic phenomenology perspective, I attempted to have an unbiased attitude.

The answers were recorded and then transcribed. Due to the changes in the data format (Gibbs, 2011, p. 36), in order to ensure accurate and faithful interpretation, all interpretations of the transcribed data have been cross-checked with the interpretation contained in the original recording. I decided that I would neither transcribe the change of emphasis, tone of voice, or overlapping

responses, nor indicate the length of pauses, but only use dots to denote them ("...").

The answers were interpreted using a phenomenological-hermeneutical perspective based on the qualitative data analysis developed by Kvale (2004). The technique allows for such arrangement of empirical data which combines phenomenological and hermeneutic analyses. This is possible due to the fact that the sense interpretation technique allows us to go beyond the explicit meaning of the text to a more in-depth interpretation. It allows us to go beyond the literal meaning of what is said directly in order to develop structures and relationships of hidden meanings and senses.

I have based the organization of the data for analysis on various tactics of the extraction of meaning from qualitative texts (Miles, Huberman, 2000, pp. 252-253) used in the following stages: a) getting acquainted with the research material, structuring and clarifying it; b) noticing patterns of data; c) recognising similarity; d) grouping, based on utterances' meanings; e) generalizing and specifying forms, f) adopting and naming topics and then topic threads – general and then the collateral; g) searching for relations between particular threads and thematic versions – the field of their relationship constituting the resulting area of exploration.

The statements were analysed both individually and holistically. The approval and naming of topics, topic threads and thematic versions in the research material was related to the analysis in the terms of part-to-whole and whole-to-part ratios. The arrangement of empirical data was descriptive and structural. The descriptive dimension described the statements and what they concerned, i.e. the general meanings and senses assigned to the experience-based foundations of trust and the experiences of cultural structures and practices of everyday life. On the other hand, the structural dimension allowed for the identification of the structure of data patterns as well as the relationships between particular topics, topic threads and thematic versions (Mils, Huberman, 2000). The results were verified using data triangulation obtained by qualitative research interview and participant observation. I opted for data sources' triangulation (verbal and non-verbal) (Gibbs, 2011, p.167). The accuracy of the analyses was assured by the constant comparative method (Gibbs, 2011, p.170). Reliability on qualitative research related to consistency of research results (Kvale, 2004, p.239) was achieved as a result of multiple comparisons

(Gibbs, 2011, p.175) carried out during transcription, arrangement and analysis of research material and preparation of a description. Additionally, the interpretation was based on the criterion-related validity of results.

## RESULTS

In phenomenological-hermeneutic analysis, two ways of presenting the examined reality are used. The first one includes the statements of respondents subjected to a phenomenological-hermeneutic reading and the ensuing interpretation which reveals the senses and meanings of experiences and the message hidden in the direct statements. The second one is my own reading of meanings and senses contained in the statements, and my interpretation of these meanings.

*Trust means knowing that ... will help ... will not deceive ... will never cheat*

Considering the complexity of trust and that it is the trust of adults with intellectual disabilities that is being analysed, it is appropriate to examine this concept in the colloquial language used by the respondents. Built within the semantic field of the topic: the concept of trust, the topic threads and thematic versions have been saturated with empirical data by selecting subsequent cases. Exceeding the saturation threshold, construed as theoretical saturation, occurred after a dozen or so statements. Subsequent voices would duplicate information and therefore, did not enrich the existing theoretical content of the reconstruction.

The topic of the concept of trust is related to the main topic thread referred to as: trust is knowledge. This main topic thread turned out to be related to the collateral thread: the aspects of knowledge about trust, which was defined by three thematic versions reflecting various aspects of knowledge of my respondents in terms of foundations of trust.

*The aspects of knowledge about the foundations of trust by research participants*

To determine the semantic field of this main topic thread – trust is knowledge – I selected the most typical, repetitive and common content containing the propositional knowledge expressed by the words: (he/she) knows, (I) know, knowledge, (to) know. As emphasised by Marian

Przełęcki, the knowledge of the propositional content of one's own attitudes involves an attitude (which is independent of those beliefs or intentions) towards other people (public background of knowledge) and non-linguistic events and objects (Przełęcki, 1997).

The answers taking the form of trust is knowledge have revealed some specific ways of constructing senses and meanings of the experienced foundations of trust, which I recognise as a collateral thread referring to the aspects of knowledge about trust. The aspects of knowledge refer to the differences resulting from various perceptions of the "dimensions" of reality (Niżnik, 1998, p. 166).

As a result of the arrangement of empirical data, the collateral thread of aspects of knowledge about trust has been defined by three thematic versions, i.e.: trust as an aspect of knowledge about the essence of trust, trust as an aspect of knowledge on what cause is responsible for a given effect and trust as an aspect of knowledge about the research participants themselves – their talents, skills and abilities.

