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Teacher education and confidence regarding autism of specialist primary school teachers

Natalija Lisak Šegota ^a, I. Lessner Lištiaková ^d, J. Stošić^a, J. Kossewska ^b,
J. Troshanska^c, A. Petkovska Nikolovska^c, T. Cierpiłowska ^b and D. Preece ^d

^aFaculty of Education and Rehabilitation, University of Zagreb, Zagreb, Croatia; ^bFaculty of Education and Psychology Faculty of Education and Psychology, Pedagogical University of Krakow, Krakow, Poland; ^cAutism Macedonia Blue Firefly, Skopje, Republic of North Macedonia; ^dCentre for Education and Research, University of Northampton, Northampton, UK

ABSTRACT

Legislation and policy within Croatia, the Republic of North Macedonia and Poland supports the educational inclusion of children with autism; however, such inclusion is nascent in these countries. A survey of experienced teachers working directly with children with autism in both inclusive and special schools was undertaken in winter 2018–19. Five hundred and sixty questionnaires were distributed and 340 returned (61% response); after cleansing, 242 responses were analysed. Over a quarter of respondents had received no instruction regarding autism during initial teacher education; almost half had undertaken no continuing professional development on the topic. Special school teachers reported higher overall confidence, but levels remained low within a number of key domains. Teachers identified a need for appropriate teacher education regarding theory, relevant practical strategies and mentorship/supervision. Implications regarding inclusive practice and teacher education in these countries are identified.

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Croatia; North Macedonia;
Poland

Introduction

Learners on the autism spectrum have specific needs resulting from their characteristic difficulties related to social communication and interaction and their restricted and repetitive behaviours and interests (American Psychiatric Association 2013). Access to effective education is crucial (Simpson, Mundschen, and Heflin 2011); however, no single approach is effective for all, and teachers need a range of skills and strategies (Iovannone et al. 2003). Many teachers lack access to information (Morrier, Hess, and Heflin 2011) and global challenges exist regarding the knowledge and confidence of educators across both mainstream and special education settings (Anglim, Prendeville and Kinsella 2018; Marshall and Goodall 2015).

Empirical context

Autism and education in Croatia, North Macedonia and Poland

Provision and support for children with special educational needs (SEN) in Croatia, the Republic of North Macedonia (hereafter referred to as North Macedonia) and Poland are founded on a tradition of 'defectology' (Vygotsky 1993), with special education, clinical practice and rehabilitation combined within a single discipline (Florian and Becirevic 2011). The terminology of defectology is being replaced by special education and rehabilitation (Ajdinski and Florian 1997) with policy promoting educational inclusion of children (Government of the Republic of Macedonia 2019a; Minister of National Education 2017; Ministry of Science and Education 2014). However, significant obstacles remain.

Prevalence

Autism has a median worldwide prevalence of 62 per 10,000 population (Elsabbagh et al. 2012), though there is considerable variation in identified prevalence with a lack of data from low- and middle-income countries. The most recent identified prevalence in Croatia is 4 per 10,000 (Benjak 2015) though this is acknowledged as an underestimate (Bujas Petković et al. 2015): the most recent Croatian statistics identify 1,287 children registered as having autism (Croatian Institute of Public Health 2017). No reliable data exist regarding the prevalence of autism in North Macedonia (Trajkovski 2017). The estimated prevalence in Poland is 3.4 per 10,000 (Piskorz-Ogórek, Cieślińska, and Kostyra 2015) though regional studies have identified rates of 32–38 per 10,000 (Skonieczna-Żydecka et al. 2017).

Croatia

The Croatian compulsory education system is free for all and comprises pre-primary (to age 6), primary (6–15) and secondary education (15–19). Education of children with SEN is regulated by recent legislation based upon principles of inclusion and individualisation (Ministry of Science and Education 2015). However, many teachers hold negative attitudes towards inclusion (Bukvić 2014), knowledge regarding autism is limited (Trnka and Skočić Mihić 2012) and inclusion of children with autism remains nascent. Though Croatian legislation mandating inclusion was first passed 40 years ago (Official Announcement Publications 1980), few are fully included in the country's 2,027 mainstream primary schools; most school-aged children with autism are educated within the country's 88 special schools (Croatian Bureau of Statistics 2020; Sekušak-Galešev, Frey Škrinjar, and Masnjak 2015).

Republic of North Macedonia

Free compulsory education within North Macedonia comprises primary (6–15) and secondary education (15–19). The country is committed to strengthening teachers' competence (Ministry of Education and Science 2018); and the Law on Primary Education (Government of the Republic of North Macedonia 2019a) firmly established the principle of full inclusion. However, many barriers exist in practice, and professionals require support and education (Trajkovski 2017). Schools' capacity is extremely stretched: almost

half of primary schools and three-quarters of secondary schools operate a double-shift system (Kitchen et al. 2019). Fewer than 6% of schools have provided staff with training about autism. Only 26% of the country's 987 primary schools include children with autism, whilst a third of pupils in the country's 37 special schools have an autism diagnosis; of 482 children with SEN included in mainstream education in Skopje, the country's capital, fewer than 11% are on the autism spectrum (Ministry of Education and Science 2015; State Statistical Office 2020).

Poland

Full-time free compulsory education comprises one year of pre-primary education (6–7) and eight years of primary education for learners aged 7–15 (15–18-year-olds must be in education, but this can be provided in school or non-school settings) (Minister of National Education 2016). Primary-age children with SEN including autism may be educated in mainstream ($n = 14,854$) or special schools ($n = 940$) (Statistics Poland 2019). The Małopolskie (Lesser Poland) province, which was surveyed in this study, has 1,539 mainstream and 61 special primary schools. Where children with SEN are included in mainstream classes, the presence of a support teacher qualified in special education is mandatory. However, concerns exist that recent legislative and systemic change are reducing integration of children with SEN, and that children must fully participate in all classes or follow home-schooling (European Commission 2019a). Poland has no specific strategy regarding educational inclusion of children with autism (Roleska et al. 2018) and there is a long-standing need to improve knowledge regarding autism (Kossewska and Sarlej 2018; Starczewska, Hodkinson, and Adams 2011; Urbanovská, Kantor, and Růžička 2014).

