

# Teachers' Professional Training Needs and Incoherent Knowledge on Autism Spectrum Disorder. A Pilot Study Within the Central Europe Context<sup>1</sup>

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Autism Spectrum Disorder (ASD) is a serious neurodevelopmental disorder manifested in both social and behavioural symptoms. Essential knowledge about ASD is the basis of effective interaction, treatment and therapy. School teachers are required to have adequate knowledge about ASD so that early intervention and effective school treatment can be provided. In the presented study, a Polish and Ukrainian version of a five-degree Likert rating scale on knowledge about autism was used. The scale, developed by an international ASD-EAST project team, contains statements about autism characteristics, therapy methods and teachers' training needs. Randomly sampled participants were Polish (N=90) and Ukrainian (N=60) teachers from mainstream and inclusive schools. Results showed that teachers' knowledge as well as teachers' training needs differed depending on the country of origin. Ukrainian teachers compared to Polish significantly more often reported the need to participate in additional training, however, they were much less willing to work under supervision.

**KEYWORDS:** Autism Spectrum Disorder, inclusive education, teachers' knowledge, teachers' training needs.

## Introduction

ASD<sup>2</sup> is a very serious neurodevelopmental disorder, the symptoms of which are manifested in both social and behavioural communication, including perception, imagination, and

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<sup>2</sup> The DSM-5 classification was chosen for this article as the core background, despite the fact that in Europe, i.e. in Poland and Ukraine, ICD-10 is used for diagnosis, and ICD-11 will be used as of 2022. Despite the significant similarity

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repetitive patterns of behaviour, all of which are described as diagnostic criteria in DSM-5 (American Psychiatric Association, 2013). This disorder is caused by various harmful factors influencing the central nervous system (CNS) during the prenatal and/or early childhood stages of life. This is the stage in a child's development that is the most vulnerable to adverse effects. Essential knowledge for specialists of various professions includes the etiological factors and characteristic behavioural symptoms of autism, as well as effective ways of interaction. Healthcare workers (e.g. family doctors and paediatricians, psychiatrists, psychologists) are required to have adequate knowledge of the behavioural and health problems of people with ASD so that early diagnosis and effective treatment can be provided (Eseigbe et al., 2015; Austriaco et al., 2019) and emergency aid granted (Bandurska et al., 2017). Knowledge of ASD is also essential for teachers to perform their educational and didactic duties and to provide psycho-pedagogical assistance, which is in accordance with Polish regulations<sup>3</sup> and the UN Convention on the Rights of Persons with Disabilities<sup>4</sup> (ratified by Poland in 2012 and by Ukraine in 2010). This means that both Ukraine and Poland have adopted a number of important legal acts to improve disability policies, and to promote the rights of persons with disabilities to independence, social integration and full participation in the life of society without any discrimination. In practice, this law is extended to all students in mainstream district schools in full integration with the local community, regardless of individual and diverse educational needs. Today, in Poland (Chrzanowska, 2012) and in other countries, e.g. the United States (Humphrey, 2008), students with ASD fulfil the obligation to complete compulsory education at the primary level in mainstream schools more often than in special schools, therefore the issue of preparing teachers to work with children with ASD does not only concern employees of specialist centres and special schools, but also a wide range of teachers working in mainstream schools.

### Teachers' Knowledge of Autism

The interest of researchers has focused mainly on understandings of the term "autism", the knowledge of its basic symptoms, etiological factors, and the dissemination of the concept of ASD among the medical profession: physicians, therapists, nurses (e.g. Suchowierska and Walczak, 2013). They also focused on school staff (pedagogues, educators, teachers), social workers and other school staff, as well as secondary school and university students (e.g. Janikowska and Rychlewska, 2010; Williams et al., 2011; Kossewska and Sarlej, 2018).

Surveys on teachers' knowledge of ASD are relatively scarce but have been conducted in many countries all over the world (e.g. in Europe, Asia, North and South America) (e.g. Alqahtani, 2012; Amin, 2015; Ayub et al., 2017; Boujut et al., 2016; Helps et al., 1999; Igwe et

between DSM-5 and ICD-11 in terms of the number of impaired areas, there are also significant differences. The DSM-5 proposes a smooth change in the intensity of symptoms, while the ICD-11 proposes a dichotomous perspective.

