SURVEY – POLISH REPORT

ERASMUS+ PROGRAMME : UPSKILLING PRESERVICE TEACHERS TO SUPPORT YOUNG CHILDREN WITH AUTISM SPECTRUM DISORDER THROUGH DIGITAL SOCIAL STORIES

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INTRODUCTION

Poland has witnessed a steady and significant rise in the number of individuals diagnosed with Autism Spectrum Disorder (ASD) and Asperger's syndrome over the past decade. Within the framework of the EARLY-ASD Project, we aimed to investigate the current state of teacher training in Poland, with a particular focus on the challenges faced by in-service and pre-service teachers in using assistive technologies to support the socio-emotional development of children with ASD. Our target groups include educators working or preparing to work in Early Childhood Education (ECE) and Special Education (SE). Given the over 600% increase in ASD-related diagnoses between 2012 and 2023, and the growing number of children receiving special education certificates due to ASD, it becomes increasingly urgent to understand how the Polish educational system is preparing teachers for inclusive practices. The rapid rise in diagnoses has led to an increased demand for appropriate pedagogical strategies, specialized resources, and professional development—especially in the use of assistive technologies that can support both learning and emotional well-being in early educational settings.

SAMPLE CHARACTERISTICS

To achieve this objective, we collaboratively developed a general survey together with other members of the project team. The questionnaire was administered in Poland during February and March 2025 using Google Forms and targeted a convenience sample consisting of both current teachers and student teachers undergoing training. It was shared across multiple educational institutions throughout Poland. In total, 119 valid responses were collected, including 50 from in-service teachers and 68 from pre-service teachers, accounting for 42.4% and 57.6% of the total sample, respectively. (Figure 1)

FIGURE 1. SAMPLE COMPOSITION

in-service teachers 42%

pre-service teachers 58%
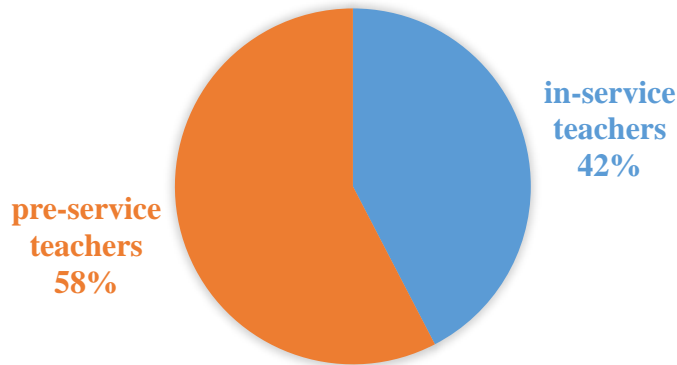
The mean age of the in-service teacher participants was 43.74 years, with ages ranging from 27 to 61. In terms of gender distribution among the in-service respondents, 98% identified as female and 2% as other.

SURVEY RESULTS

TEACHER EXPERIENCE

The majority of participating teachers are employed as Pre-School Teachers (40%), Special Education Teachers (30%), and Elementary School Teachers (22%). They work in various educational settings, including inclusive pre-schools, public and private schools, and inclusive classrooms, primarily with children between the ages of 3 and 7. Most of them (74%) teach in general education classrooms, while 20% work in inclusive classrooms, and 6% are employed in special or therapeutic settings.

On average, the participants have over 16 years of teaching experience, with more than 9 years of experience specifically working with students diagnosed with ASD. The number of children with ASD they have worked with throughout their careers varies significantly—from as few as 2 (reported by two teachers) to more than 100 (also reported by two teachers)—with an average of 33.60 children. Several respondents indicated that they have worked with so many children with ASD over the years that it is difficult to estimate a

precise number, often describing it simply as "too many." In the current academic year, the average number of students with ASD each teacher is working with is 4.5.

Among the pre-service teachers, the majority (79.4%) are between 18 and 22 years old, 16.2% fall within the 22 to 27 age range, and 4.4%—represented by a single individual—are over the age of 28. In terms of gender distribution, the sample includes 86.8% women, 8.8% men, and 4.4% identifying as other.

With regard to their level of education, 77.9% of the pre-service teachers are enrolled in Bachelor's degree programs, 20.6% are pursuing a Master's degree, and 1.5% are undertaking second-degree studies. Their areas of study include primary education (19.1%), general pedagogy (35.3%), special education (4.4%), and various other fields (41.3%).

PARTICIPANTS' TRAINING

A considerable proportion of in-service teachers (74%) reported having received training related to the social and emotional development of children with ASD. Additionally, 34% indicated that they had some training in behavioral therapy, while 50% stated they possessed some knowledge regarding the diagnosis of ASD. The majority of teachers received ASD-related training primarily through in-service programs (38%), whereas 18% had exposure to such training during both pre-service and in-service education, and 12% received it exclusively during their pre-service training.

Despite these figures reflecting a general interest and openness among teachers to engage in continued professional development in this area, it is important to note that 22% of respondents reported not having received any specific training related to ASD (Figure 2).

Figure 2. ASD-Related Training Among In-Service Teachers
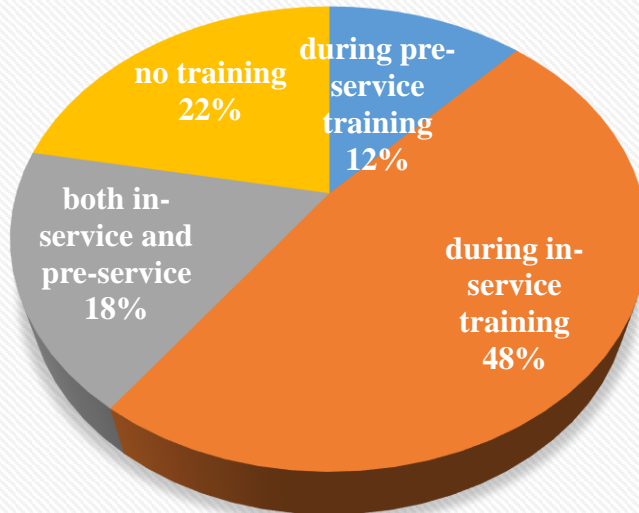
Among the pre-service teachers, 16.2% reported having had the opportunity to acquire both theoretical and practical knowledge related to working with children with ASD as part of their studies. A further 42.6% indicated receiving only theoretical instruction, while 7.4% reported gaining only practical experience. Notably, 33.8% of respondents stated they had not received any specific training focused on working with children with ASD.

Only five students—three at the Bachelor's level and two at the Master's level—reported receiving more than 100 hours of training in this area. For undergraduate students, the distribution of training hours is as follows: 76.5% received less than 10 hours, 14.7% received between 10 and 50 hours, and 1.5% received between 50 and 100 hours. This means that approximately one-third of the sample has had minimal exposure to training in this field.