Teacher education in Croatia, North Macedonia and Poland

Initial teacher education (ITE) for primary teachers in Croatia is provided at seven universities: teachers are required to obtain a master's degree before entering the profession. ITE curricula and teaching practice required vary between universities and the development of competences regarding SEN is identified as an area of weakness (Popović 2013). Most Croatian teachers working in SEN are graduates of the University of Zagreb's master's level Educational Rehabilitation programme. This programme, the only one of its type in Croatia, includes a number of courses focused on autism, enabling students to graduate having studied with a minor or major focus on the topic. Teachers in Croatia are obliged to undertake continuing professional development (CPD) (European Commission 2019b); however, this obligation has not historically been enforced, and the impact of CPD on practice is low (Popović 2013).

Primary ITE in North Macedonia is provided via four universities. Teachers must complete a four-year bachelor's degree, probationary period and appraisal and certification examination (Kitchen et al. 2019). Though recent legislation promotes teachers' professional development (Government of the Republic of Macedonia 2019b) training is largely theoretical, based upon subject knowledge rather than inclusive strategies, and teachers are unprepared to work with children with SEN (Anastoska-Jankulovska 2013). Children with SEN including autism are usually taught by 'defectologists' (Ajdinski and Florian 1997); training in this field is offered in Skopje (at bachelor's, master's and doctoral levels) and Tetovo (at bachelor's level only). Concerns exist regarding availability and

quality of CPD, and uptake is low. Schools receive little funding to support it, and many teachers self-fund or study via the internet (Kitchen et al. 2019).

Teachers in pre-primary and primary schools in Poland must hold at least a bachelor's degree and to have undertaken ITE including theoretical and practical components: most hold qualifications above these minimum standards (European Commission/EACEA/Eurydice 2018). Several universities provide master's programmes in Special Education: this is a mandatory requirement to work with children with SEN including autism. The quality of ITE in the country is variable (European Commission 2019a) and CPD opportunities are identified as expensive and often of little practical relevance (Hernik et al. 2015).

Methods

Data collection tool and process

An anonymous structured questionnaire was developed in autumn 2018 to identify the knowledge, attitudes and confidence regarding autism of experienced primary teachers with responsibility for working directly with children with autism in Croatia, the Republic of North Macedonia and Poland. This tool was informed by a preliminary literature review regarding teacher training in autism (Lessner Lištiaková and Preece 2019). After providing demographic data, respondents were asked to identify instruction they had received regarding autism within ITE and CPD. They were then surveyed regarding their knowledge, attitudes and confidence about autism, and the need for further developmental opportunities and support. Due to length restrictions, this paper focuses on teacher education, confidence and developmental needs.

A draft questionnaire was translated into Croatian, Macedonian and Polish and piloted in November 2018. After minor amendments, the tool was finalised. Ethical approval for the study, research tool and accompanying documentation was obtained from the University of Northampton, the lead institution. The questionnaire was distributed between November 2018 and February 2019, with the support of regional and national authorities, to inclusive mainstream and special schools, professional education groups and graduates of specialist programmes across Croatia, North Macedonia and the Małopolskie province of Poland. In Croatia, 180 questionnaires were distributed and 129 returned (72% response). In North Macedonia, 100 questionnaires were distributed, and 81 returned (81% response). In Małopolskie province, 280 questionnaires were distributed and 140 returned (50% response). In total, 560 questionnaires were distributed and 350 were returned (62.5% response). Data cleansing removed 108 respondents who did not have direct experience and responsibilities regarding children with autism. The final dataset comprised 242 teachers (43.2% of questionnaires distributed): 40.9% of respondents were Croatian ($n = 99$), 29.8% were North Macedonian ($n = 72$) and 29.3% were Polish ($n = 71$). Some teachers did not reply to all questions: responses do not always total 100%.

Respondents

Just under half the sample (47.1%; $n = 114$) worked in mainstream settings, while 52.9% ($n = 128$) worked in special schools (Table 1). Almost three-quarters (72.7%) worked in

Table 1. Sample: educational setting.

Setting	Croatia		N Macedonia		Poland		Total	
	N	%	N	%	N	%	N	%
Mainstream school (fully inclusive)	14	14.1	14	19.4	31	43.7	59	24.4
Mainstream school (partially inclusive)	13	13.1	7	9.7	23	32.4	43	17.8
Mainstream school (autism class/unit)	5	5.0	6	8.3	1	1.4	12	5.0
Special school (general class)	24	24.2	38	52.8	16	22.5	78	3.2
Special school (autism class/unit)	43	43.4	7	9.7	0	0	50	20.7
Total	99	100	72	100	71	100	242	100

Table 2. Sample: location of school.