<sup>3</sup> Regulation of the Minister of National Education on the provision of education, socialisation and care for children and youth with disabilities, social maladjustment and the risk of social maladjustment, Warsaw, Prime Minister of Poland (Journal of Laws of 2017, item 1578). Retrieved on June 1, 2019 from <https://www.prawo.egospodarka.pl/akty/dziennik-ustaw/2017/000/1578>.

<sup>4</sup> The Convention on the Rights of Persons with Disabilities was adopted by the United Nations General Assembly on December 13, 2006. Retrieved on June 12, 2019 from <https://www.rpo.gov.pl/pl/content/konwencja-onz-o-prawach-osob-niepełnosprawnych>.

al., 2011; Liu et al., 2016; Mavropoulou and Padeliadou, 2000; Rakap et al., 2018; Riany et al., 2016; Sanz-Cervera et al., 2017; Sharbati et al., 2013; Shetty and Rai, 2014; Tarnavska, 2012).

The results of the aforementioned research conducted over the last few decades indicate that teachers' knowledge was often incomplete and sometimes reflected incorrect and false beliefs about the prevalence, etiology and characteristics of ASD (e.g. Stone and Rosenbaum, 1988; Łęczycza, 1994; Rhoades et al., 2007). The lack of knowledge about autism among teachers is still common in some countries, e.g. Indonesia, where it was found that approximately 88% of teachers had no knowledge about this issue (Febrian and Widavant, 2015); this problem also persists in Poland (Nowakowska and Pisula, 2019). Teachers' knowledge is important for the proper development, treatment and education of children with ASD, especially in the context of educating a child with ASD in an inclusive school. Knowledge of the specificities of the development of ASD children and suitable teacher strategies help to overcome learning difficulties experienced by students with ASD in school, as well as teachers' feelings of inadequacy regarding their abilities, educational achievements and social skills (Helps et al., 1999; Lane et al., 2012). At the same time, reliable knowledge of ASD helps teachers to understand the causes of difficult behaviour (Bailey et al. 1996) and has a positive impact on students' social development and school achievements due to the formulation of adequate expectations for pupils of both special and general education teachers (Rubie-Davies, 2007). It also facilitates the development of an accurate image of ASD students (Armstrong and Galloway, 1994) and positive attitudes of teachers towards the integration of students with ASD (McGregor and Campbell, 2001; Cassady, 2011). It helps teachers to develop a sense of self-efficacy so that they feel confident in their professional role, can take appropriate action (Sanini and Bosa, 2015) and are more resistant to burnout syndrome (Boujut et al., 2016; Corona et al., 2016; Jennett et al., 2003). Teachers who do not have sufficient knowledge of autism do not understand the causes of ASD student behaviour, which means that in an educational setting, they can experience strong anxiety and tension and have a low assessment of their own professional competency to cope with the difficulties experienced by ASD students (Emam and Farrell, 2009). Early adequate educational intervention has a significant impact on the long-term developmental and academic achievement of children with ASD (Rutter and Bartak, 1973; Howlin, 1998), as teachers interact closely with students to develop their social and communication skills. Due to systemic and axiological changes in the school system, teachers play an increasingly important role not only in educating students, but also in stimulating their development and therapy. It should also be stressed that teachers often present opinions that differ from those of medical professionals on the etiology and characteristics of ASD symptoms (Stone and Rosenbaum, 1988). Research conducted in England on knowledge about ASD among teachers in different types of schools, and of training needs in the etiology, diagnosis and specific characteristics of autism, shows that they are aware of their ignorance, but despite their lack of training, they can intuitively apply appropriate strategies to help children with ASD develop specific competences (Helps et al., 1999). Teachers in special schools seem to be better equipped to teach ASD students than mainstream schoolteachers due to their better level of knowledge about ASD gained during university-level education (e.g. Barned et al., 2011). However, the level of teaching knowledge at special schools is varied: at the top end is understanding regarding the characteristic features of autism, followed by the individualization of the didactic process in terms of strategies supporting development, learning, communication and social skills; the lowest level concerns the perceptual and

motor development of children with ASD (Hendricks, 2011). At the same time, both groups of teachers misidentify the causes of ASD and report the need to participate in training focused on the specificity of the functioning of students with ASD and further individualization of the educational process (Mavropoulou and Padelidi, 2000).