The table below presents a breakdown of where pre-service teachers have received training related to various aspects of ASD:

Table 1. Training in Aspects of ASD among Pre-Service Teachers

	As a part of the university studies	University studies and courses	Additional courses	No training
Participation in courses on working with children with ASD	54.4%	5.9%	2.9%	36.8%
Attendance at courses on social and emotional development of children with ASD	58.8%	4%	1.5%	35.3%
Attendance at courses on diagnosing ASD	33.8%	2.9%	0%	63.2%

Furthermore, only 14.7% of the students reported having the opportunity to learn about strategies aimed at developing the social and emotional skills of children with ASD, whereas the vast majority (85.3%) did not receive such instruction. Figure 3 presents the percentage of students who have acquired knowledge of early intervention strategies through theoretical instruction or practical experience.

Figure 3. Acquisition of Early Intervention Strategies: Theoretical and Practical Learning Among Pre-Service Teachers
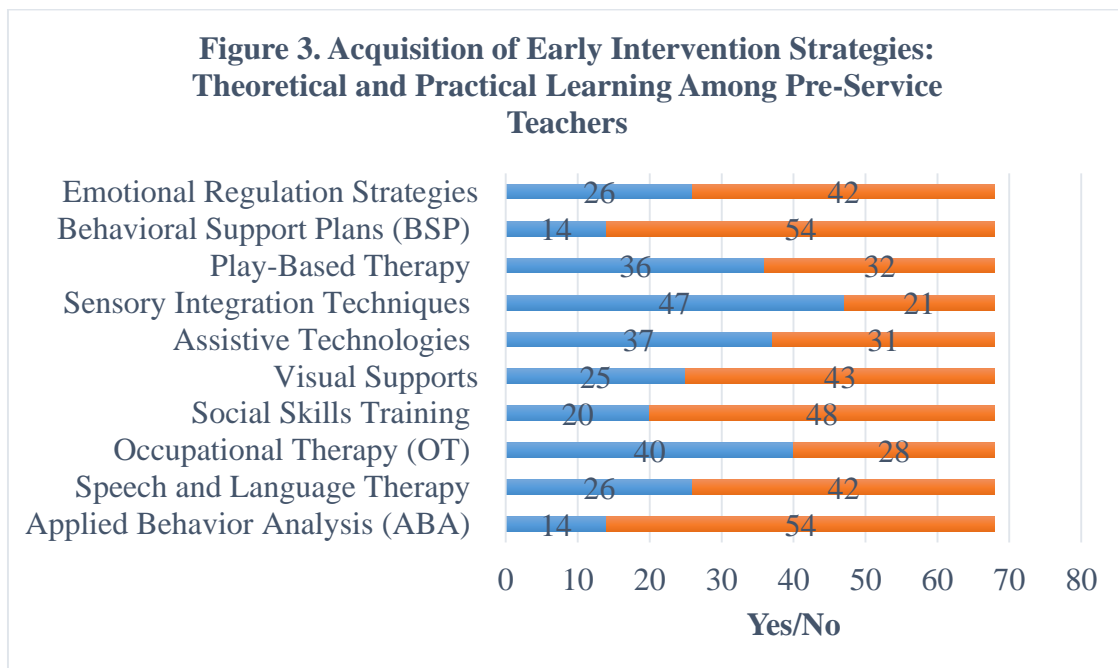
Notably low levels of familiarity were observed in evidence-based approaches such as Behavioral Support Plans (BSP) and Applied Behavior Analysis (ABA), each reported by only 20.6% of respondents, and Social Skills Training, mentioned by 29.4%. On a more positive note, a relatively higher proportion of students indicated exposure to Sensory Integration Techniques (69.1%) and Occupational Therapy (58.8%), reflecting stronger awareness in these areas.

WORKING WITH ASD / PRACTICE

The strategies most frequently employed by practising in-service teachers to meet the needs of children with ASD included Sensory Integration Techniques (94%), Behavioral Support Plans (84%), Social Skills Training (76%), and Visual Supports (76%). Occupational Therapy and Assistive Technologies were used by 62% of respondents, while Play-Based Therapy was reported by 40%. Applied Behavior Analysis, Speech and Language Therapy, and Emotional Regulation Strategies were each used by 36% of the in-service teachers.

Additionally, a small proportion of teachers (6%) mentioned implementing other approaches, such as the Krakow Method, sensory play, art-based sensory activities, hand therapy, and pedagogical conversations to support children with ASD.

Teachers described using a diverse set of strategies to foster the social and emotional development of children with ASD. These included techniques for emotion regulation, behavioral modeling, social skills training through role play, visual tools such as social stories, group activities to promote peer interaction, and direct instruction. Figure 4

presents the types of institutional support available to help teachers carry out this work.

Figure 4. Institutional support (in-service teachers)

