



Erasmus+ project „Empowering primary school teacher to include pupils with special education needs into physical education classes using digital tools“

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Report of a research study on primary school teachers' self-efficacy and the use of digital technologies to include children with special educational needs in physical education lessons

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*Empowering primary school teacher to
include pupils with special education
needs into physical education classes
using digital tools*



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Qualitative Research report on the use of digital technologies in inclusive primary physical education lessons

● About the study

Aim of the study

The SENDIt each project goal is to empower primary school teacher to include pupils with special education needs (SEN) into physical education (PE) classes assisted by digital tool. To prepare empowering content for primary school teachers we wanted to understand the existing gaps related with teachers' digital competencies and their self-efficacy in adaptation of educational content to pupils with SEN. The process of analyzing above issue in four countries (Finland, Latvia, Lithuania and Poland) was divided into two phases – qualitative study based on opinions of experienced PE teachers working in the field with pupils with SEN and using digital resources, and quantitative study designed to analyze broadly the current situation. The present report will present results of first phase – qualitative study.

Methodology

For qualitative analysis the focus group interviews (FGI) were conducted in four countries (Finland, Latvia, Lithuania and Poland) according to agreed template including welcome, introduction, purpose of FGI, ground rules and discussion with 6 questions. Participants were asked about:

- their experiences in using digital technologies in preparation, implementation with SEN pupils, implementation with other teachers, assessment, communication/interactions with SEN pupils, building community of practice (with teachers/families) for (inclusive) PE classes (when including pupils with SEN).
- challenges they might face when teaching PE in a group that also includes pupils with SEN
- type of support would they need for their work with SEN pupils and in the collaboration with school

The details of FGI in four countries are presented in table 1 and in FGI country reports in appendices.

Table 1. General information on Focus Group Interviews (FGI)

	Finland	Latvia	Lithuania	Poland
In-Person/remote FGI meeting	remote	remote	remote	remote
Date	May 2022	May 2022	May 2022	June 2022
Number of groups	1	1	1	2
Meeting duration (h)	1.5	1	1	2

Sample

The inclusion criteria for our FGI participants were following:

- primary school teachers,
- age: 30-60 years old,
- teaching experience: minimum of 7 years and working in inclusive physical education classes and using digital resources and technologies

It was also recommended to recruit participants working in both rural area or countryside area that is located outside towns and cities and in urban area (cities, towns and suburbs) (Table 2).

Table 2. Focus Group Interviews (FGI) sample characteristics

	Finland	Latvia	Lithuania	Poland
Gender	3 F	6 F / 1 M	7 F / 1 M	10 F / 2 M
Rate	3 ESE	7 PE	8 ESE	7 ESE / 5 PE
Teaching experience (years)	21-36	12-31	13-33	7-21
Place of teaching	3 U	7 U	5 U / 3 R	8 U / 4 R

ESE - Early School Education teachers, F – females, M – males, PE – physical education teachers, R – rural area, U – urban area

Special Education Needs (SEN)

The sample included teachers working with pupils with the following disfunctions: Asperger's, Autism Spectrum Disorders (ASD), Aphasia, attention deficit hyperactivity disorder (ADHD), Down Syndrome, Tourette's, sensory processing disorder, hearing impairments, visual impairments, behavioural impairments (attitude problems, unpredictable aggressive behavioral, emotional regulation problems), poor command of the teaching language, severe developmental disorders, children and families at risk.

● Results

Focus group interview results from Finland

General information		
Focus group (on-line) in Finland. Report prepared by Maija Puromies and Kwok Ng from Philosophical Faculty, University of Eastern Finland		
Date: 2022 05 25		
Duration: 83 min		
Number of participants: 3	Females - 3	Males - 0
Teaching experience (years)	21, 25, 36 years	
Work place	Urban 3	Rural 0
Working with SEN (current situation and experience in the last 7 years)	Asperger's, Autism Spectrum Disorders (ASD), attention deficit hyperactivity disorder (ADHD), visual impairments, hearing impairments, behavioural impairments (attitude problems, unpredictable aggressive behavioral, emotional regulation problems), poor command of the teaching language	

<i>Experience, as a teacher, using digital technologies as a consequence of COVID-19, and briefly describe (in a few words), your experience of working with pupils with SEN.</i>	
<i>Statements</i>	<i>Quotes</i>
Certain types of special support needs emerged from the discussion.	<p><i>“Starting to be more individualistic, also supported by their homes. Unwilling to listen to rules. Attitude problems and restlessness. Language wall problems.”</i></p> <p><i>“Identify the advanced model of inclusion in this city, where the autism spectrum is diagnostically most represented. Second comes ADHD as well as ADD children. There are also many with sensory impairments to varying degrees.”</i></p> <p><i>“Experiences with unpredictable aggressive students with, among other things, emotional</i></p>



The ideal of a two-adult model is also evident in the context of this question: one educator takes care of the whole and the other of the specificities - which are always present in PE. The risks in terms of safety are taken into account in the two-adult model.