The development of teachers' understanding of ASD is essential to ensure the effective use of specific teaching strategies in inclusive education, which will only be effective if the teacher displays a positive attitude towards the integration of students with ASD (McGregor and Campbell, 2001) and with additional support from a teaching assistant supporting both ASD students and their typically developing peers (Humphrey and Symes, 2013). The compulsory schooling of an ASD pupil in an inclusive school requires all staff to understand the objectives (Eldara et al., 2010; Huang and Wheeler, 2007) as well as to obtain the support of their superiors (Horrocks et al., 2008). Within mainstream schools, the positive attitudes of teachers towards the inclusion of ASD students are associated with a focus on the development of social competences and cooperation skills, as from a mainstream school perspective, these are the most important skills to guarantee the educational success of a child with ASD (Lane et al., 2010; Ashburner et al., 2010). On the other hand, the emphasis in special education is on the need to meet individual and diverse needs, as special education teachers more often work with students at a lower level of functioning, and more often have to adapt strategies for reducing difficult behaviours to students' individual perceptual and communication abilities (Mavropoulou and Padelidi, 2000).

In Poland, several studies on knowledge about autism among students of various disciplines (pedagogy, psychology, medicine, pharmacology) and specialists from educational institutions (pre-school, special and mainstream schools) have been conducted (Łęczycka, 1994; Chrzanowska, 2012; Nowakowska and Pisula, 2019; Kossewska and Sarlej, 2018). The research revealed that the level of knowledge among teachers in mainstream and special education schools is unsatisfactory. Teachers still identify the mother as the cause of autism and idealize the person with ASD as an exceptionally talented or even brilliant savant. Similar opinions are expressed by students of various fields of study, which proves the persistence of stereotypes portrayed in the media and in academic education, which are not subject to verification (Chrzanowska, 2012). Thus, the results of the aforementioned research provide significant information and indicate an urgent need to improve and supplement knowledge about autism among teachers.

Overcoming stereotypes and prejudices to provide support and acceptance, especially in the immediate environment, becomes a priority when assisting people with ASD in an intercultural context, as emphasized by Yuliya Tarnavska (2012) in her pioneering research on first-year students of various fields of study (physics, mathematics, psychology) from Poland and Ukraine. Ukrainian students presented a significantly lower level of knowledge about autism in comparison to their Polish peers. Tarnavska's research (2012) inspired the implementation of a new intercultural project devoted to the analysis of knowledge about autism among Polish and Ukrainian teachers. This issue seems important for Poland, because as an EU member state, it presents the European model of education for ASD students, while Ukraine, despite the numerous political, legal and administrative changes introduced in recent years, seems to still be strongly influenced by a tendency towards segregation. The idea of inclusive education has gradually permeated the education system in Ukraine, but teachers do not yet have the appropriate knowledge and practical skills to effectively implement it in schools (Алієва, 2017; Острівська, 2012; Скрипник, 2013; Tarnavska, 2012; Хворова,

2010). The aforementioned results of research undertaken in various countries were adopted when planning the presented research.

### Methods

In the presented study, a questionnaire on knowledge about autism was developed by an international team as part of the "Autism Spectrum Disorder – Empowering and Supporting Teachers (ASD-EAST)" project implemented by the Pedagogical University of Krakow<sup>5</sup>. The questionnaire contains statements about the characteristic features of people with ASD, methods used in therapy and education for students with ASD, and the training needs of teachers in the field of autism. The questionnaire was translated into Ukrainian in order to administer this survey among teachers in Ukraine, while the Polish version prepared by the Polish team of the ASD-EAST project was used for teachers in Poland. The randomly sampled respondents were asked to indicate the extent to which they agree or disagree with questionnaire statements on a five-point Likert scale. Both language versions of the questionnaire were distributed among teachers of mainstream and special education schools with the help of school pedagogues. It took the respondents about 20 minutes to complete the questionnaire.