Location	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Urban – city (>100,000)	20	62.5	50	74.6	14	51.9	41	91.1	49	89.1	4	25	176	72.7
Urban – town (<100,000)	6	18.7	17	25.4	11	40.7	4	8.9	4	7.3	12	75	54	22.3
Rural	6	18.7	0	0	2	0.7	0	0	2	3.6	0	0	10	4.1
Total	32	100	67	100	27	100	45	100	55	100	16	100	242	100

Mstr: mainstream; Sp: special.

large urban settings, 22.3% in smaller towns, and 4.1% in rural areas (Table 2). A total of 46.9% of Croatian mainstream ($n = 13$) and 67.2% of special school teachers ($n = 45$) taught in the capital, Zagreb. The remainder taught in mainstream schools in 13 locations and special schools in 18 locations including Bjelovar, Čakovec and Karlovac in the north of the country; Rijeka in the northwest; Šibenik and Zadar in the west; Metković, Sinj and Split in the southwest; Zagreb, Kutina and Velika Gorica in the centre; and Dobrinj, Našice and Vukovar in the east. North Macedonian mainstream respondents taught in 27 different schools across the country. Just under half taught in the capital, Skopje (44.4%; $n = 12$); the remainder taught in locations including Kumanova in the northeast, Gostivar and Tetovo in the northwest, Bitola and Ohrid in the southwest, Shtip in the east and Strumica in the southeast. The 45 special school teachers taught in 12 schools located in Skopje, Strumica and Veles in the centre. All Polish respondents taught in the greater urban area of Krakow and smaller towns and villages within Małopolskie province.

The overwhelming majority (94.2%; $n = 228$) were female, in line with local norms (European Commission 2019b). Just under half (47.1%; $n = 114$) were aged 35 years or under; 39.7% ($n = 96$) were aged 36–50; and 12.4% ($n = 30$) were aged over 50. Over 60% of respondents had between 1 and 10 years' experience of working with children with

Table 3. Sample: experience working with children with autism.

Experience	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<1 year	4	12.5	5	7.5	3	11.1	2	4.4	12	21.8	8	50	34	14.0
1–5 years	14	43.8	31	46.3	13	48.1	14	31.1	21	38.2	1	6.3	94	38.8
6–10 years	9	28.1	11	16.4	6	22.2	12	26.7	17	30.9	1	6.3	56	23.1
>10 years	5	15.6	20	29.9	5	18.5	17	37.8	5	9.1	6	37.5	58	24.0
Total	32	100	67	100	27	100	45	100	55	100	16	100	242	100

Mstr: mainstream; Sp: special.

Table 4. Sample: role.

Role	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Main teacher for class	17	53.0	66	98.5	0	0	28	62.2	7	12.7	6	37.5	124	51.2
Support teacher	0	0	0	0	0	0	5	11.1	11	20	6	37.5	22	9.1
Subject teacher	0	0	1		0	0	11	24.4	37	67.3	4	25	53	21.9
Special needs coordinator	14	43.7	0	0	27	100	1	2.2	0	0	0	0	43	17.8
Total	32	100	67	100	27	100	45	100	55	100	16	100	242	100

Mstr: mainstream; Sp: special.

autism (61.9%; $n = 150$). More special school teachers (33.6%; $n = 43$) had 10 years' or longer experience in autism than mainstream teachers (13.2%; $n = 15$) (Table 3).

Over half were main class teachers (51.2%; $n = 124$); 9.1% ($n = 22$) were support teachers for the whole class or one child; 21.9% ($n = 53$) were subject teachers; and 17.8% ($n = 43$) were special needs coordinators. The majority of special school teachers were main class teachers (78.1%; $n = 100$). All North Macedonian mainstream respondents were special needs coordinators for their schools; this role was also held by 43.7% of Croatian mainstream respondents ($n = 14$), while the majority there were main class teachers (53.0%; $n = 17$). Over two-thirds of Polish mainstream teachers were subject teachers (66.3%; $n = 37$) while 20% ($n = 11$) were support teachers (Table 4). Almost 80% of respondents held a master's or higher degree, with the remainder holding a bachelor's degree. This reflects the differing teacher training and licencing systems: master's or higher degrees were held by 99.0% of Croatian and 97.2% of Polish respondents; only 27.8% of North Macedonian were qualified at this level.

Findings

Teacher education regarding autism

Initial teacher education (ITE)

ITE has been shown to have a significant formative impact upon teachers' attitudes, understanding and skills regarding educational inclusion and effective working with learners with SEN (Domović, Vidović Vlasta, and Bouillet 2017; Florian and Linklater 2010; Sosu, Mtika, and Colucci-Gray 2010). However, despite policy commitments to the inclusion of all children, over a quarter of respondents had received no information or instruction regarding autism within their ITE. Marked differences were noted between the three countries. Within Poland, 60% of mainstream and almost 20% of special teachers had received no input, as were almost 30% of mainstream and 40% of North Macedonian respondents. By contrast, only 3% of Croatian respondents fell within this category (Table 5). Mainstream teachers received significantly less input regarding autism during ITE than those working in special schools (chi-square = 11.3205, $df = 4$, $p = 0.023188$).

Continuing professional development (CPD)

CPD can impact at individual, classroom and organisational levels (Powell et al. 2003). As well as improving individual teacher self-efficacy, effective CPD can provide teachers with relevant skills and strategies (Alexander, Ayres, and Smith 2015), support the

Table 5. ITE at university: content regarding autism.

ITE	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
None	1	3.1	2	3.0	8	29.6	18	40.0	33	60.0	3	18.8	65	26.9
Included in some courses (<14 hrs)	1	3.1	8	11.9	16	59.3	19	42.2	9	16.4	13	81.2	66	27.3
One separate course (15–60 hrs)	12	37.5	20	29.9	2	7.4	3	6.7	4	7.3	0	0	41	16.9
2–3 courses (61–180 hrs)	13	40.6	25	37.3	1	3.7	3	6.7	3	5.5	0	0	45	18.6
4+ courses (>181 hrs)	5	15.6	12	17.9	0	0	0	0	6	10.9	0	0	23	9.5

Mstr: mainstream; Sp: special.

Table 6. CPD: content regarding autism.