Type of support	Yes	No
Auditory Trainings	24%	76%
Behavioral Therapy	32%	68%
Sensory Integration	72%	28%
Individual Psychological Support	96%	4%
Social Skills Training Programs	78%	22%
Occupational Therapy	56%	44%
Speech Therapy	94,00%	6%
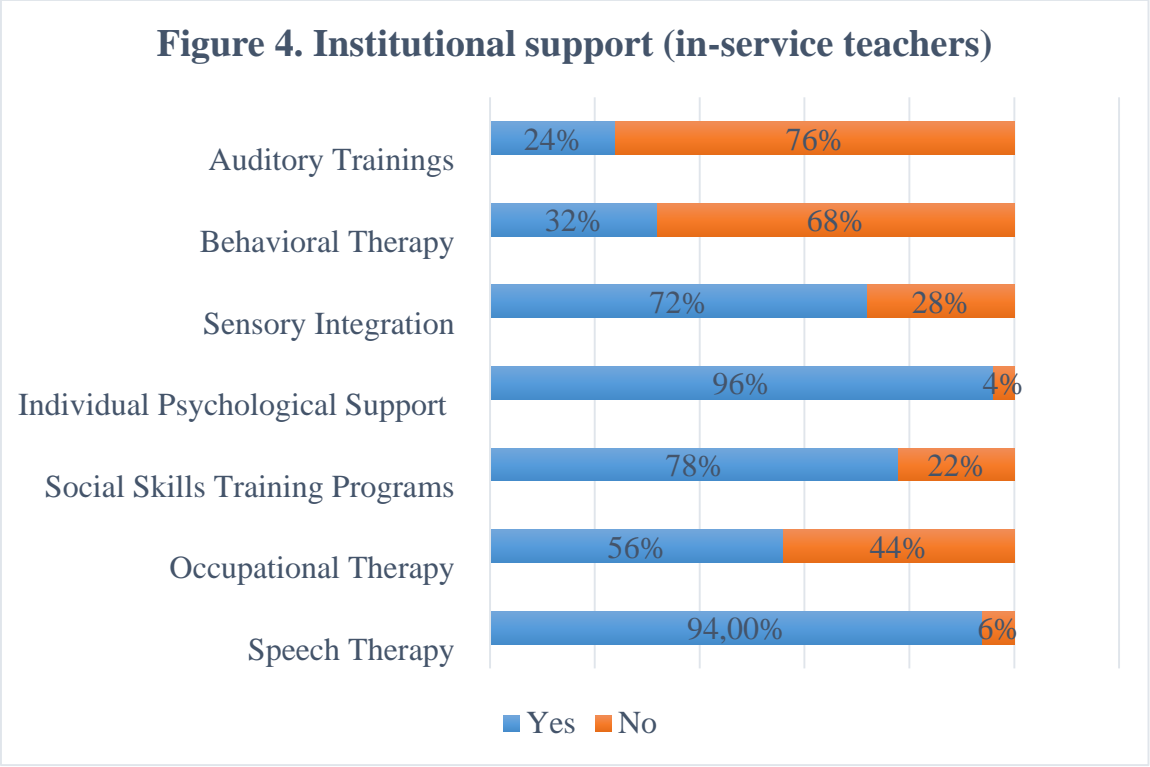
In Poland, educational institutions primarily support teachers working with children with ASD through the provision of Individual Psychological Support (96%), Speech Therapy (94%), Social Skills Training Programs (78%), and Sensory Integration services (72%). However, support for Behavioral Therapy (32%) and Auditory Training (24%) remains limited.
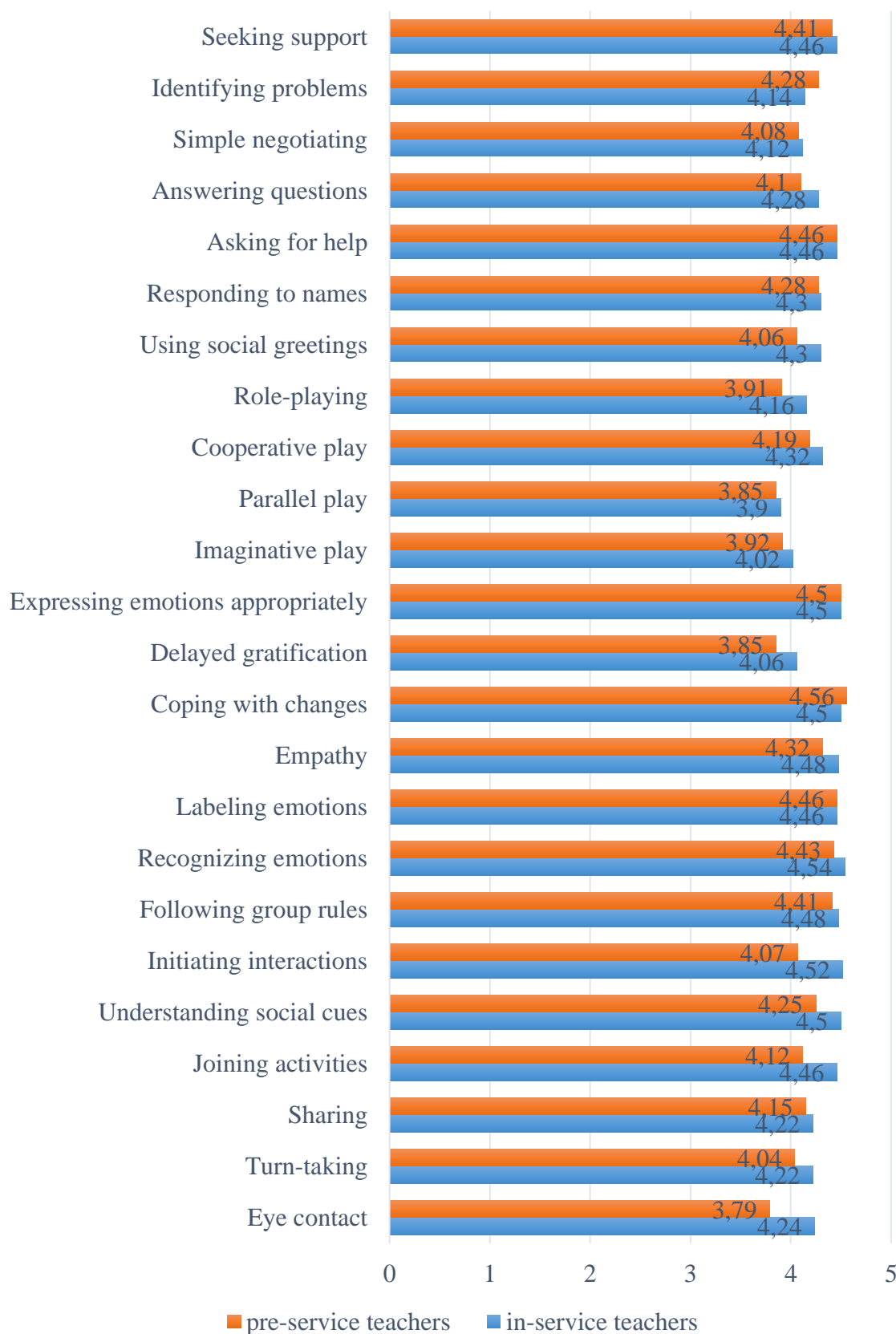
In addition to these services, schools and preschools assist teachers by offering professional development opportunities such as training sessions and workshops, supplying educational materials and tools, facilitating access to specialists and consultation services, providing both in-class and extracurricular support, and offering broader organizational and structural assistance.

Figure 5. Importance of certain skills in ASD therapy (in-service and pre-service teachers)*

Skill	pre-service teachers	in-service teachers
Seeking support	4,41	4,46
Identifying problems	4,28	4,14
Simple negotiating	4,08	4,12
Answering questions	4,1	4,28
Asking for help	4,46	4,46
Responding to names	4,28	4,3
Using social greetings	4,06	4,3
Role-playing	3,91	4,16
Cooperative play	4,19	4,32
Parallel play	3,85	3,9
Imaginative play	3,92	4,02
Expressing emotions appropriately	4,5	4,5
Delayed gratification	3,85	4,06
Coping with changes	4,56	4,5
Empathy	4,32	4,48
Labeling emotions	4,46	4,46
Recognizing emotions	4,43	4,54
Following group rules	4,41	4,48
Initiating interactions	4,07	4,52
Understanding social cues	4,25	4,5
Joining activities	4,12	4,46
Sharing	4,15	4,22
Turn-taking	4,04	4,22
Eye contact	3,79	4,24