A large proportion of PE lessons are also transition situations, which pose challenges for visually impaired pupils, for example. And new places and situations for neuropsychological children who appreciate routines. Changing rooms and showers also continue to provide easy after-hours sessions. It can be a very unprotected space for an underprivileged pupil, threatened with violence if there is a match in the lesson and they end up losing when there is a perception of 'cheating' etc.

The national curricula of Finnish comprehensive schools, dating back more than 50 years, increasingly emphasized the importance of social skills, manners and cooperation in physical education that it is

regulation problems. Not even assistants help, but when an uncontrollable impulse approaches, the student has to be taken out of the group to a different room. Lost situations have also had to be avoided with pupils who can't take losing."

"The role of the personal assistant is perceived to be important, for example when a child with visual impairment participates in physical activities. Sport is an inclusive subject, if anything."

"I have seen the mother of a special needs child in a swimming hall with a teacher and personal assistant."

"PE is an inclusive subject even in large class size schools and settings. There may not be a resource of assistants, especially for higher grade levels. This highlights specificities in students, even if just sensory sensitivities."

"Shortcomings in the spaciousness and acoustics of indoor PE rooms also cause great irritation for the teacher, for which earplugs can be a helpful aid. The challenges of teaching PE to other classes than your own, are often compounded by a complete lack of awareness of pupils' special needs. "

"The students' physical activity was monitored through a self-written diary, as well as other subjective distance learning activities."

"I happened to have a sixth grade class and they were quite knowledgeable about using the devices."

"Several sports clubs, sports organizations, etc. provide useful and activating physical education materials online."

"The sport videos also include interactive stuff. A colleague and I made a link compilation of these and other similar videos, leaving the implementation to the parents."



so as a big part of it, with other areas remaining almost unchanged. (Sairanen 2015). The eternal disputes in the rule games, that it is the physical education.

Experiences in Covid time: The teacher deconstructed the lesson plan for PE: a small amount of PE every day with a clear modeled task was considered better than, say, two lessons a week. In this way, physical activity was thought to be a reality in the pupil's exceptional school life. The idea of physical education was enough to be an exception - it was not just seen as a 'throwaway' subject. Families of distance learners were believed to be prepared to support distance learning for young pupils. A local issue as well. The ideal age group was with the 6th graders as they could use computers and were able to work responsibly. Moreover, planning for lessons were made easier for the teachers because everyone involved in sports had the same issues.

The distance learning situation came up quickly and the responsibility issues were not entirely clear to the parties involved.

Finally, during the COVID-19 restrictions, with distance learning period, every teacher finally had to do a proper digital leap.

“To the 4. graders no extreme sports activities could be given to the pupils, as there were issues of responsibility.”

“For the whole family or groups of friends, tasks integrated with other subjects. So the second grader wouldn't be alone. With a camera to record physical activity performances.”

“Second grade teacher at the time. No experience with Teams etc. Watching Microsoft tutorial videos, took over the whole system. Felt lucky to have the opportunity for this personal digital adventure.”

Please, share your experiences in using digital technologies in



1. Preparation	
<p>It's good to have tools to facilitate the approach and the transfer of information. Every lesson counts, so good planning and commitment to your plans are worth it!</p> <p>As part of the preparation for lessons, e.g. the national MOVE! tests measuring the mobility of children and young people, teachers are required to consult the relevant internet resources. In addition, even children's television programmes provide good reminders of the different sports and how to teach them. The range of sports for the Finnish teacher, with all its winter sports, is enormous. And the age range of those for whom the lessons are taught. A trained and experienced teacher looks at even the most entertaining teaching programmes from a didactic and professionally reflective point of view.</p> <p>The objectives and content of some lessons are based on online material, which the teacher refers to when planning the lessons: MOVE! tests.</p>	<p><i>"It's great if the teacher of PE is approached by the guardian, even if it's through a message, and told about the special support needs of his/her dependent. This opens up a new connection between the guardian and the subject teacher."</i></p> <p><i>"Technology can also be used to provide information to the whole staff about special support needs, e.g. distributed by the principal."</i></p> <p><i>"Preparing in advance for challenging situations using digital tools: opening up the rules and content of PE lessons, necessary and appropriate equipment, engaging, e.g. through Wilma messages for families to discuss together."</i></p> <p><i>"The city's sports department has made a video about the swimming hall. Showing it in homes before the first swimming pool session. Especially important in a multicultural city. There is also a video of the annual prom that can be watched at home to reduce the excitement. It is hoped that people with special needs will watch them in particular. After all, a picture is worth a thousand words."</i></p> <p><i>"As a teacher, when you jump from the sixth to the first class, it is good to review didactic skills, how to approach the disciplines, when it's been a while since you trained as a teacher. There are good tips for this in children's programmes on TV."</i></p> <p><i>"Long teaching experience reduces the need to prepare for lessons, but the distance learning time made me rediscover new things."</i></p>
2. Implementation with pupils	
<p>Digital tools are used at the beginning of the lessons to find a common thread, during the lessons to activate movement and at the end to relax. Usually in large, fully integrated PE teaching groups for</p>	<p><i>"Watching instructional videos as a class and still absorbing things inside the classroom. No need for the teacher to shout out to outside."</i></p>