CPD	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
None	2	6.3	0	0	5	18.5	11	24.4	11	20	6	37.5	35	14.5
I have studied by myself	9	28.1	21	31.3	13	48.1	13	28.9	23	41.8	0	0	79	32.6
A few hours	4	12.5	0	0	1	3.7	5	11.1	8	14.5	1	6.3	19	7.8
1–3 days	16	50.1	35	52.2	8	29.6	14	31.1	9	16.3	6	37.6	88	36.4
More than 3 days	1	3.1	11	16.4	0	0	0	0	0	0	3	18.8	15	6.2

Mstr: mainstream; Sp: special.

development of a positive school ethos (Hosford and O'Sullivan 2016) and reduce barriers to inclusion (Bačáková and Closs 2013). Over 47% had undertaken no formal autism-specific CPD during their careers. Almost a third had researched autism via self-study. CPD opportunities were most frequently accessed in Croatia, with North Macedonian teachers having least access (Table 6). Mainstream teachers reported significantly fewer CPD opportunities than those in special schools (chi-square = 15.5398, df = 4, p = 0.003703).

Content of ITE and CPD regarding autism

The largely theoretical focus of teacher education in these countries is confirmed by respondents. Almost 80% of teachers accessed theoretical content either through ITE, formal CPD or self-study, whilst only just over two-thirds accessed content regarding teaching strategies or intervention methods. Fewer than half of respondents gained practical experience working with children with autism during ITE or CPD (Table 7).

Table 7. ITE and CPD: nature of content regarding autism.

Content	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Theory regarding autism	26	81.3	60	89.6	20	74.1	25	55.6	45	81.8	16	100	192	79.3
Teaching/ Intervention methods	23	71.9	56	86.3	13	48.1	26	57.8	30	54.5	16	100	164	67.8
Practical experience	16	50.0	36	53.7	11	40.7	13	28.9	29	52.7	14	87.5	119	49.2

Mstr: mainstream; Sp: special.

Table 8. Confidence in supporting children with autism.

Area of confidence	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Understanding autism														
a) Understanding of autism	12	37.5	43	64.2	5	18.5	8	17.8	28	50.9	16	100	112	46.3
2. Communication														
b) Supporting receptive communication	16	50.0	47	70.1	8	29.6	16	35.6	33	60.0	12	75.0	132	55.5
c) Supporting expressive communication	13	40.6	50	74.6	8	29.6	19	42.2	20	36.4	12	75.0	122	50.5
3. Social interaction and understanding														
a) Supporting interaction with adults	15	46.9	48	71.6	8	29.6	11	24.4	24	43.6	12	75.0	118	48.8
b) Supporting peer interaction	15	46.9	47	70.1	9	33.3	14	31.1	31	56.4	12	75.0	128	52.9
c) Supporting social understanding	14	43.8	47	70.1	6	22.2	14	31.1	32	58.2	9	56.9	116	47.9
4. Restricted and Repetitive Behaviours														
a) Establishing routines	17	53.1	55	82.1	9	33.3	19	42.2	27	49.1	16	100	143	59.1
b) Supporting transitions and dealing with change	14	43.8	47	70.1	6	22.2	20	44.4	30	54.5	8	50.0	125	51.7
c) Understanding, managing, and utilising special interests	16	50.0	44	65.7	9	33.3	18	40.0	26	47.3	12	75.0	125	51.7
d) Responding to rigid or literal thinking	14	43.8	45	67.2	7	25.9	15	33.3	26	47.3	12	75.0	119	49.2
5. Sensory needs														
a) Supporting sensory needs	15	46.9	44	65.7	11	40.7	17	37.8	15	27.3	3	18.8	112	46.3
6. Anxiety and challenging behaviour														
a) Managing/responding to child's anxiety	11	34.4	25	37.3	9	33.3	17	37.8	20	36.4	9	56.3	91	37.6
b) Managing challenging behaviour	15	46.9	46	68.7	8	29.6	18	40	31	56.4	2	12.5	120	49.6
7. Supporting learning														
a) Supporting learning and accessing the curriculum	18	56.3	56	83.6	7	25.9	16	35.6	34	61.8	5	31.3	136	56.2
b) Supporting motor skills development	15	46.9	52	77.6	11	40.7	17	37.8	20	36.4	5	31.3	120	49.6
c) Supporting turn-taking	7	21.9	39	58.2	10	37.0	15	33.3	19	34.5	6	37.5	96	39.7

Mstr: mainstream; Sp: special.

Teacher confidence regarding autism

Teachers' confidence was explored across in 16 areas across seven domains of need informed by the characteristics of autism and the initial literature review (Table 8). The domains were as below.

- Domain 1: Understanding autism
- Domain 2: Communication
- Domain 3: Social interaction and understanding
- Domain 4: Restricted and Repetitive Behaviours
- Domain 5: Sensory needs
- Domain 6: Anxiety/challenging behaviour
- Domain 7: Supporting learning.

Respondents' levels of confidence across the 16 areas ranged between 37.6% and 59.1% with more than 50% of respondents expressing confidence in only seven of the 16 areas, across four domains. Fewer than half were confident in three domains: understanding autism, sensory needs and anxiety/challenging behaviour. Greatest confidence was expressed in establishing routines (59.1%; n = 143) lowest confidence concerned

Table 9. Teacher education needs.