As shown in Figure 5, in-service teachers in Poland rated most of the listed social-emotional skills as highly important for working with children with ASD, with scores ranging from 3.90 to 4.54 on a 5-point scale. The highest-rated skill among in-service teachers was "recognizing emotions" (4.54), followed closely by "initiating interactions" (4.52), "coping with changes" (4.50), and "expressing emotions appropriately" (4.50). Skills such as "parallel play" (3.90) and "imaginative play" (4.02) received relatively lower importance ratings, possibly reflecting a greater focus on direct interaction and communication-based strategies.
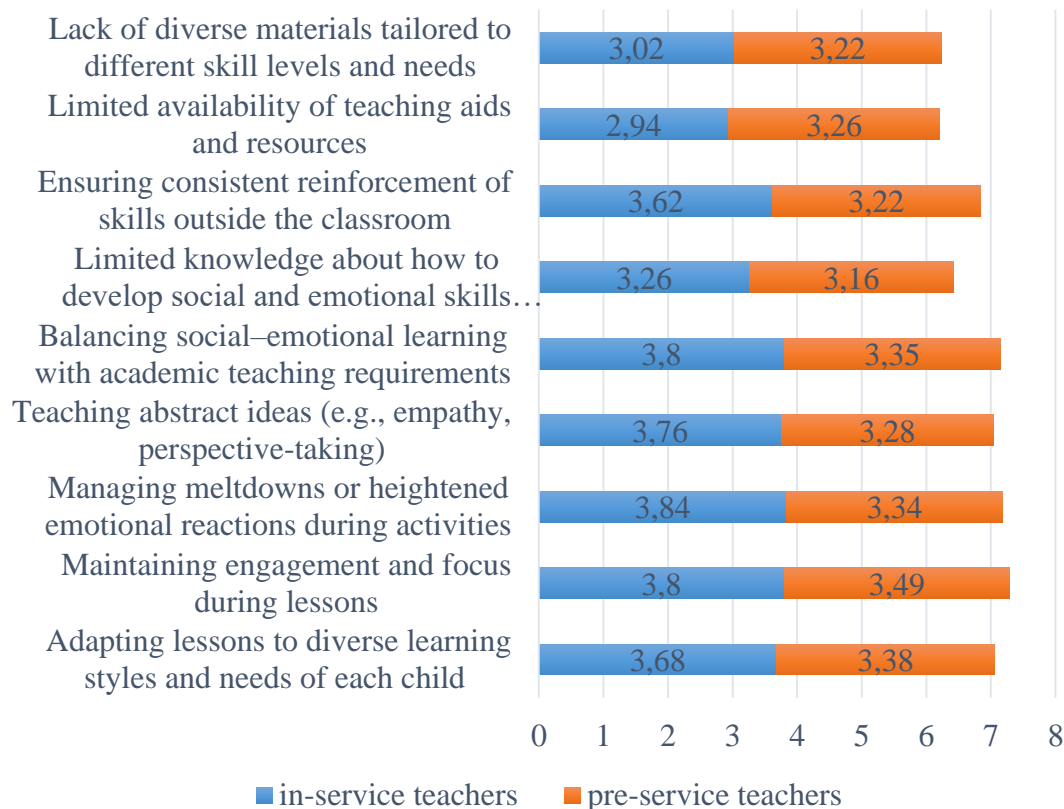
In the case of pre-service teachers, ratings were slightly more varied, ranging from 3.79 to 4.56. "Coping with changes" received the highest score (4.56), followed by "recognizing emotions" and "asking for help" (both at 4.46). Compared to in-service teachers, pre-service teachers gave slightly lower scores for most skills, especially for "eye contact" (3.79) and "role-playing" (3.91). This may suggest a more cautious or less confident evaluation of priorities, potentially linked to their limited classroom experience.

Both in-service and pre-service teachers reported facing moderate challenges in fostering social-emotional skills among children with ASD during their professional or internship experiences. Among in-service teachers, the mean difficulty ratings varied more widely, ranging from 2.94 to 3.80 on a 5-point scale. In contrast, pre-service teachers' responses were more consistent, with scores falling between 3.16 and 3.49.

For in-service teachers, the most challenging aspect was identified as "managing meltdowns or heightened emotional reactions during activities." Meanwhile, pre-service teachers most frequently struggled with "maintaining engagement and focus during lessons" and "adapting lessons to the diverse learning styles and needs of each child" (Figure 6).

Figure 6. Difficulties Faced by In-Service and Pre-Service Teachers in Fostering Social-Emotional Skills in Children with ASD

Difficulty	in-service teachers	pre-service teachers
Lack of diverse materials tailored to different skill levels and needs	3,02	3,22
Limited availability of teaching aids and resources	2,94	3,26
Ensuring consistent reinforcement of skills outside the classroom	3,62	3,22
Limited knowledge about how to develop social and emotional skills…	3,26	3,16
Balancing social–emotional learning with academic teaching requirements	3,8	3,35
Teaching abstract ideas (e.g., empathy, perspective-taking)	3,76	3,28
Managing meltdowns or heightened emotional reactions during activities	3,84	3,34
Maintaining engagement and focus during lessons	3,8	3,49
Adapting lessons to diverse learning styles and needs of each child	3,68	3,38

■ in-service teachers   ■ pre-service teachers

PARTICIPANTS PREPAREDNESS

Both in-service and pre-service teachers generally perceive their knowledge and preparedness for working with children with ASD as insufficient, with overall self-assessment scores of 3.53 and 2.37, respectively, on a 5-point scale. In both groups, the highest-rated area of training was the theoretical understanding of ASD characteristics, scoring 3.50 among in-service teachers and 3.10 among pre-service teachers.
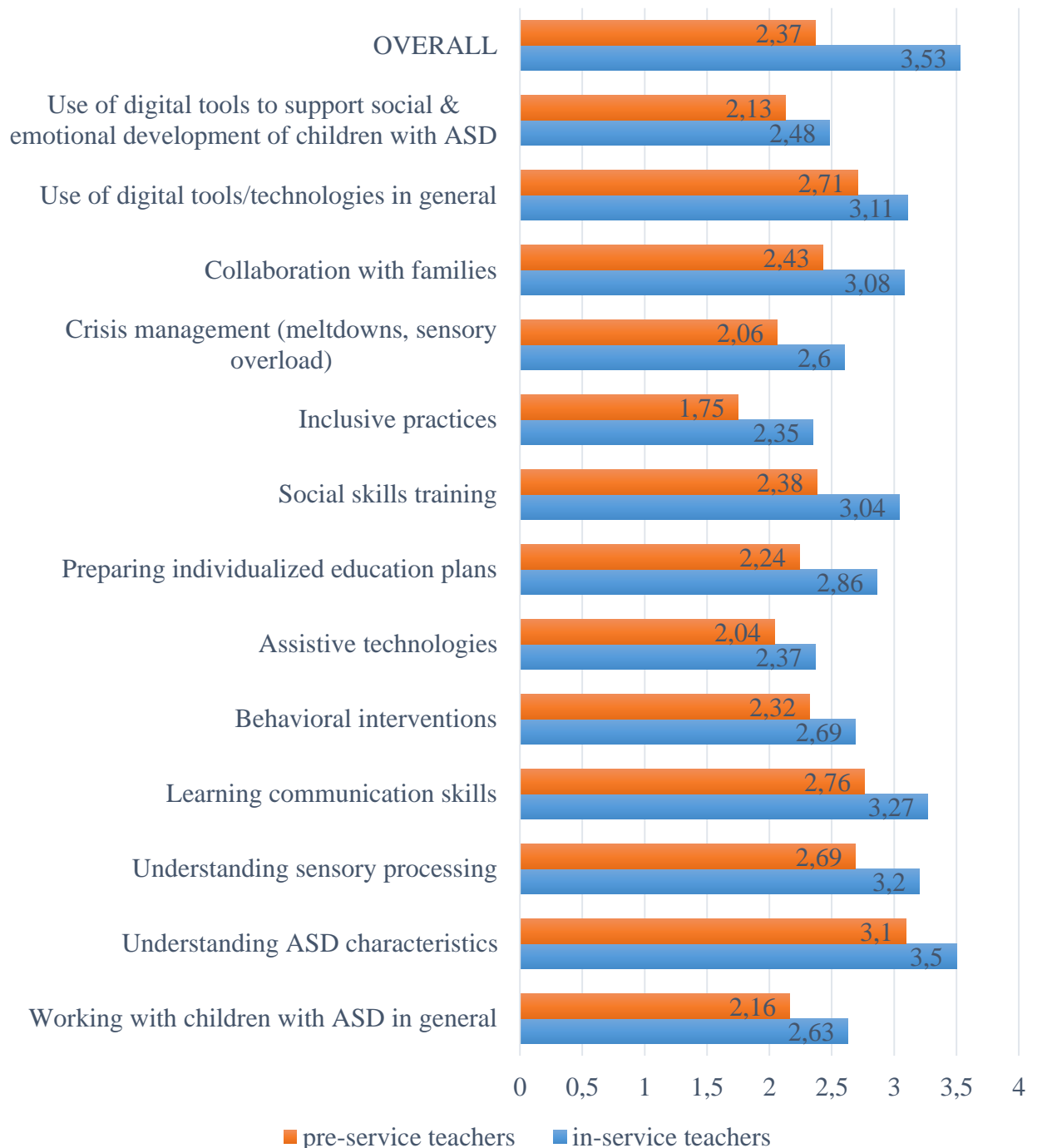
For in-service teachers, the area requiring the most development was inclusive practices, with a mean score of 2.35. Similarly, pre-service teachers identified this as their weakest area, with an even lower score of 1.75. Additionally, both groups reported low confidence