<p>children with special needs, group management is under pressure, so any help is needed, especially if another adult is not available. One important prerequisite for group management is knowledge of the pupils, which can also be shaky if the subject teacher or another class teacher teaches PE in that class.</p>	<p><i>“Photo navigation, moving around in nature with QR codes on personal cell phones. A device like a device inspires many to get moving.”</i></p> <p><i>“Timekeeping and measurements with mobile phones, in addition to the above. From cell phones, instructions for running and music for endurance and imaginary journeys.”</i></p> <p><i>“Exercise is an enjoyable subject in general, even for children with special needs. Attention must be paid to the provision of instructions. And disputes and ambiguities resolved. Sometimes you have to pedagogically stop the pupil.”</i></p> <p><i>“Hypnotic music for wild quakers. Otherwise, music is always with me. Going through the sport types together - makes you feel confident too, as a teacher. Common rules of the game. Otherwise, it's been pretty old school in sports in my lessons.”</i></p>
<p>3. Implementation with other teachers</p>	
<p>Tips on good educational videos or videos that encourage physical activity will be shared.</p> <p>The communication platform, Wilma, allows teachers who teach the same pupils to see both daily issues concerning their pupils and longer-term plans.</p>	<p><i>“One colleague and I were looking for videos for different sports, and there are so many of them. Dancing, all the jumps. Interactive fun stuff like that. I think I had two sports groups at that time, fourth grade and second grade. For the smaller ones, my colleague and I put together these compilations of what we could find.”</i></p>
<p>4. Evaluation</p>	
<p>The online platform for cooperation between home and school, Wilma, provides a good opportunity to support the evaluation.</p> <p>Measuring physical activity performance as part of physical education lessons is no longer the order of the day.</p>	<p><i>“Use of Wilma notes, what you have remembered to mark.”</i></p> <p><i>“Use of Wilma's formative assessment platform in PE. As encouraged by the Education Authority, at least in one assessed subject during the academic year.”</i></p> <p><i>“Wilma's HOJKS forms (The online platform for cooperation between home and school, Wilma, provides document templates for the personalised education plan.)! Digitalisation is</i></p>



	<p><i>so commonplace that you don't even notice it anymore."</i></p> <p><i>"Measurement starts with comparison with others, no matter how much you emphasise that this is about monitoring your own fitness. Measuring has become less common nowadays anyway. Move tests show that mobility and physical activity skills of children and young people nationally have been declining year on year."</i></p>
5. Communication/interactions with pupils / parents	
<p>The language barrier is also a special support, so translation applications like this are really necessary, especially when it comes to specific sports vocabulary.</p> <p>Sports programmes for school children on TV can be a good example of how to present your own sports activities.</p> <p>Otherwise, positive attention, digital or not, is important for special needs pupils to maintain the joy of sport.</p>	<p><i>"Google translator on the teacher's phone in PE lessons; the vocabulary is so specific. There are a lot of immigrants in the area, and the preparatory class certainly doesn't give full language skills yet."</i></p> <p><i>"The TV series for schoolchildren "My Sport" comes to mind, which has been used by pupils to present their own sports. Alternative lesson programmes."</i></p> <p><i>"Special needs students are given special attention through digital or non-digital interventions to maintain the joy of play."</i></p>
Building community of practice (with teachers/families) for (inclusive) PE classes (when including pupils with SEN)	
<p>Teachers use digital apps for communication, group management, well-being.</p>	<p><i>"Groups on Google Class-room, before going out for outdoor sports, for example. My Mind app at parent-teacher evenings as a basis for health education questions. With older students in class."</i></p> <p><i>"WhatsApp group run by the class teacher, also to inform PE lessons. Gym moments online - also in connection with the Erasmus project. Active body, active mind theme partly on line in Erasmus project."</i></p> <p><i>"Experiences from the Real food, real play - project, which observes the interplay between sleep, exercise and nutrition. The same work</i></p>