### Respondents

The structure of the groups being studied is shown in Table 1.

Table 1  
*Demographic structure of the studied groups*

Independent variables		Polish N=90		Ukrainian N=60	
		N	%	N	%
Gender	Male	21	23.4	10	16.7
	Female	69	76.6	50	83.3
Age	20–35	39	43.3	23	38.3
	36–50	33	36.7	30	50.0
	51–65	18	20.0	7	11.7
Residence	City	66	73.3	48	80.0
	Small town and village	24	26.7	12	20.0
Work place	Special education school	24	26.7	18	30.0
	Inclusive/ mainstream school	66	73.3	42	70.0
ASD training	None or Short course	44	48.9	45	75.0
	Long course	46	51.1	15	25.0
Experience with ASD	None < one year	29	32.2	25	41.7
	1–5 years	15	16.7	8	13.3
	>6 years	46	51.1	27	45.0

<sup>5</sup> <http://asd-east.org/>

The research tested two teacher subgroups aged 20–65, one consisting of Polish teachers (N=90, females 76.6 %, males 23.4%) and the other of Ukrainian teachers (N=60, females 83.3%, males 16.7%). Teachers from both countries worked in two sets of schools: special education (Poland 26.7%, Ukraine 30%) as well as mainstream (Poland 73.3%, Ukraine 70%). Both national subgroups were differentiated in the training received on autism, however 75% of Ukrainian teachers had no training or only a short course compared to 48.9% of Polish teachers.

### Results – Knowledge about Autism Among Teachers in Poland and Ukraine

The main objective of the study was to determine the level of knowledge about autism among teachers, depending on their country of origin. The differences in the indicators concerning the characteristics of ASD are presented in Table 2.

Table 2

*Teachers' knowledge about the characteristic features of ASD – statistically significant differences by country of origin*

Students with ASD:	Poland		Ukraine		t-test	Sig. (2-tailed)
	M	SD	M	SD		
<b>Social and communication skills</b>						
Prefer to be alone	3.5	.79	3.12	1.180	2.723	.007
Find it hard to work in a group with others	4.01	.906	3.45	.668	3.435	.001
Cannot make eye contact	4.16	.993	3.05	1.171	6.214	.000
Interpret language literally	4.16	.773	2.93	1.219	7.663	.000
Do not want friends	3.60	.946	2.78	1.209	4.630	.000
Do not understand the feelings of others	4.07	1.120	2.68	1.255	7.059	.000
<b>Sensory and repetitive behaviours</b>						
Can have challenging behaviour	4.50	.691	4.18	1.176	2.100	.037
Can have extreme sensory sensitivities (e.g. sound or vision)	4.23	.822	3.35	1.191	5.378	.000
Show repetitive behaviours (e.g. rocking, jumping, hand flapping)	4.12	.668	3.67	1.115	3.128	.002
Dislike change	4.23	.937	3.275	1.177	5.581	.000
Are aggressive	2.88	.992	2.33	.795	3.555	.001
Make inappropriate comments and interrupt in lessons	3.29	.974	2.82	1.255	2.587	.011
<b>Cognitive skills</b>						
Are good at remembering facts	3.71	.623	2.75	2.75	6.521	.000
Can have special gifts and talents	4.567	.822	4.16	1.157	2.501	.013
Can be academically successful	4.15	1.028	3.75	1.230	3.023	.003

Students with ASD:	Poland		Ukraine		t-test	Sig. (2-tailed)
	M	SD	M	SD		
<b>Benefit from:</b>						
Benefit from early medical intervention	2.32	.910	3.93	1.124	-9.078	.000
Benefit from early intervention	4.56	.732	4.37	1.025	1.969	.050
Can be cured	1.97	1.086	2.38	1.497	-3.189	.002