in the use of assistive technologies (2.04) and in applying digital tools to support the social and emotional development of children with ASD (2.13).

Overall, pre-service teachers rated their preparedness to work with children with ASD at just 2.16, reflecting a general sense of limited readiness. This perception appears consistent with their limited practical experience and the fact that they have not yet worked independently in the field of special education.

Figure 7. Preparation to Work with Children with ASD (In-Service and Pre-Service Teachers)

Category	pre-service teachers	in-service teachers
OVERALL	2,37	3,53
Use of digital tools to support social & emotional development of children with ASD	2,13	2,48
Use of digital tools/technologies in general	2,71	3,11
Collaboration with families	2,43	3,08
Crisis management (meltdowns, sensory overload)	2,06	2,6
Inclusive practices	1,75	2,35
Social skills training	2,38	3,04
Preparing individualized education plans	2,24	2,86
Assistive technologies	2,04	2,37
Behavioral interventions	2,32	2,69
Learning communication skills	2,76	3,27
Understanding sensory processing	2,69	3,2
Understanding ASD characteristics	3,1	3,5
Working with children with ASD in general	2,16	2,63

■ pre-service teachers ■ in-service teachers

ASSISTIVE TECHNOLOGIES - EXPERIENCE, PRACTICE AND TRAINING
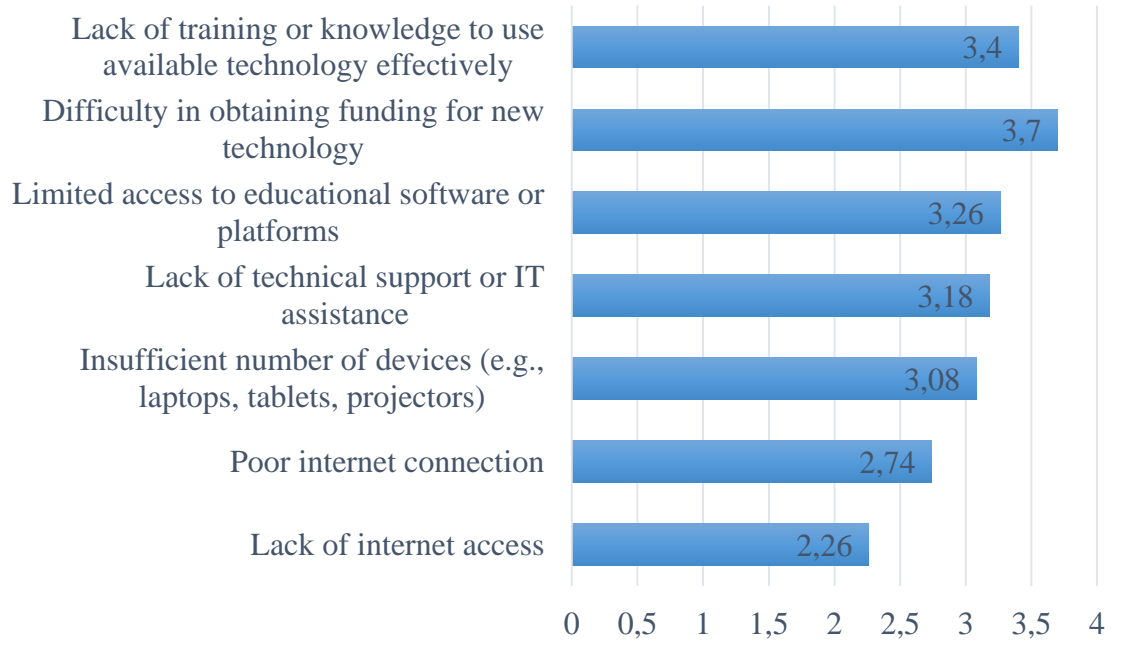
Although in-service teachers generally perceive themselves as more competent in working with children with ASD, it is important to note that 54% have not regularly used assistive technologies in early childhood education settings. The reported frequency of use is distributed as follows: 42% stated they have *never* used such technologies, 14% *rarely*, 26% *sometimes*, 18% *often*, and none reported using them *always*.

The range of assistive technologies mentioned by teachers includes: computers, tablets, interactive carpets, interactive whiteboards, educational robots, virtual reality applications, Boardmaker, Clic, Proloquo2Go, Social Story, Wordwall, Autism & Autism Plus Package, multimedia/e-exercises, Kahoot, ARASAAC, Mówik, Go Talk, Let's Talk, and other forms of alternative communication.

When asked about their comfort level in implementing digital technologies and tools in their professional practice, 10% of teachers reported feeling "very uncomfortable," while 24% felt "very comfortable." Additionally, 30% described themselves as "neutral," 18% as "uncomfortable," and 18% as "comfortable."

Figure 8. Challenges Regarding Access to Technology in the Workplace (In-Service Teachers)

Challenge	Mean Score
Lack of training or knowledge to use available technology effectively	3,4
Difficulty in obtaining funding for new technology	3,7
Limited access to educational software or platforms	3,26
Lack of technical support or IT assistance	3,18
Insufficient number of devices (e.g., laptops, tablets, projectors)	3,08
Poor internet connection	2,74
Lack of internet access	2,26

According to Figure 8, the most commonly reported challenges related to access to technology among in-service teachers were: (1) difficulty in securing funding for new technological tools (mean score: 3.70), and (2) lack of training or knowledge to effectively use the available technology (mean score: 3.40).