	<i>continues throughout the school day, keeping guardians up to date via Wilma.”</i>
<i>What challenges you might face when teaching PE in a group that also includes pupils with SEN?</i>	
<p>Technology-related challenges and their solutions were linked to technology, other circumstances, personal skills and pupils.</p> <p>Technological problems occur where there is technology. But the school context brings particular challenges when problems arise.</p> <p>But surprising help is often close at hand: today's children. The very recent generation of digital natives can, but are no longer obviously enthusiastic about using digital tools. There is also an awareness of the downside of excessive screen time, both on the part of pupils and teachers. Pupils help teachers with digital issues. Even those with special needs. Helping and succeeding empowers pupils.</p>	<p><i>“The equipment doesn't work, or you can't solve a problem yourself.”</i></p> <p><i>“Or not reading messages in homes to help with plans. There are too few devices. Students don't have phones to use.”</i></p> <p><i>“Watching instructional videos becomes more difficult if teaching PE to another class than your own: there may not be facilities for it.”</i></p> <p><i>“Technology fails anywhere and everywhere, but a teacher can have 60 children waiting anxiously while they try to solve the situation.”</i></p> <p><i>“The IT managers of the school are stuck in their own groups. The situations are frustrating, yes.”</i></p> <p><i>“Observations: young newly qualified co-teacher does not rush first grade e.g. tablets. Not until after Christmas. Also, the digital generation does not perceive digital tools as the most glamorous in every situation. Given a choice, pen and paper often wins.”</i></p> <p><i>“The others don't like it at all that we're on a computer.”</i></p> <p><i>“Some students are very aware of their daily screen time, and they take care of it during the school day!”</i></p> <p><i>“As a health science teacher, I know how eyes get tired from constant staring at the screen. The eye rests when looking far away, e.g. at the blackboard. Soon everyone will be wearing glasses from a young age.”</i></p>

<i>What kind of support would you need for your work with SEN and in the collaboration with school?</i>	
<p>An appropriate ratio of pupils to staff, so that safety and structure are maintained. And that the equipment is up-to-date and up-to-date in its operational features. There is no substitute for people, digital or not.</p> <p>For one reason or another, a PE group that is perceived to be out of control impoverishes PE teaching.</p> <p>In the absence of a two-teacher model and a school counsellor, the teaching assistants are particularly appreciated in PE lessons and active parents are used, especially for younger pupils.</p>	<p><i>“Resourcing. Assistants. When you have such large groups, you could do with more resources for assistants, when we don't have any male assistants there either, or there is one, one man in simultaneous teaching, or a really experienced teacher. Or that yes, there could be more black people.”</i></p> <p><i>“Resources, maybe, or so that the teaching groups are of a size that maintains safety. And maybe just that the structure is in order. That the equipment is updated and up to date. But that's how we know that there's a poor teacher in the school, a digital manager, who tries to do his own work alongside his own training and self-acquired training.”</i></p> <p><i>“How similar are these challenges, that you can see that these challenges are quite similar.”</i> <i>As a substitute, someone has sometimes said to me from a class that don't go beyond the schoolyard with those, they might surprise you. Sometimes I've gotten messages like that, and then I've quickly made a new plan when I don't know enough.</i></p> <p><i>“That nothing can replace that person. Like those special needs kids in the sports group, so yes it's valuable to have two adults there. Whether there are digital devices in the class or not.”</i></p> <p><i>“If you have a big group, then yes it will in that way define it, that if you had a smaller group or a group with no specific needs. So then it's easier</i></p>



	<p><i>to go to a climbing place or it's easier to go somewhere else. A little bit further away from the school zone. When you don't have that resource or that other teacher when the group is so large. Then you might choose not to go. That would impoverish physical education. When you have physical limitations and then you don't have the time, or especially if you don't know the student that well, if it's not your own student, it's quite risky to leave if something happens.”</i></p> <p><i>“It's pretty awesome when I always have trainees, maybe once, sometimes twice a year, so it's pretty awesome when it's the three of us. Even though the trainee doesn't have teaching responsibilities, the difference - it brings a whole different framework to those PE lessons. When there are extra hands and pairs of eyes. Just for all the brainstorming and all the other things that you can do when you have more than one person. But there are no other opportunities. There are no assistants, so it's them and the short training period.”</i></p> <p><i>“As a substitute, someone has sometimes said to me from a class that don't go beyond the schoolyard with those, they might surprise you. Sometimes I've gotten messages like that, and then I've quickly made a new plan when I don't know enough.”</i></p> <p><i>“For the first grade skating class, I always put out a message to the parents that any volunteers, hey, tie the ribbons there. So quite a few parents dropped in. That was a big help. And then when we went on a field trip with the little ones, there were a few parents who were happy to join the group, so that the rear end would stay with them. It was at least fun in the primary school.”</i></p>
<p><i>Would you like to add something important we missed to mention or to discuss?</i></p> <p><i>“Digital tools are quite new to me. I learned from this discussion.”</i></p> <p><i>“It was enlightening to discover that my own (daily, work-related) activities are part of digital literacy.”</i></p> <p><i>“So being part of the discussion gave a meta-level to my own thinking and actions.”</i></p> <p><i>“One never has time to stop for such a professional discussion with colleagues. Refreshing.”</i></p>	