Among the statements belonging to the thematic version: trust as an aspect of knowledge about the essence of trust, the following were considered typical:

Arkadiusz (47, VDC/IL): It means trusting another person... knowing that one won't say anything;

Wanda (43, SHCC/FH): To know that ... the other person won't lie;

Beata (36, VDC/FH): When you know that the other person will keep a secret;

Justyna (36, FH): Not betraying ...secrets;

Dominika (25, OTW/FH): ...When I can tell them everything;

Marzena (38, VDC/FH): When one keeps someone else's secrets;

Urszula (40, VDC/FH): Only a friend can be trusted ...sad but true,

Sławomira (49, SWH): To know that they are, uh, ...attached to us;

Irena (55, SWH): To know that someone will be honest;

Mirosława (48, FH.): They will help...;

Rafał (24, OTW/FH): Someone who is, uh, ... a good person;

Weronika (37, VDC/SH): Times are difficult, and people cheat on each other, and they do other stuff;

Lucyna (41, SWH): It's like having a friend  
...whom, uh, you can trust;

Wincent (50, SHCC/FH): It's when someone  
promises you something, ...and then  
they keep their word;

Dariusz (58, FH): When you can trust some-  
one ...trust another person.

The above-mentioned thematic version included such meanings such as: trusting someone or knowing that someone. Therefore, according to the respondents, the essence of trust is the knowledge that a trustworthy person is someone who meets their expectations regarding faithfulness, honesty, protectiveness, care or responsibility, as in the example of Irena (55, SWH) who emphasised that it is important "to know that someone will be honest" and Wanda (43, SHCC /FH) who said you can trust a person who "won't lie," or in the words of Sławomira (49, SWH) indicating that we trust the people of whom we know "that they are, uh, ...attached to us."

Other versions of meanings and senses of knowledge aspects regarding the essence of trust are those that relate to the meanings assigned to knowledge or trusting something, some value, norm, principle, "the obvious" taken from the structures of the social world. Wincent (50, SHCC/FH) believes that trust is "when someone promises you something, ...and then they keep their word." For Dominika (25, OTW/FH), trust is a sense of security because when you trust people, you "can tell them everything." Others, including Beata (36, VDC /FH), stressed the importance of keeping secrets. While attempting to discover what "a secret" is, I did not receive any extended explanations. In general, my respondents would repeat the term claiming that it is about secrets or clarifying that it is about secrets/matters important to them. A good example of this will be the response from Beata (36, VDC /FH): "you know, they are secrets... and all that stuff." Only a few respondents (higher-functioning persons) indicated that secrets may concern the interest in the opposite sex or that these may be issues related to some failure in life.

Referring to the field of collateral thematic thread, the aspects of knowledge about trust, yet another thematic version can be distinguished. Statements regarding trust as an aspect of knowledge on what cause is responsible for a given effect are illustrated by the following utterances:

Danuta (47, FH): It means that you trr... trust  
someone and know that, uh, they will  
be good;

Tatiana (43, SHCC/FH): When I trust, I  
know ... someone.... will not betray  
me;

Alicja (62, FH): When you trust... she will be  
kind and good;

Iga (65, OTW/FH): It's when you agree to  
meet someone, and he says he will be there;

Konstancja (46, OTW/FH): To know that  
they.... will not tell my secrets...  
to anyone;

Magdalena (50, SWH): When you know you  
can tell... someone;

Elżbieta (30, VDC /FH): Trust is when you  
aren't afraid that... someone will do  
something to you, they are simply...  
good to you;

Bogumił (36, VDC/IL): It means that you  
can trust someone, for example, if  
someone wanted to take you to a re-  
staurant then that person ... must be  
trusted, they must be ... well ...nice,  
chatty, calm... then it's someone you  
can trust.

The above statements reflect the principles and values found by the respondents in everyday life and which, according to them, are significant for the experiences of trust to occur. In their case, these are the rules defining how to function in order to trust and be trusted. According to them, trust can be assigned only to a person who is guided by values such as: goodness, reliability, sensibility, responsibility or credibility. Based on the principle that a certain cause is responsible for a given effect, the respondents believe that trust can be bestowed only upon someone who respects the patterns and values of their world and life and exhibits appropriate behavioural traits.

In terms of behavioural traits important in the context of trust, I have encountered, among others, the following opinions in the research material: Danuta (47, FH) stresses being good, Alicja (62, FH) emphasizes being good and kind, Tatiana (43, SHCC/FH) and Konstancja (46, OTW/FH) point to honesty and keeping the word, while Bogumił (36, VDC/IL) focuses on responsibility. These characteristics indicate the importance of social patterns and standards as factors constructing their experience of trust. What is disturbing, however, is

the content of these patterns and norms, since emphasising such features as “good” and “kind” suggests that the circles of socialisation distort experiences by perpetuating categories characteristic of earlier stages of development. In other words, people who are significant to them, the representatives of social support environments – treat them as children and define them in terms of duties. Meanwhile, my respondents – as shown by their answers – reproduce such imposed social representations as known, recognised and obvious.

The above-mentioned senses and meanings of experiences are also related to the third thematic version – trust as an aspect of knowledge about the research participants themselves – their talents, skills and abilities. As presented above, the respondents efficiently mastered both reading and expressing the principles of everyday life regarding values and behaviours of people who can be trusted. The knowledge of these properties also allows to recognise their own capabilities that make others trust them.