To explore these issues further, the survey included an open-ended question, through which teachers repeatedly emphasized several persistent obstacles: insufficient training, limited access to or availability of equipment, lack of dedicated time to focus on individual children, and limited opportunities to search for appropriate tools and learn how to implement them. Teachers also cited challenges such as low willingness to collaborate, poor communication among staff, and broader issues related to children's interaction with technology. These included overuse of devices, the need for isolation during emotional crises, overstimulation, short attention spans, and difficulties with turn-taking when using interactive tools.

With regard to pre-service teachers, 41.2% reported having acquired knowledge about assistive technologies used in working with children with ASD. The tools they are familiar with include devices for supporting sleep modulation, alternative communication systems such as the "Mówik" program, visual daily schedules, play-based therapy approaches, tablets and pictograms for communication, as well as the interactive robot "Zosia."

Despite this limited awareness, 80.9% of pre-service teachers indicated that they have never attended any courses or workshops focused on the use of assistive technologies for children with ASD. Only 10.3% received such training as part of their university education, 5.9% through external courses, and 2.9% through a combination of both. When assessing their own knowledge in this area, 30.9% described it as moderate, 51.5% as poor, and 14.7% as nonexistent. Only 2.9% rated their knowledge as "good," and none considered their knowledge to be "very good."

Moreover, 85.3% of the pre-service teachers reported never having had the opportunity to observe the practical use of assistive technologies in working with children with ASD, whereas only 14.7% had such experience. The same proportions apply when asked whether they knew what types of technologies can be used in these situations—85.3% did not know, while 14.7% did. These findings clearly point to a significant need for training in this area.

With regard to practical experience, 88.2% of pre-service teachers reported that they have never used assistive technologies when working with children with ASD, while only 11.8% indicated that they had some hands-on experience. Among those who had used such technologies, 11.8% described the experience as "easy," and 1.5% as "very easy." Conversely, 8.8% found it "difficult," and 14.7% rated it as "very difficult," while the majority—63.2%—classified the experience as "neither easy nor difficult," suggesting a possible gap in practical training and confidence.

When evaluating the availability of assistive technologies in the institutions where they had completed internships or gained work experience, 55.9% of pre-service teachers assessed it as "fair," while 22.1% rated it as "poor" and 17.6% as "very poor."

Figure 9. Availability of Assistive Technologies for Children with ASD in the Institutions (Pre-Service Teachers)
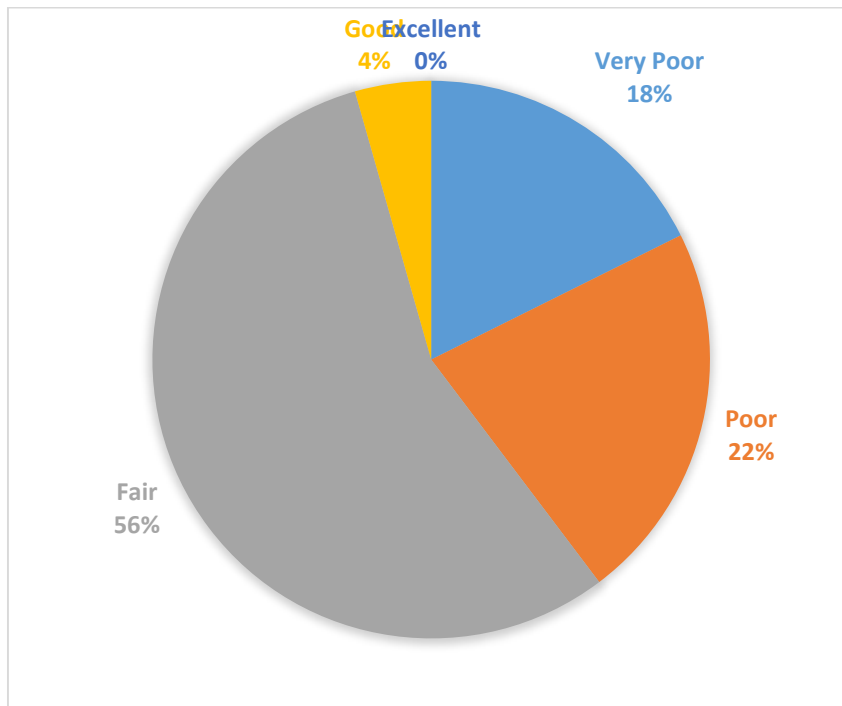

NEEDS

Both in-service and pre-service teachers in Poland emphasized the importance of accessing various forms of support and resources for working with children with ASD. For both groups, the most highly valued resource was training on ASD-specific teaching strategies, with in-service teachers rating it at 4.66 and pre-service teachers at 4.26. This was followed closely by visual support materials, especially for in-service teachers (4.6), while detailed training on ASD characteristics was also seen as essential. In contrast, resources such as ready-to-use lesson plans, ready-made paper-based materials, and peer support groups were rated slightly lower overall. Pre-service teachers consistently gave lower ratings across most items, reflecting their more limited classroom exposure. However, their valuation of digital tools (4.01) and professional development workshops (4.04) was fairly aligned with that of in-service teachers (4.42 and 4.3, respectively), suggesting recognition of the

practical   value   of   these   supports   (Figure   10).