Focus group interview results from Latvia

General information		
Focus group in Latvia. Report prepared by Aija Klavina (transcripts done by Nadija Strazdina, translation done by Greta Franceska- Jermolenko)		
Date: 19.05.2022.		
Duration: 12.00 – 13.15		
Number of participants:	Female: 6	Male: 1
Physical Education / Early school education teacher	Physical Education teachers	
Age:	27 - 59	
Work place	Urban area: Riga,Ventspils,Jelgava,Kuldiga	Rural area
Teaching experience (years)	12-31	
SEN (current situation and experience in the last 7 years)	<p>All the teachers have been working with children with mental or physical disabilities (for example, learning impairments, physical impairments, intellectual impairments, severe multiple developmental impairments). In some of the schools during the years the number of students has increased and there are mostly children with the 58 and 59 code. What is common in all the schools is that there are not enough assistants for these students and because of that the quality of sports lessons decreases. They have one on one sports lessons with teachers, but rarely together with classmates, because there is not enough assistance.</p> <p><i>“Every year the number of students with mental or physical disabilities increases, but the number of teachers does not. It makes the work with these children more difficult”.</i></p> <p><i>“It is more necessary to include these children in regular schools instead of separating them. They can learn from other students, otherwise they develop in their own “bubble”.</i></p>	
Experience, as a teacher, using digital technologies as a consequence of COVID-19, and		



briefly describe (in a few words), your experience of working with pupils with SEN.

When it comes to working with pupils with SEN during COVID-19, all teachers pointed out that the help from parents was very important. They used e-class, zoom and Microsoft Teams. What was pointed out by the teachers working with these pupils was that tablets were a good technology that make easier to include them in activities allowing them to be active. Children were given exercises or assignments also combined with other subjects. The challenges they faced was that for some children the home environment and equipment were not suitable for physical exercises. Some pupils needed assistance and support to perform activities.

“While working during pandemic, parent involvement was important, especially working with younger students, because they were not thought before how to use technologies”.

“Unfortunately, there were students whose living conditions made it harder to implement technologies in study process during pandemic. It took more time and effort to provide them with the same quality of studies as other students”.

“There were many new digital technologies and it took extra time and energy to understand which ones are the most appropriate especially working with pupils with SEN”.

Please, share your experiences in using digital technologies in

Preparation

In preparation teachers mostly used google docs to create shared documents or questionnaires. Also, QUIZY and Cahoot, youtube, Menticom and other platforms were often used to prepare class materials which were sent to pupils digitally or if technologies were not available, then printed out and handed to parents or pupils themselves. Teachers learned themselves working in teams with teachers of other subjects to use digital tools.

“It was important to prepare the materials and use the technologies appropriate for the students age and ability”.

Implementation with pupils

As mentioned above, teachers used google docs, google drive, e-class and WhatsApp and other platforms where teaching materials were shared. Pupils or their parents had the access to them via computers or tablets. Zoom and Microsoft Teams were the platforms in which they made video calls and had live classes.

For individual work movement tracking apps such as “Decathlon coach”, “Strava”, QR codes and “Adidas gymnastic” were used to make pupils physically active. For example, counting steps and following their heart rate by using a smart watch. Restrictions in using digital tools indicated by the teachers were related to children with physical disability who were not able to use such apps. Also, elementary school pupils were allowed to do practical tasks (e.g., walking in the city) only together with parents. Overall, the parent involvement was important because it allowed pupils to participate in more physical activities. Also, the lack of teacher assistants is limiting issue.

“We had to understand students access to digital technologies. If necessary, we tried to provide them or find alternatives”.

“There was struggle with some of the students, because they had lack of sense of responsibility, so the use of technologies was limited”.



Implementation with other teachers

Before COVID-19 every teacher had their own style of teaching. During the pandemic all of them had to switch to teaching remotely. Teachers learned step by step new digital teaching methods. Also, they searched new ways and technologies and shared with other colleagues. Mostly all the teachers used the same platforms – WhatsApp, zoom, e-class, Microsoft Teams, Google docs where they collected, stored, or created the materials for PE classes. It was frequently mentioned by all teachers that there is no one teaching platform where it can be stored or shared with other teachers. There is one available in Latvia called skola.lv while which is still being improved. The goal is to have this one platform which would allow teachers to have all information in one place and eventually the platform would be accessible for pupils.

‘There is a big need for a united network among all teachers, where we can share all the information about the use of technologies and study materials. That would save us a lot of time for preparation and the quality of lessons would improve as well’.

Evaluation

Pupils were given tasks in Zoom or Microsoft Teams platforms and evaluated from their performance in class. For homework/ feedback teachers asked pupils to make videos or take pictures (only with the permission from parents) and send them via WhatsApp or Google drive. Apps such as Scratch and Canva were used for pupils to create their own videos, cartoons, pictures etc. However, PE teachers had to follow the teaching content provided by other teachers to make sure if pupils have learned digital skills, they want use with their pupils. Evaluation was more difficult because majority of lessons happened remotely. All the teachers said that the younger pupils where not thought how to use technologies or log in to the apps. For children with mental disabilities some of the technologies or apps where too complicated to understand completely. They couldn't do the tasks by themselves, only with the help of parents. Also, not all the homework assignments/ tasks were asked to be sent via apps, so the teachers did not know if the pupils follow the homework or not.