Content	Croatia				N Macedonia				Poland				Total	
	Mstr		Sp		Mstr		Sp		Mstr		Sp			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Theoretical information	10	31.3	40	59.7	18	66.7	18	40.0	26	47.3	14	87.5	126	52.1
Tools and resources	27	84.4	63	94.0	26	96.3	35	77.8	42	76.4	16	100	209	86.4
Practical strategies (general)	23	71.9	62	92.5	24	88.9	38	84.4	48	87.3	16	100	211	87.2
Strategies relevant to setting	27	84.4	66	98.5	22	81.5	41	91.1	45	81.8	16	100	217	89.7
Supervision/mentorship	27	84.4	59	88.1	25	92.6	43	95.6	47	85.5	16	100	217	89.7

Mstr: mainstream; Sp: special.

managing and responding to anxiety (37.6%; $n = 91$) and supporting turn-taking (39.7%; $n = 96$). Special school teachers expressed greater confidence than their mainstream colleagues in all 16 areas. Half or more of mainstream teachers expressed confidence in two areas only – supporting learning and accessing the curriculum (51.8%; $n = 59$) and supporting receptive communication (50%; $n = 57$).

Confidence was particularly low among North Macedonian teachers, with fewer than half (mainstream and special school teachers alike) expressing confidence in any area. Croatian and Polish special school teachers reported highest overall confidence, though areas of need remained. Only 37.3% of Croatian teachers were confident in addressing children's anxiety ($n = 25$); few Polish respondents were confident regarding challenging behaviour (12.5, $n = 2$), sensory needs (18.8%, $n = 3$) and supporting learning (fewer than 40% were confident in any area within the domain).

Teacher education needs

An overwhelming majority – 93% of both mainstream ($n = 106$) and special school teachers ($n = 109$) identified a need to access further teacher education opportunities regarding autism (Table 9). Theoretical information was the lowest overall priority but was still considered important by more than half of respondents. Such information was given higher priority by special school teachers in Croatia and Poland than by their North Macedonian counterparts; whether this may be linked to previous experiences of ITE or CPD requires further study. Greater importance was placed upon the acquisition of tools and resources (86.4%; $n = 203$), learning about practical strategies (87.2%; $n = 211$), and in particular about differentiated strategies relevant to teachers' settings (89.7%; $n = 217$). There was high support for the provision of expert supervision or mentorship opportunities (89.7%; $n = 217$); this was most popular among teachers in special school settings (92.2%; $n = 118$) (Table 9). Such opportunities have been shown to effectively support inclusion and improve teacher self-efficacy (Alila, Määttä, and Uusiautti 2016; Babione and Shea 2005).

Discussion

Croatia, North Macedonia and Poland are committed to educational inclusion. However, though legislation and policy identify and endorse the rights of all children with special educational needs, successful educational inclusion of children with autism has yet to be achieved, and families report high levels of social and educational exclusion and

dissatisfaction (Bleszyński and Orłowska 2016; Lisak, Bratković, and AniĆ 2017; Troshanska et al. 2018). Research elsewhere in Europe identifies that putting inclusive policy into practice requires not only systemic change (Smyth et al. 2014) but also the understanding and acceptance of professionals (Alekhina 2016), and appropriate and relevant teacher education is a vital prerequisite (Smith and Smith 2000). This study identifies that many experienced teachers supporting children with autism lack such education and that many feel unconfident in meeting the needs of these children. Teachers in special school settings express higher levels of education and confidence; but even where teachers have received instruction regarding autism areas of high need remain concerning fundamental issues: dealing with characteristic difficulties in autism (e.g. anxiety, sensory sensitivities), managing behaviour and accessing learning. These findings are consistent with research from elsewhere in Europe, which highlights both a lack of teacher confidence and the need for effective ITE and CPD regarding the education of children with autism (Finlay, Kinsella, and Prendeville 2019; Ravet 2018). Teachers across all three countries and at all levels of experience identify a need for training that includes not only up-to-date information and theory regarding autism, but also practical, applicable strategies and opportunities for mentorship and supervision. This study focused on teachers with experience of and responsibility for working with children with autism: the need for teacher education among the broader population of teachers in these countries may be greater still.

Limitations of this study are acknowledged. The countries vary in size, wealth and regarding their education systems, and are at different stages on their paths to implementing inclusion (Operti and Belalcázar 2007). Respondents across countries are not matched for experience, nor can respondents be assumed to be representative of all such teachers in these countries; this is particularly true regarding Poland, where the survey was undertaken within one province in the south of the country. Data regarding confidence are based on self-evaluation, which may be inaccurate (Dunning 2011). Previous studies identify both that teachers' self-reported knowledge and competence can exceed their actual knowledge and competence (Fennell and Dillenburger 2018) and also that confidence may be low even when teachers possess relevant knowledge and skills (Henderson and Rodrigues 2008). Self-reported confidence is however strongly related to learning and experience during ITE and CPD (Lindemann-Matthies et al. 2011; Valdman, Rannikmae, and Holbrook 2016).

Despite these limitations, this study reveals a clear mismatch between the political rhetoric of educational policy within these three countries and teachers' confidence in their abilities to make inclusion work for children with autism in the classroom. There is an urgent need to provide teachers with appropriate education opportunities at both ITE and CPD levels and to equip them with effective practical strategies based on sound evidence-based principles of good autism practice. Further investigation is needed concerning how teacher education can address teachers' specific needs and provide flexible strategies while ensuring cultural and contextual relevance.