Figure 10. Importance of Access to Key Resources and Supports in ASD Education
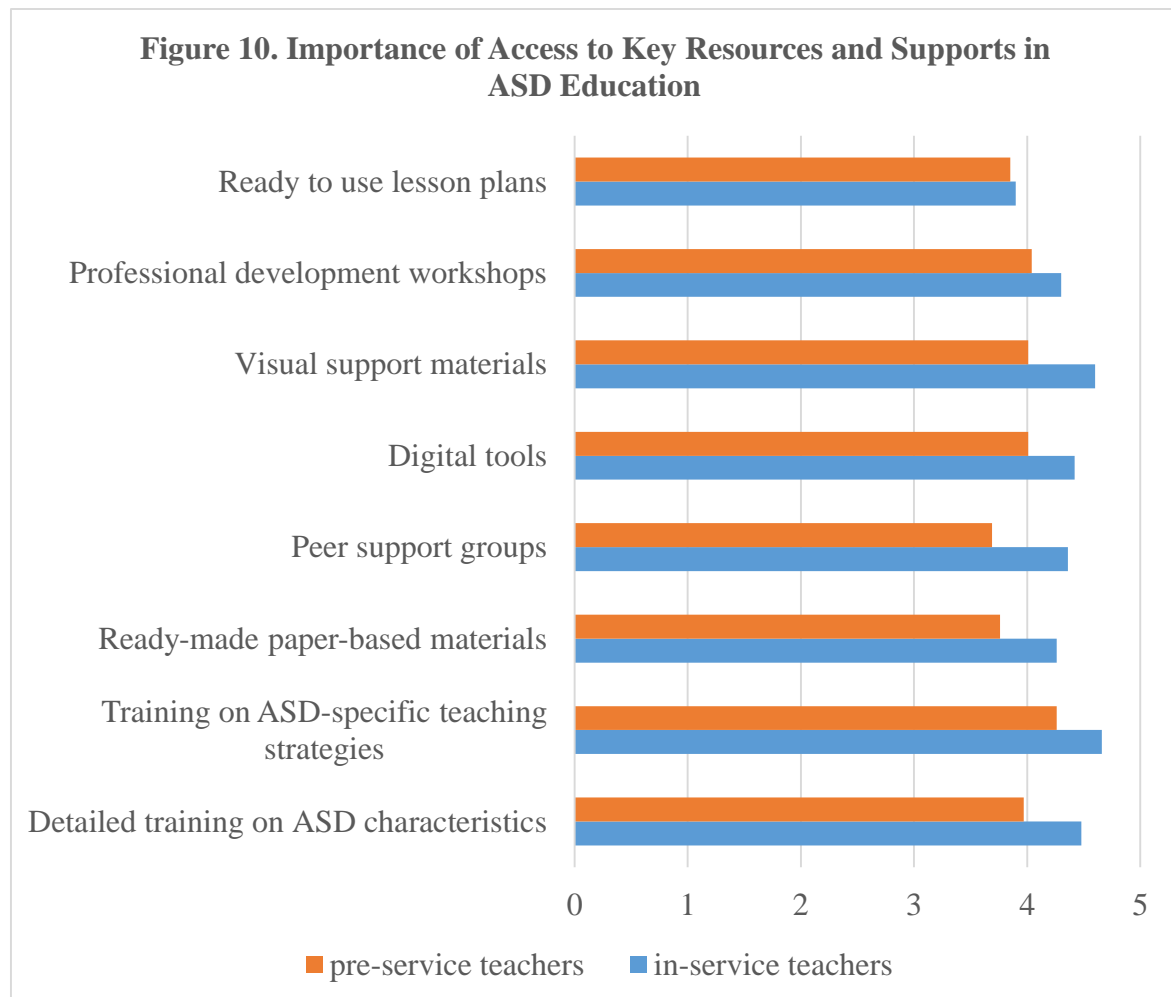
For both in-service and pre-service teachers in Poland, the most highly valued training formats for working with children with ASD are those that emphasize practical experience. Hands-on workshops and on-the-job training received the highest ratings from both groups (4.54 for in-service; 4.53 and 4.31 respectively for pre-service teachers), underscoring the preference for active, experiential learning. Resource-based learning (e.g., guides and manuals) was also positively rated, though slightly lower. In contrast, less favorable views were expressed toward online formats such as live online training (3.92 in-service; 3.37 pre-service) and online self-paced courses (3.74 in-service; 3.43 pre-service). Interestingly, pre-service teachers, despite their greater familiarity with digital environments, showed more skepticism toward these formats than in-service teachers. Higher education courses

received moderate scores, with pre-service teachers rating them slightly higher (3.94) than their in-service counterparts (3.82) (Figure 11).

Figure 11. Usefulness of assistive technology training methods (in-service and pre-service teachers)
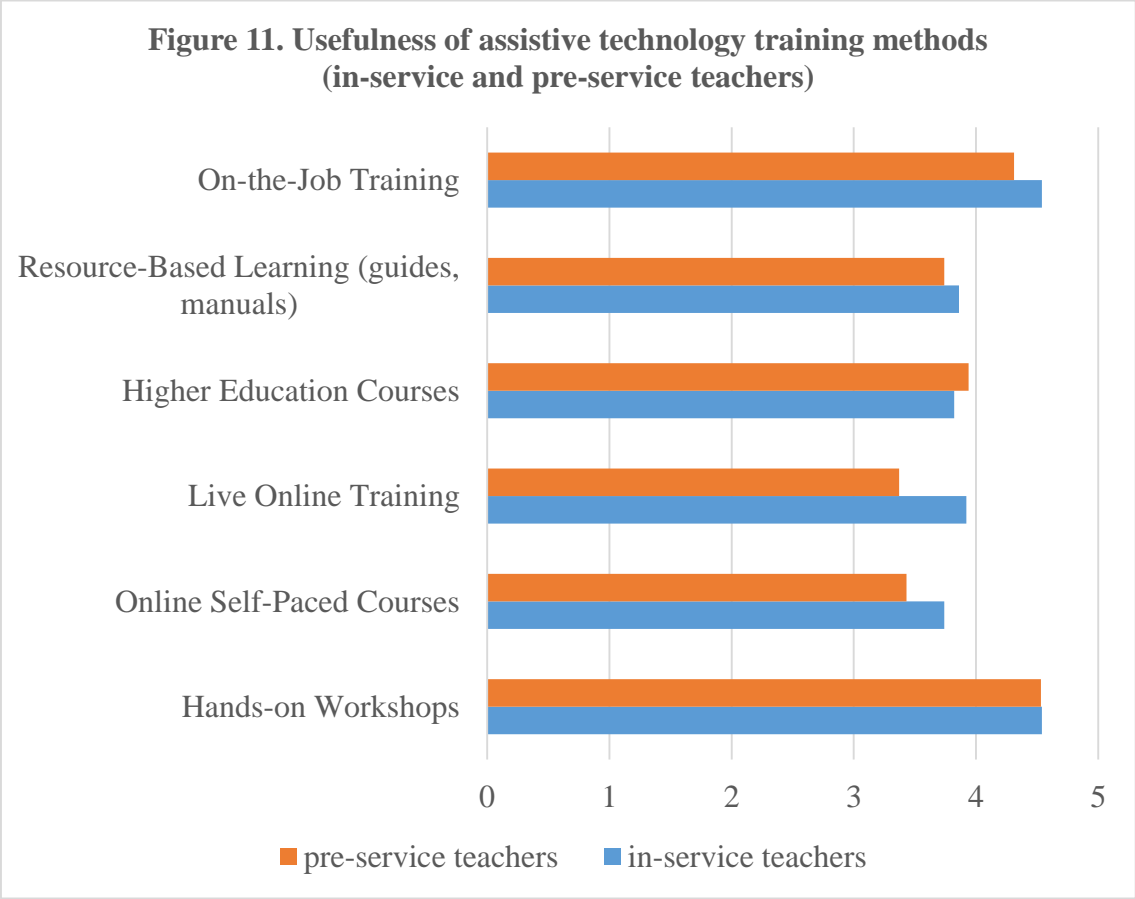
Some respondents highlighted the following complementary training alternatives as potentially very useful in their daily work with children with ASD.