The results of the study showed that in comparison to teachers from Ukraine, Polish teachers identify significantly greater deficits in children with ASD. First, in the fields of sociability and communication: preference to be alone,  $t=2.72$ ,  $p<0.007$ ; difficulty in working with others,  $t=3.435$ ,  $p<0.001$ ; making eye contact,  $t=6.214$ ,  $p<0.000$ ; interpreting language literally,  $t=7.663$ ,  $p<0.000$ ; not needing to have friends,  $t=4.630$ ,  $p<0.000$ ; misunderstanding other people's feelings,  $t=7.059$ ,  $p<0.000$ . Second, in sensory and repetitive behaviours: having challenging behaviour,  $t=2.100$ ,  $p<0.037$ ; having extreme sensory sensitivities, e.g. sound and vision,  $t=5.378$ ,  $p<0.037$ ; repetitive behaviours, e.g. rocking, jumping, hand flapping,  $t=3.128$ ,  $p<0.002$ ; aversion to changes,  $t=5.581$ ,  $p<0.000$ ; aggressiveness,  $t=3.555$ ,  $p<0.001$ ; interrupting lessons and making inappropriate comments,  $t=2.587$ ,  $p<0.011$ . Third, in cognitive skills: remembering detailed facts well,  $t=6.521$ ,  $p<0.000$ ; having special abilities,  $t=2.501$ ,  $p<0.013$ ; gaining academic success,  $t=3.023$ ,  $p<0.003$ . The fourth area identified in the presented study was the effects of specific interventions and contact of children with ASD with typical mainstream classmates. Compared to their counterparts in Ukraine, Polish teachers rated the benefits of early intervention significantly higher ( $t=1.969$ ,  $p<0.05$ ), but they were also far more sceptical about the positive effects of medical intervention ( $t=-9.078$ ,  $p<0.000$ ), as well as whether children with ASD can be cured ( $t=-3.189$ ,  $p<0.002$ ).

Table 3 shows the results of research on knowledge regarding the methods used in the treatment and education of children with ASD.

Table 3

*Knowledge about the methods used in the treatment and education of children with ASD – statistically significant variations by country of origin*

I am confident in supporting children with ASD by using:	Poland		Ukraine		t-test	Sig. (2-tailed)
	M	SD	M	SD		
<b>Specific methods and strategies for ASD teaching and treatment</b>						
Applied Behaviour Analysis (ABA)	3.17	1.538	2.69	1.397	1.944	.05
Supporting the receptive communication of children with ASD	3.03	1.099	2.83	1.317	5.075	.025
Accommodating the preference to work/play alone	2.77	1.014	2.62	1.195	4.477	.035
Social Stories	2.70	1.410	1.95	1.132	3.462	.001
Picture Exchange Communication System (PECS)	2.59	1.607	1.98	1.258	2.472	.015
Special diets	1.70	1.156	1.34	.793	2.092	.038

I am confident in supporting children with ASD by using:	Poland		Ukraine		t-test	Sig. (2-tailed)
	M	SD	M	SD		
<b>General methods and strategies of teaching and treatment for children with special education needs (SEN)</b>						
Occupational Therapy	3.16	1.429	2.62	1.319	2.317	.022
Expressive (art) approaches, e.g. music, art, drama therapy	3.46	1.643	2.89	1.529	2.152	.033
Understanding the child's perspective	2.58	.989	2.92	1.279	7.877	.005
Cooperating with teachers of children with ASD	2.92	1.106	3.43	4.102	7.335	.007

With reference to specific methods used when working with children with ASD, Polish teachers were significantly more involved than their counterparts in Ukraine in the use of the following: Applied Behaviour Analysis ( $t=1.944$ ,  $p<0.05$ ); supporting receptive communication of children with ASD ( $t=5.075$ ,  $p<0.25$ ); accommodating a child's preference for working/playing alone ( $t=4.477$ ,  $p<0.35$ ); social stories ( $t=3.462$ ,  $p<0.001$ ); PECS ( $t=2.472$ ,  $p<0.015$ ); special diets ( $t=2.092$ ,  $p<0.038$ ).