‘It was difficult to evaluate pupils appropriately because we could not know if the task is done by them or someone else. We had to trust students’.

‘The beginning of remote study process was difficult especially for younger students because they did not understand technology and could not participate in study process by themselves. Extra involvement of teachers or parents was crucial’.

Communication/interactions with pupils

To receive the feedback from pupils and their parents was important issue for all teachers. They learned and searched new ways in which to make PE class content more interesting, so it doesn't get boring while more motivate pupils to be active. YouTube was commonly used for watching videos, Scratch to create their own videos and cartoons. App Word Wall (random wheel) with whom it was easier to include all pupils. Via WhatsApp, zoom and Microsoft Teams teachers communicated with pupils and parents, yet it was more difficult than face to face lessons, because the technologies distracted pupils, especially for elementary school pupils.



‘‘It was important to make PE classes various and interesting for students, because that was the best way how to receive feedback’’.

‘‘Students were given homework’s which they had to do independently for them to improve self-discipline’’.

Building community of practice (with teachers/families) for (inclusive) PE classes (when including pupils with SEN)

Some of the teachers mentioned that there are a lot of courses provided for them to learn new and more information about technologies. Yet the lack of time for that was also mentioned as well as the fact that there are still many older age teachers in schools. For them it takes longer to learn new things and the pressure from that can be overwhelming and some teachers chooses not to learn about or implement technologies in their lessons.

When it comes to including pupils with SEN all teachers said the same – there is not enough assistance. As one teacher said – there is no point of new technologies if there is not enough human support resources such as assistant teachers and assistants for pupils with disability. It is also important to include pupils with SEN in PE classes. Teachers agreed with each other, that pupils would interacting with each other and would feel more motivated to participate in PE.

‘‘There is training available for teachers about new technologies, but we do not have the extra free time to do so. For senior teachers the amount and the speed in which they must learn all the new information and use of technology is overwhelming’’.

‘‘There is need for more support for teachers so we have more free time also to learn new technologies and we would not have to use our free time to do so’’.

‘‘Future study process is not imaginable without digital technologies’’.

What challenges you might face when teaching PE in a group that also includes pupils with SEN?

As previously mentioned, the lack of support resources and assistance for children with disability. When it comes to using technologies in lessons, some of them can be too complicated for children with disabilities. Remote lessons can be challenging because of lack of tablets or computers as well as the surroundings in which these children live. Teaching pupils with SEN needs more individual work because some of their abilities are limited and teachers need to give more of their time to them and in that case the attention and effort towards other pupils decreases.

‘‘Teachers need more assistance so the pupils with SEN can have the necessary help during lessons and other students have the full attention from teachers’’.

‘‘Especially younger students need to be thought more about technology, so implementing it in the study process could be more productive’’.

What kind of support would you need for your work with SEN and in the collaboration with school?



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Empowering primary school teacher to
include pupils with special education
needs into physical education classes
using digital tools



SENDITEACH

The biggest support that is needed is more human resources in schools who can work with pupils with SEN. Another problem which was mentioned by all teachers is that children should get knowledge by learning in schools how to use technologies, so also younger pupils can fully participate in PE lessons and be more independent. It is important for teachers to have one platform in which all the information is stored and shared. That will save their time for preparing teaching content and allow them to have their PE classes more interesting. Some of the teachers said that they need more positive attitude from parents and society in general. The role and value of teachers has not been increased from media. Also, the value of PE class in school program should be improved. Furthermore, the understanding, patience, and appreciation from other colleagues is expected. During years in society the respect towards teachers have decreased which makes their work more difficult. They feel that they have less rights than pupils.

“The value of teachers has decreased, and it makes the study process more difficult. Teachers role and value needs to be restored so the work with students, parents and society in general can become better and more meaningful”.

Focus group interview results from Lithuania

General information Focus group in Kaunas, Lithuania. Report prepared by Aida Vengalė, Vida Ostasevicienė, Kristina Venckunienė from Department of Health Promotion and Rehabilitation Department, Lithuanian Sports University Date: 2022 05 18 Duration: 1 hour		
Number of participants: 8	Female 7	Male 1
Teaching experience (years)	23, 33, 19, 27, 18, 10, 22	13
Workplace	Urban area 5	Rural area 3
Working with SEN (current situation and experience in the last 7 years)	Learning difficulties, emotional and behavioural difficulties and disorders, various SEN, Autism Spectrum Disorders (ASD), Asperger's syndrome, attention deficit/ hyperactivity disorder (ADHD), mild and severe developmental disorders, children and families at-risk.	