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ORCID

Natalija Lisak Šegota  <http://orcid.org/0000-0001-6976-2570>

I. Lessner Lištiaková  <http://orcid.org/0000-0002-6942-2485>

J. Kossewska  <http://orcid.org/0000-0002-8156-6764>

T. Cierpiąłowska  <http://orcid.org/0000-0002-5167-2128>

D. Preece  <http://orcid.org/0000-0002-3182-1640>

References

- Ajdinski, L., and L. Florian. 1997. "Special Education in Macedonia." *European Journal of Special Needs Education* 12 (2): 116–126. doi:[10.1080/0885625970120203](https://doi.org/10.1080/0885625970120203).
- Alekshina, S. V. 2016. "Inclusive Education: From Policy to Practice." *Psychological Science and Education* 21 (1): 136–145. doi:[10.17759/pse.2016210112](https://doi.org/10.17759/pse.2016210112).
- Alexander, J. L., K. M. Ayres, and K. A. Smith. 2015. "Training Teachers in Evidence-based Practice for Individuals with Autism Spectrum Disorder: A Review of the Literature." *Teacher Education and Special Education* 38 (1): 13–27. doi:[10.1177/0888406414544551](https://doi.org/10.1177/0888406414544551).
- Alila, S., K. Määttä, and S. Uusiautti. 2016. "How Does Supervision Support Inclusive Teacherhood?" *International Electronic Journal of Elementary Education* 8 (3): 351–362. <https://www.iejee.com/index.php/IEJEE/article/view/118>
- American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders – DSM-5*. 5th ed. Washington, DC: American Psychiatric Publishing.
- Anastowska-Jankulovska, M. 2013. "Teacher Education and Training in the Western Balkans: Report on the Former Yugoslav Republic of Macedonia." Warsaw, Poland: European Commission.
- Anglim, J., P. Prendeville and W. Kinsella. 2018. The self-efficacy of primary teachers in supporting the inclusion of children with autism spectrum disorder. *Educational Psychology in Practice* 34(1): 73–88. <https://doi.org/10.1080/02667363.2017>
- Babione, C., and C. Shea. 2005. "Special Education Mentoring within the Context of Rural Schools." *Rural Special Education Quarterly* 24 (2): 3–10. doi:[10.1177/875687050502400202](https://doi.org/10.1177/875687050502400202).
- Bačáková, M., and A. Closs. 2013. "Continuing Professional Development (CPD) as a Means to Reducing Barriers to Inclusive Education: Research Study of the Education of Refugee Children in the Czech Republic." *European Journal of Special Needs Education* 28 (2): 203–216. doi:[10.1080/08856257.2013.778108](https://doi.org/10.1080/08856257.2013.778108).
- Benjak, T. 2015. "Report on Persons with Disabilities in the Republic of Croatia." Zagreb: Croatian Institute of Public Health.
- Bleszyński, J. J., and M. Orłowska. 2016. "From Exclusion to Participation: Quality of Life in a Small Child with a Disability in Poland – Case Study." *International Journal of Research in Applied, Natural and Social Sciences* 4 (11): 181–186.
- Bujas Petković, Z., V. Boričević Maršanić, B. Divić, and N. Ercegović. 2015. "Late Diagnosis of Asperger Syndrome in Croatia – A Low-income Country." *Psychiatria Danubina* 27 (4): 426–428.
- Bukvić, Z. 2014. "Teachers' Competency for Inclusive Education." *European Journal of Social and Behavioural Sciences* 11 (4): 1585–1590. doi:[10.15405/ejsbs.141](https://doi.org/10.15405/ejsbs.141).
- Croatian Bureau of Statistics. 2020. "Osnovne Škole. Kraj Šk. G. 2018./2019. I Početak Šk. G. 2019./2020." https://www.dzs.hr/Hrv_Eng/publication/2020/08-01-02_01_2020.htm

- Croatian Institute of Public Health. 2017. "Croatian Health Statistics Yearbook 2017." <https://www.hzjz.hr/periodicne-publikacije/izvjesce-o-osobama-s-invaliditetom-u-hrvatskoj-2015/>
- Domović, V., V. Vidović Vlasta, and D. Bouillet. 2017. "Student Teachers' Beliefs about the Teacher's Role in Inclusive Education." *European Journal of Special Needs Education* 32 (2): 175–190. doi:10.1080/08856257.2016.1194571.
- Dunning, D. 2011. "The Dunning–Kruger Effect: On Being Ignorant of One's Own Ignorance." *Advances in Experimental Social Psychology*, no. 44: 247–296. doi:10.1016/B978-0-12-385522-0.00005-6.
- Elsabbagh, M., G. Divan, Y.-J. Koh, Y. S. Kim, S. Kauchali, C. Marcín, C. Montiel-Nava, et al. 2012. "Global Prevalence of Autism and Other Pervasive Developmental Disorders." *Autism Research* 5 (3): 160–179. doi:10.1002/aur.239.
- European Commission. 2019a. *Education and Training Monitor 2019: Poland*. Luxembourg: Publications Office of the European Union.
- European Commission. 2019b. *Education and Training Monitor 2019: Croatia*. Luxembourg: Publications Office of the European Union.
- European Commission/EACEA/Eurydice. 2018. "Teachers' and School Heads' Salaries and Allowances in Europe –2016/17." *Eurydice Facts and Figures*. Luxembourg: Publications Office of the European Union.
- Fennell, D., and K. Dillenburger. 2018. "Applied Behaviour Analysis: What Do Teachers of Students with Autism Spectrum Disorder Know." *International Journal of Education Research* 87 (1): 110–118. doi:10.1016/j.ijer.2016.06.012.
- Finlay, C., W. Kinsella, and P. Prendeville. 2019. "The Professional Development Needs of Primary Teachers in Special Classes for Children with Autism in the Republic of Ireland" *Professional Development in Education* 1–21. Advance online publication. doi:10.1080/19415257.2019.1696872.
- Florian, L., and H. Linklater. 2010. "Preparing Teachers for Inclusive Education: Using Inclusive Pedagogy to Enhance Teaching and Learning for All." *Cambridge Journal of Education* 40 (4): 369–386. doi:10.1080/0305764X.2010.526588.
- Florian, L., and M. Becirevic. 2011. "Challenges for Teachers' Professional Learning for Inclusive Education in Central and Eastern Europe and the Commonwealth of Independent States." *Prospects* 41 (3): 371–384. doi:10.1007/s11125-011-9208-4.
- Government of the Republic of North Macedonia. 2019a. "Law on Primary Education (Official Gazette of the Republic of North Macedonia No. 161/2011 Dated 5. 8.2019)." Skopje: Government of the Republic of North Macedonia. <http://www.slvesnik.com.mk/besplatni-izdanija.nspix?pYear=2019>
- Government of the Republic of North Macedonia. 2019b. "Law on Teachers and Professional Associates in Primary and Secondary Schools (Official Gazette of the Republic of North Macedonia No. 161/2019 Dated 5. 8.2019)." Skopje: Government of the Republic of North Macedonia. <http://www.slvesnik.com.mk/besplatni-izdanija.nspix?pYear=2019>
- Henderson, S., and S. Rodrigues. 2008. "Scottish Student Primary Teachers' Levels of Mathematics Competence and Confidence for Teaching Mathematics: Some Implications for National Qualifications and Initial Teacher Education." *Journal of Education for Teaching* 34 (2): 93–107. doi:10.1080/02607470801979533.
- Hernik, K., K. Malinowska, R. Piwowarski, J. Przewłocka, M. Smak, and A. Wichrowski. 2015. *Polish Teachers and Principals – An International Perspective. Key Findings of TALIS 2013*. Warsaw: Educational Research Institute.
- Hosford, S., and S. O'Sullivan. 2016. "A Climate for Self-efficacy: The Relationship between School Climate and Teacher Efficacy for Inclusion." *International Journal of Inclusive Education* 20 (6): 604–621. doi:10.1080/13603116.2015.1102339.
- Iovannone, R., G. Dunlap, H. Huber, and D. Kinkaid. 2003. "Effective Educational Practices for Students with Autism Spectrum Disorders." *Focus on Autism and Other Developmental Disorders* 18 (3): 150–165. doi:10.1177/10883576030180030301.