Polish teachers were also more familiar and more confident with occupational therapy medical intervention ( $t= 2.317$ ,  $p<0.022$ ) and expressive (art) approaches ( $t=2.152$ ,  $p<0.033$ ). On the other hand, Ukrainian teachers were significantly more familiar and more confident than Polish teachers with general strategies for the teaching and treatment of children with SEN, such as understanding the child's perspective ( $t=7.877$ ,  $p<0.005$ ) and working in partnership with other teachers of children with ASD ( $t=7.335$ ,  $p<0.007$ ).

The research also revealed the training needs of the surveyed teachers concerning specific aspects of ASD. The significant differences identified between Polish and Ukrainian teachers are presented in Table 4.

Table 4

*Training needs of teachers on specific aspects of ASD – variation by country of origin*

Statement	Poland		Ukraine		t-test	Sig. (2-tailed)
	M	SD	M	SD		
I would benefit from receiving training about ASD	1.23	.689	1.45	.832	-2.113	.036
Theoretical information about ASD would be relevant to me	3.59	1.267	4.20	.988	-3.464	.001
Training on practical strategies would be relevant to me	4.28	1.082	4.55	.649	-1.830	n.s
Strategies appropriate to my setting would be relevant to me	4.36	.915	4.28	1.106	.864	n.s
Supervision of my work by a more experienced professional would be relevant to me	4.40	.886	3.98	1.269	3.198	.002

Statement	Poland		Ukraine		t-test	Sig. (2-tailed)
	M	SD	M	SD		
Self-experiential training would be relevant to me	4.43	.906	4.17	1.181	2.483	.014
Training on tools and resources would be relevant to me	4.34	.996	4.28	1.151	.564	ns

The surveyed teachers' training needs in the field of autism differed depending on the country of origin. Teachers from Ukraine significantly more often reported the need to participate in additional training to develop their skills in working with children with ASD ( $t=-2.113$ ,  $p<0.036$ ), and in particular they wanted to broaden their theoretical knowledge ( $t=-3.464$ ,  $p<0001$ ). However, they were much less willing to work under the supervision of a more experienced specialist in order to enrich their skills and broaden their professional experience ( $t=3.198$ ,  $p<0.002$ ) or to benefit from training using their own experiences of working with ASD students ( $t=2.483$ ,  $p<0.014$ ).

### Discussion

Almost half of the participants of the presented study (40% in Poland, 46% in Ukraine) had either no experience in teaching students with ASD or very limited experience. The other indicated problem was that very little or no training was received at university. According to these results, a considerably lower proportion of Polish and Ukrainian teachers had received additional training on ASD compared to Icelandic, North American and Greek teachers. More than half of Icelandic teachers (53.8%) had received such training in comparison to a third of Greek and North American teachers (36.4 and 31.0%, respectively) (Bjornsson et al., 2019).

Compared to Ukrainian teachers, a significantly higher proportion of Polish teachers recognized that children with ASD present more symptoms in areas such as social and communication skills as well as sensory or repetitive behaviours. This result is similar to that of Tarnavska (2012) in groups of Polish and Ukrainian university students. However, preservice teachers at a large southeastern university in Central Florida also overestimated the cognitive skills of students with ASD (Barned et al., 2011), especially their level of general knowledge or specific competence (e.g. science learning abilities). As in previous studies conducted in Poland (Chrzanowska, 2012), children with autism were often attributed with outstanding abilities and high intelligence. This perception of people with ASD is certainly fostered by the image of a savant that is popularized in mass culture (from the very famous movie *Rain Man* to more contemporary works in which the characters are often people with ASD, e.g. *The Good Doctor* or *X+Y*). This can adversely affect the situation of this group in that it contributes to inadequate social expectations as well as to problems with obtaining a proper diagnosis in comparison to people without splinter skills<sup>6</sup>. It was also surprising to see how few teachers seemed to know that cognitive skills in ASD vary, and cognitive impairment and/or intellectual disability is usually comorbid with ASD. Worldwide studies