<i>Experience, as a teacher, using digital technologies as a consequence of COVID-19, and briefly describe (in a few words), your experience of working with pupils with SEN.</i>	
<i>Statements</i>	<i>Quotes</i>
Primary school teachers worked remotely during the Covid-19 pandemic using various digital platforms (Zoom, Teams) and electronic learning environments (Eduka, EMA.)	<p>„Zoom platform because it's free. Eduka class, Eduka diary, I really liked the engaging activities. EMA when it was free. What do I have to buy myself, because the school didn't buy anything else. “</p> <p>„I use it and we used it during the quarantine, Teams, Ema, Edu class, Class dodge because of the children's behavior, but the psychologist criticized that it might not be good because of calculating points, but it's good for me, because I solved a lot of</p>

<p>Two schools belong to the global network of Microsoft schools and all teachers and pupils are required to use IT in their daily activities.</p> <p>Physical education classes were also conducted remotely using various methods, such as the Messenger application on a mobile phone; used the filming function of the mobile phone, as well as digital platforms - Youtube, ZOOM, Facebook, Tamo.</p> <p>Most of the teachers had to work with children with emotional and behavioural disorders of the autism spectrum.</p>	<p>problems, but it worked well for me, and I also use Quizz for children. “</p> <p>„Children work more with ink parker during lessons, but at home they receive assignments through the Microsoft program. We got tablets, we work on it in class, and the children get tasks on how and what to do, and I also connected class dodge”.</p> <p>„In PE classes, we studied in a group via Teams and Messenger. It was difficult at first. We played Kahoot games, and they made videos, and they filmed their exercises, they did homework, and they threw pebbles, and they filmed all the tasks and sent them to me. And this year at our special the pedagogue has an interactive board and where all the games are played on the floor, twice a month. let's go play on the floor, play around.”</p> <p>„During breaks, we connect Youtube exercises. When they can see visually, it is easier for them to make movements. “</p> <p>„FB, Zoom, Youtube, Messenger. I connect the phone to the computer and then they count steps, show me a report of the distance they walk, so they can prove what they have done. We also have a projector where we roll on the floor during breaks and it's like Kahoot, Quiz when you need theory and to learn and remember faster.“</p>
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Please, share your experiences in using digital technologies in

1. Preparation	
<p>All teachers use digital technologies for lesson preparation.</p>	<p>„I use it for preparation, to make the material interesting, to make it suitable for presentation to autistic people. “</p> <p>„I used to prepare a lot for PE lessons, I watch a lot of YouTube and choose the ones that are really suitable for children. “</p> <p>„It was the biggest challenge to prepare for PE lessons during the quarantine, it is better to prepare 5 Lithuanian language lessons than physical education!!!“</p>

<p>One teacher uses digital textbooks to prepare lessons and assignments, but according to her, paper textbooks are better for SEN children</p>	<p>„SEN children have a harder time focusing their attention, they see something completely different when they look at the board.”</p>
<p>2. Implementation with pupils</p>	
<p>All teachers use DT to conduct lessons and prepare homework.</p> <p>Digital technologies especially help teachers if children are reluctant to accept SEN children in the team, do not want to play with them.</p> <p>DT sometimes replaced by children who help the teacher to include children with SEN in the PE lesson.</p> <p>The Education Assistance Project helped teachers to include children with SEN in PE classes in one school, during which 16 sessions were held. Video material was provided that the children could watch with their parents.</p>	<p>„I refer children to material on the Internet and it works as an element of interest. After watching the movie, it becomes more interesting for children, it makes them more interested. They all have technology now. “</p> <p>„For work in the PE lesson, I use DT as a tool that, well, the computer has randomly selected this or that task or friend with whom you will have to do it, and then they have no reason to be angry, because the computer chose it, not the teacher.”</p> <p>„I have kids that Dodge chooses (interactive boy) and then they do everything together with him (exercise, task). When I don't say it, they do better when they do it with the kids. Together with this person, they also perform other activities willingly.”</p> <p>„When there is no app, my other healthy children are the moderators and they manage everything, because they responsibly take on their responsibilities. You know, my hands don't waver anymore, what I do: everything in parts, everything one step at a time, I learned patience, let's stop, wait, take it easy, take our time, at the same time take great care of them. Patience. “</p> <p>„I used to tell the parents in the evening what they had to review, I explain it even before the lesson, and within a year or two, we already have a result - they already learn how to behave, they already know how to run in a circle with others, and participate in activities, there is no anger, you don't sit in the corner. “</p>



<p>A special platform with lots of games and more has helped other teachers to teach lessons involving children with SEN. physical activities.</p>	<p>„The Olympic education platform, where you upload a lot of exercises and games with the oak, helped a lot. “</p>
<p>3. Implementation with other teachers</p>	
<p>All teachers said that they communicate with each other through Zoom, Teams platforms, where conversations between colleagues take place. Communicates only between members of your group using the Messenger app. Not a single teacher has communicated with teachers from foreign countries.</p> <p>Teachers from other schools are communicated with via Viber or WhatsApp apps.</p> <p>One PE teacher collaborated with a technology teacher via Zoom to create more collaborative and engaging lessons.</p> <p>Schools that belong to the Microsoft network have a special platform - Microsoft notebooks, which contain useful materials for all teachers“</p>	<p>„To communicate and share information with teachers during the pandemic. “</p> <p>„I create forms and then everyone communicates, shares information, links. “</p> <p>„My colleague and I did an integrated lesson remotely through technology lessons. During the technology lesson, the children had to make weights, e.g. fill a bottle with sand or grits, and during the physical lesson we already did sports with them. “</p> <p>„We have Microsoft notebooks, material where we share everything: interesting material, tasks, etc. It makes our job a lot easier because we share with each other. The bank is one that can be used immediately by all the teachers of the school, whenever they need it.“</p>
<p>4. Evaluation</p>	
<p>Only two teachers used IT to assess children.</p>	<p>„During Kahoot surveys, I took the test." "I use the Reflectus self-assessment system for children.“</p>
<p>5. Communication/interactions with pupils</p>	