- Kitchen, H., S. Maghnouj, R. R. Li, G. Bethel, E. Fordham, and M. Fitzpatrick. 2019. *OECD Reviews of Assessment and Evaluation in Education: North Macedonia*. Paris: Organisation for Economic Cooperation and Development. doi:10.1787/079fe34c-e.
- Kossewska, J., and K. Sarlej. 2018. "Knowledge about Autism by Polish Future Psychologists." *Annales Universitatis Paedagogicae Cracoviensis – Studia Paedagogica* XI: 186–203. doi:10.24917/20845596.11.13.
- Lessner Lištiaková, I., and D. Preece. 2019. "In-service Education and Training for Teachers regarding Autism Spectrum Disorder: A Review of the Literature." *Annales Universitatis Paedagogicae Cracoviensis: Studia Psychologica* XII: 177–199. doi:10.24917/20845596.12.9.
- Lindemann-Matthies, P., C. Constantinou, H.-L. Lehnert, U. Nagel, G. Raper, and C. Kadji-Beltran. 2011. "Confidence and Perceived Competence of Preservice Teachers to Implement Biodiversity Education in Primary Schools—Four Comparative Case Studies from Europe." *International Journal of Science Education* 33 (16): 2247–2273. doi:10.1080/09500693.2010.547534.
- Lisak, N., D. Bratković, and T. Anić. 2017. "Experiences from the Education System – Narratives of Parents with Children with Disabilities in Croatia." *Journal of Special Education and Rehabilitation* 18 (3–4): 91–125. doi:10.19057/jser.2017.28.
- Marshall, D., and C. Goodall. 2015. "The Right to Appropriate and Meaningful Education for Children with ASD." *Journal of Autism and Developmental Disorders* 45 (10): 3159–3167. doi:10.1007/s10803-015-2475-9.
- Minister of National Education. 2016. *Law on School Education (Act of 14 December 2016)*. Warsaw: Minister of National Education. <https://www.dziennikustaw.gov.pl/DU/2017/356>
- Minister of National Education. 2017. "Ordinance on the Conditions for Organizing Education, Upbringing and Care for Disabled Children and Youth, Socially Maladjusted and at Risk of Social Maladjustment." *Journal of Laws of the Republic of Poland 1591*. Warsaw: Minister of National Education. <http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20170001591>
- Ministry of Education and Science. 2015. "Report: Activities of Ministry of Education and Science and Bureau for Development of Education in Relation to the Education of Children with Autism." Skopje: Ministry of Education and Science, Bureau for Development of Education. <http://ombudsman.mk/upload/Godisni%20izvestai/GI-2015/GI%202015-Ang-za%20pecat.pdf>
- Ministry of Education and Science. 2018. "Comprehensive Education Strategy for 2018–2025." Skopje: Ministry of Education and Science. <http://mrk.mk/wp-content/uploads/2018/10/Strategija-za-obrazovanie-ENG-WEB-1.pdf>
- Ministry of Science and Education. 2014. *Strategy of Education, Science and Technology – Nove Boje Znanja*. Zagreb: Ministry of Science and Education. <https://mzo.gov.hr/UserDocImages/dokumenti/Obrazovanje/Strategija%20obrazovanja,%20znanosti%20i%20tehnologije.pdf>
- Ministry of Science and Education. 2015. *Regulation on Primary and Secondary Education of Students with Developmental Difficulties (Official Gazette, No. 24/2015)*. Zagreb: Ministry of Science and Education. https://narodne-novine.nn.hr/clanci/sluzbeni/2015_03_24_510.html
- Morrier, M. J., K. L. Hess, and L. J. Heflin. 2011. "Teacher Training for Implementation of Teaching Strategies for Students with Autism Spectrum Disorders." *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children* 34 (2): 119–132. doi:10.1177/0888406410376660.
- Official Announcement Publications. 1980. *Law for Upbringing and Education 1980*. Zagreb: Official Announcement Publication (NN 123/1980).
- Operetti, R., and C. Belalcázar. 2007. "Trends in Inclusive Education at Regional and Interregional Levels: Issues and Challenges." *Prospects* 38 (1): 113–135. doi:10.1007/s11125-008-9062-1.
- Piskorz-Ogórek, K. S., O. A. Cieślińska, and E. Kostyra. 2015. "Autism in Poland in Comparison to Other Countries." *Polish Annals of Medicine* 22 (1): 35–40. doi:10.1016/j.poamed.2015.03.010.
- Popović, M. 2013. *Teacher Education and Training in the Western Balkans: Report on Croatia*. Warsaw, Poland: European Commission.
- Powell, E., S. Furey, A. Scott-Evans, and I. Terrell. 2003. "Teachers' Perceptions of the Impact of CPD: An Institutional Case Study." *Journal of In-Service Education* 29 (3): 389–404. doi:10.1080/13674580300200225.