<sup>6</sup> Splinter skills are abilities that are disconnected from their usual context and/or purpose. They are just a "splinter" or fraction of a meaningful set of skills. They may not be particularly useful in real-world situations.

show that many children with ASD present severe to profound intellectual disability. Recent statistics show that a group of people with ASD can be very diverse in terms of their intellectual level. Splinter skills are relatively rare, occurring in 5 to 15% of people with autism spectrum disorders, and may coexist with intellectual disabilities (Christensen et al., 2016; Centres for Disease Control and Prevention, 2017).

The results indicate that Polish teachers have quite good knowledge of ASD and which specific teaching methods are effective for these children; this is significantly better than their Ukrainian counterparts. However, Ukrainian teachers are more familiar with non-specific methods that are effective for students with other emotional and cognitive difficulties and disorders such as ADHD or intellectual disabilities. These methods are based on Lev Vygotski's (1971) theory of practical engagement in social learning, modelling and peer tutoring, as well as turn-taking and role-taking practice. Peer-mediated interventions, such as tutoring and peer monitoring, are also interesting strategies to stimulate the development of social competences (Hundert and Houghton, 1992; Kamps et al., 1994; Morrison et al., 2001).

However, in comparison to Polish teachers, Ukrainian teachers are more engaged in a partnership with the families of children with ASD, which is consistent with research findings (Glashan et al., 2004; Antoniuk, 2015). In relation to the difficulties experienced by teachers in teaching students with ASD in mainstream schools, the teachers found that collaboration with the parents of students with ASD is one of the areas of difficulty. Parents very often have unrealistic expectations about the role of the teacher in their child's therapy, which is a source of stress for both parties. Different expectations result, among other things, from parents' lack of understanding about the limitations of the integration of the child into the mainstream system. Many parents require specialist support for their child in a non-specialist environment, but this is very difficult to achieve in practice.

According to UNESCO's Salamanca Statement and the Framework for Action on Special Needs Education (UNESCO, 1994), mainstream and inclusive public schools are generally an appropriate place for reducing discrimination against students with special needs. Children and adolescents with special needs require easy access to public schools in a local community with their typically developing peers, where they should experience teaching methods and practical strategies tailored to their very varied special education needs. It is therefore fundamental that teachers possess accurate knowledge of ASD and the relevant, effective teaching strategies grounded in evidence-based methods. The results of the current study indicate a strong need for training when teachers are working with children diagnosed with ASD or if they are intending to be engaged in inclusive education; this is similar to the results of the study by Loiacono and Valenti (2010). Hopefully, the results of the present study indicate the most urgent areas of training in the field of ASD that are necessary in the context of the Polish-Ukrainian perspective.

## Conclusions

The study results allow us to formulate several conclusions:

1. Compared to Ukrainian teachers, a significantly higher proportion of Polish teachers recognized that children with ASD present more symptoms in areas such as social and communication skills as well as sensory or repetitive behaviours.

2. Polish teachers had better knowledge of ASD and of specific, effective teaching methods in comparison to their Ukrainian counterparts. However, Ukrainian teachers were more familiar with non-specific methods that are effective for students with other emotional and cognitive difficulties and disorders such as ADHD or intellectual disabilities.
3. Ukrainian teachers were more engaged in a partnership with the families of children with ASD in comparison to Polish teachers.
4. A strong need for training about ASD was found when teachers worked with children diagnosed with ASD or if they were intending to become engaged in inclusive education.

### Limitations of the Research

Due to the fact that the research was conducted in relatively small groups, the results obtained are not representative of all Polish and Ukrainian teachers. An additional limitation is associated with the use of a research tool with unproven psychometric properties, although the tool itself was developed as part of an international project and is used in intercultural research. It was also not possible to check potential differences in knowledge and opinions, taking into account independent variables such as gender, length of work experience, extent of contact with people with ASD, or the type of school. Further research is required to analyse teachers' knowledge about ASD in the context of these factors.

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