Table 2. Other Training or Strategies Needed (In-Service and Pre-Service Teachers)

In-service teachers	Pre-service teachers
• Aggression and self-aggression management – how to deal with them • Aggression replacement training	• Training in alternative communication; exercise communication and reactions to specific behaviors

|	
• Systematizing knowledge on behavioral therapy • Behavioral strategies • Bilateral therapy	• Strategies for coping with crisis situations and managing anger outbursts; guidance on coping mentally as a teacher
• Crisis intervention • Releasing anger and emotions • Outbursts of anger and aggression in class • Understanding difficult behaviors – strategies for prevention and positive intervention	• Aggression and self-aggression management; aggression replacement training
• Preparation of educational programs and materials • Practical workshops • Workshops on specific methods • General practical training • Postgraduate studies • Studies in support and education • Training on socio-therapeutic classes • Specific training in diagnosis and work	• Workshops and practical hands-on training sessions; field training and topic-specific training; preparation for direct work with children
•Working with parents	• Planning therapy and therapeutic goals; preparation of educational brochures and materials
• How to improve relationships in an integrated group • Development of children with ASD in mainstream groups	• Training on working with parents
• Alternative communication • Communication of children with ASD	• Integration and improving relationships in integrated groups

• Sensory integration disorders and practical methods	• Participation in sensory therapy
• Supervision in behavioral therapy	• Observations and analysis of behavioral examples; supervision sessions
	• Training on individualized methods such as TEACCH
	• Social skills training through workshops

In-service teachers also suggested several strategies to enhance teacher training during their course of study. Once again, the most emphasized recommendations were practical in nature. These included the use of practical therapeutic methods, participation in training workshops, increased hands-on training specifically focused on autism, and the expansion of vocational internships and practical classes. Additional suggestions included ongoing professional development, opportunities for experience-sharing, access to supervision, peer support from other teachers, the formation of support groups at the district level, and improved access to specialized materials.

Figure 12. Assistive technologies needed (in-service and pre-service teachers)
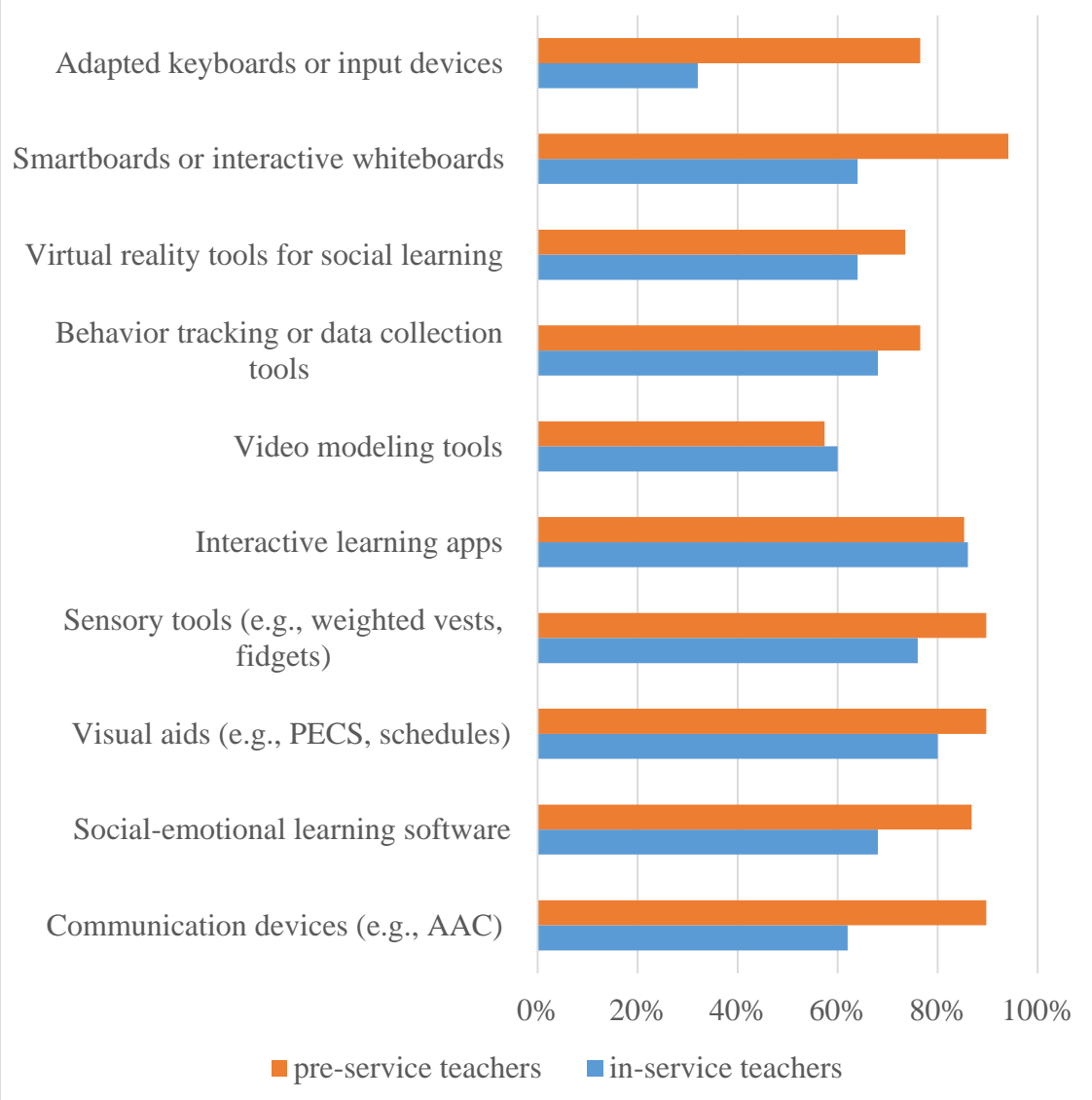
As shown in Figure 12, both in-service and pre-service teachers in Poland expressed a strong need for various assistive technologies to support children with ASD. For in-service teachers, the most frequently indicated need was for interactive learning apps (86%), followed by visual aids (80%) and sensory tools (76%). Pre-service teachers, on the other hand, gave consistently higher percentages across most categories. The highest-rated items among pre-service teachers were smartboards or interactive whiteboards (94.1%), visual

aids (89.7%), sensory tools (89.7%), and communication devices (89.7%). Interestingly, while in-service teachers rated video modeling tools at 60%, only 57.4% of pre-service teachers identified these as needed, making it one of the few items where in-service teachers showed more interest. A notable contrast is seen in the case of adapted keyboards or input devices, with only 32% of in-service teachers recognizing their need, compared to 76.5% of pre-service teachers.

CONCLUSION

The results highlight that both in-service and pre-service teachers feel insufficiently prepared to work effectively with children diagnosed with ASD, particularly in practical areas such as assistive technologies and individualized teaching strategies. In-service teachers, despite having more classroom experience, still emphasize the need for continuous professional development, improved institutional support, and better access to relevant materials and tools. Pre-service teachers, in contrast, often report limited exposure to real-life practice during their studies, which contributes to their overall sense of unpreparedness.

Teachers also identified a number of systemic and practical challenges that hinder their effectiveness. These include large group sizes in classrooms, the need for collaborative teaching with better-trained colleagues, and more structured preparation to handle classroom diversity. A notable concern is the difficulty some educators face in encouraging peers who are more accustomed to traditional teaching norms to adapt their expectations for children with ASD. Moreover, many respondents stressed the growing need to enhance teachers' mental resilience, as the emotional and behavioral demands of working in inclusive settings can be particularly intense.

Addressing these gaps through targeted, practical training and stronger institutional frameworks is essential for equipping teachers with the tools and confidence needed to support all learners more effectively.