- Ravet, J. 2018. "But How Do I Teach Them?": Autism & Initial Teacher Education (ITE)." *International Journal of Inclusive Education* 22 (7): 714–733. doi:10.1080/13603116.2017.1412505.
- Roleska, M., A. Roman-Urrestarazu, S. Griffiths, A. N. V. Ruigrok, R. Holt, R. van Kessel, K. McColl, et al. 2018 August 30. "Autism and the Right to Education in the EU: Policy Mapping and Scoping Review of the United Kingdom, France, Poland and Spain." *PlosOne* 2018: 17. doi:10.1371/journal.pone.0202336.
- Sekušak-Galešev, S., J. Frey Škrinjar, and L. Masnjak. 2015. *Examining Social Inclusion and Quality of Support in Preschool, Elementary and Secondary Educational Institutions for Children and Students with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD)*. Zagreb: Faculty of Education and Rehabilitation Sciences University of Zagreb.
- Simpson, R. L., N. A. Mundschenk, and L. J. Heflin. 2011. "Issues, Policies, and Recommendations for Improving the Education of Learners with Autism Spectrum Disorders." *Journal of Disability Policy Studies* 22 (1): 3–17. doi:10.1177/1044207310394850.
- Skonieczna-Zydecka, K., I. Gorzkowska, J. Pierzak-Sominka, and G. Adler. 2017. "The Prevalence of Autism Spectrum Disorders in West Pomeranian and Pomeranian Regions of Poland." *Journal of Applied Research in Intellectual Disabilities* 30 (2): 283–289. doi:10.1111/jar.12238.
- Smith, M. K., and K. E. Smith. 2000. "'I Believe in Inclusion, but ...': Regular Education Early Childhood Teachers' Perceptions of Successful Inclusion." *Journal of Research in Childhood Education* 14 (2): 161–180. doi:10.1080/02568540009594761.
- Smyth, F., M. Shevlin, T. Buchner, G. Biewer, P. Flynn, C. Latimer, J. Šiška, M. Toboso-Martin, S. Rodríguez Díaz, and M. A. V. Ferreira. 2014. "Inclusive Education in Progress: Policy Evolution in Four European Countries." *European Journal of Special Needs Education* 29 (4): 433–445. doi:10.1080/08856257.2014.922797.
- Sosu, E. M., P. Mtika, and L. Colucci-Gray. 2010. "Does Initial Teacher Education Make a Difference? The Impact of Teacher Preparation on Student Teachers' Attitudes Towards Educational Inclusion." *Journal of Education for Teaching* 36 (4): 389–405. doi:10.1080/02607476.2010.513847.
- Starczewska, A., A. Hodkinson, and G. Adams. 2011. "Conceptions of Inclusion and Inclusive Education: A Critical Examination of the Perspectives and Practices of Teachers in Poland." *Journal of Research in Special Educational Needs* 12 (3): 162–169. doi:10.1111/j.1471-3802.2011.01209.x.
- State Statistical Office. 2020. "MakStat Database." <http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat>
- Statistics Poland. 2019. "Oświata I Wychowanie w Roku Szkolnym 2018/2019." <https://stat.gov.pl/obszary-tematyczne/edukacja/edukacja/oswiata-i-wychowanie-w-roku-szkolnym-20182019,1,14.html>
- Trajkovski, V. 2017. "Macedonia and Autism." In *Encyclopedia of Autism Spectrum Disorders*, edited by F. Volkmar. doi:10.1007/978-1-4614-6435-8_102172-1.
- Trnka, V., and S. Skočić Mihić. 2012. "Kindergarten Teacher Dealing with a Child with Autism Spectrum Disorder: Case Study from a Student's Perspective." *Magistra ladertina* 7 (1): 189–202.
- Troshanska, J., V. Trajkovski, F. Juratoski, and D. Preece. 2018. "The Impact of ASD on Macedonian Families and Their Experience of Parent Education." *Journal of Special Education and Rehabilitation* 19 (3–4): 127–138. doi:10.19057/jser.2019.44.
- Urbanovská, E., J. Kantor, and M. Růžicka. 2014. "The Education of Students with Autism Spectrum Disorders from the Teacher's Viewpoint – A Czech/Polish Comparative Study at the Secondary Education Level." *Proceedings of the International Scientific Conference: Society, Integration, Education* 23–24 May 2014 3: 137–151. doi:10.17770/sie2014vol3.724.
- Valdman, A., M. Rannikmae, and J. Holbrook. 2016. "Determining the Effectiveness of a CPD Programme for Enhancing Science Teachers' Self-efficacy Towards Motivational Context-based Teaching." *Journal of Baltic Science Education* 15 (3): 284–297.
- Vygotsky, L. S. 1993. *The Collected Works of L. S. Vygotsky. Volume 2: The Fundamentals of Defectology*. New York: Springer.