Excerpt from an interview with Maciej (33, VDC, FH)

T.: Do you trust yourself?

Maciej: I do.

T.: Why?

Maciej: I put books... I put everything into a drawer;

Maciej: I am dressed, clean sweater on my own, put pants on, clean;

T. Why can you be trusted?

Maciej: good... smart... likeable, punctual, I listen, don't shout,

The position presented above seems to indicate that my respondent knows and acknowledges the characteristics that make one trustworthy. He/she emphasises the importance of proper behaviour, obedience, but also kindness, politeness, being helpful to others. He/she reads and applies patterns and rules defining his social existence, principles imposed by cultural structures and practices prevalent in culture and power relations. By revealing the subjective senses and meanings of experience, it can be argued that the study participants acknowledged the „silent” rules of social functioning. The power of the dominant discourse, which portrays disability as an object requiring constant care and supervision, seems to introduce and induce my respondent to internalize and apply a system of socially accepted norms, principles and rules of everyday life.

## DISCUSSION AND CONCLUSIONS

To conclude, it can be argued that the above-presented readings of senses and meanings included in the three versions of the collateral aspect of knowledge about trust seem to be rooted in everyday life. The senses and meanings of these aspects of knowledge about trust seem to come from the persons who support the respondents, whom the latter accept and have feelings for. These persons include their parents, assistants, caregivers, therapists, rehabilitators, coaches, people they live with (Cytowska, 2012, Woynarowska 2010, Krzemińska, 2012, Żyta, 2011). As the empirical material shows, the knowledge about the foundations of trust is accepted in a passive, pre-reflective way. The reason may be the respondents' high susceptibility to suggestion. It is demonstrated in the way they acquire knowledge from others due to their limited amount of experience and information to verify or establish their own position (Zasępa, 2017). Another reason may be that the knowledge adopted in their daily activities gives them a sense of security, the comfort of a peaceful, safe life.

My respondents recognise the rules that guide people in their environment and accept them as their own. The knowledge of their significant others is recognised as the only true, obvious, and undisputed one. In relation to the above, decisive voices such as that of Tadeusz, arise (49, SWH): You got to know... there is nothing to talk about... you just got to know it...

The analysis of the research material shows that the participants, just like others, build their knowledge by repeating their experiences, using the interpretations they encountered in the process of socialisation. They are faithful to the experience gained earlier.

The responses are marked by limited, unidirectional opinions. They are also filled with stereotypes of an ideal man, a person without defects, characterised only by positive features socially recognised as valuable. Meanings and senses are attributed to some superficial, undifferentiated relationships with others. When portraying an ideal man, the respondents use “ought” words, indicating what principles one should follow. Such portrayal of a person appears to be limited, unreal and deceptive as it encloses my respondents within a space of limited, schematic and socially permissible meanings and senses of experiences. The discussed way of adopting meanings and senses can be described as a hidden programme of



the world of life. In my opinion, the quoted statements reveal areas indicating a reproduction of a certain social order.

Here, I refer to a sanctioned placement of the intellectually disabled within the dominant culture as dependent and adhering to social norms and rules and requiring continuous repetition of a given social order. The personal message from the respondents clearly reflects the social meanings and senses prevalent in social consciousness and defining their social image. Considered weak and dependent, they became subordinated to social expectations and adapted to live in accordance with the rules of prevailing social order. The subjective message also reveals that they adopt the view of themselves as an object of normative interactions from the dominant culture and they submit themselves to such vision, way of thinking and addressing them. Allowing for such passivity, subordination, correction of qualities, competences or lifestyles, they passively submit to these culturally-oriented structures and practices to prove being trustworthy. Submission, passive adaptation and recognising as true of what culture has imposed on them, also shapes their identity. By emphasising the importance of such qualities as being good, kind and obedient, they construct their identities based on the senses they adapt from their significant others in their life. By internalising the senses and meanings imposed on them, they try to adapt to their world of life. However, as argued above, adaptation may also be negative. It can be expressed through passivity, submission, subordination, accepting the current circumstances imposed by the dominant culture and power relations. Power relations deny the disabled the opportunity to choose, decide for oneself, build one's own identity based on a personal view of the world and put them in an excluded position, even when one strives to fight for personal senses and meanings.

The empirical material provided descriptions of the meanings and senses of the concept of trust and enabled the identification of hidden knowledge. The respondents' knowledge is colloquial and non-reflective, but also authentic, dynamic and revealing the adopted course of actions, ways of coping with everyday life, within the network of various relations and structures of their social world. Despite a specific placement in the cultural context, my respondents remain active participants in everyday reality. The participants perceive this reality through the prism of its beliefs and knowledge and act in accordance with said beliefs about the laws, principles

and rules of such reality. In this way, these persons construct their world – an understandable and safe everyday life. The meanings assigned to objects, humans and relationships are neither external to the social world, nor are they a direct representation of that world, but they are the way of life of the respondents.

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