<p>Teachers communicate with children and parents through the Messenger app. FB is more for communication with other schools.</p>	<p>„I also include other children, they communicate with other children very willingly and learn from them, because they don't always succeed on their own, because they are fat and clumsy... everything happens, and it is more fun for them to learn together with children.“</p>
<p>Building community of practice (with teachers/families) for (inclusive) PE classes (when including pupils with SEN)</p>	
<p>Some teachers said that they do not know how to include children with more severe disabilities, such as physical, visual, hearing impairments in common activities</p> <p>Most have difficulty engaging children with autism spectrum disorders. Often, children are reluctant to participate in common PE activities with SEN children</p>	<p>„Well, I don't have that expertise, I would contact specialists who would have the knowledge to teach that child how to throw the ball. “</p> <p>„If the child has a physical disability, I would look for videos on the Internet. “</p> <p>„I would ask a physical therapist, because she works for us, so she would be the first.“</p> <p>"With autistic people, they don't know how to kick or throw, so we involve peer children and these children help them a lot"</p> <p>"The elementary school teacher during the PE lesson is terrible for them, they don't know how to create a relationship with other children."</p> <p>"It is very difficult for children to explain that they (children with special needs) must also participate in activities. Children don't want them, they really don't want them."</p>
<p><i>What challenges you might face when teaching PE in a group that also includes pupils with SEN?</i></p>	

<p>The biggest challenge for teachers is the inclusion of SEN children in PE lessons, because often the children do not want to play with them.</p>	<p>"The biggest challenge is how to integrate them, how to behave so that they too want to be able to participate in the lesson and the children do not push them away."</p> <p>"I manoeuvre and observe, try, make mistakes and learn."</p> <p>"Nobody wants to play with them, be in the team. We discuss in class that it is not necessary to win all the time, and it is still very difficult to bring them together, children with SEN try, but other children just turn away, there is a lot of dissatisfaction and they do not want to be with them."</p> <p>"Most often content management in the lesson itself, from 8-12 children and all special needs, risk groups, do not regulate their anger, are unable to cooperate, agree with each other, share, they destroy other groups, angry, aggressive."</p>
<p><i>What kind of support would you need for your work with SEN and in the collaboration with school?</i></p>	
<p>Teachers lack practical seminars, sports equipment, virtual technologies equipment the most.</p>	<p>"There is never too much knowledge."</p> <p>"Having virtual technologies where different sports can be demonstrated and tried/played. The most useful practical workshops so that we can try it ourselves and share it with our colleagues."</p> <p>"The PE class is a hard class. Because you need a lot of control, to manage. At the beginning, when they were first graders, they didn't see me at all, they did what they wanted, I whistled, and they weren't there at all. Gone There was panic."</p> <p>"IT is more necessary for teachers. Every autistic person is different, you are looking for something new every time, the teacher's creativity is the most important thing, because he is always different, a new one comes, and you wonder how it will be. Everyone with behavioural and emotional disorder is different, I will think of something again, there is no single methodology".</p>

<p>Teachers would like digital textbooks or an e-book similar to the electronic learning environment (EMO) format for other subjects.</p> <p>Everything is enough for one teacher: both knowledge and inventory.</p>	<p>„You connect to EMO, and everything is fully explained there: what exercise, why exactly, how to do it, recorded, shown, and comments on how to apply it.</p> <p>"An electronic PE book would be great, where everything would be: tasks, exercises, descriptions. For SEN children, everything should be adapted and described/explained - how much he can do, what he can do, how to behave. It is important, very important, not to disappoint those neurotypical children, because if everything is only SEN, they will lose motivation to do sports. And that it is not too much and not too little, so that there is a methodical book with norms, recommendations and clarity".</p> <p>"Seminars are enough, I'm looking, I'm interested myself. And the teachers are trained, because in the methodological day we impart knowledge to the teachers and helpers/assistants come to the rescue so that they know what to do. We have a separate hall for ourselves, everything is customized, we have videos, what is needed, just as I have everything that I need. The sports program is ready, what I need, it is perfect for me, there is no shortage of tools. “</p>
<p><i>Would you like to add something important we missed to mention or to discuss?</i></p> <p>"A child is the best teacher for a disabled child. In a small group, children learn and they say, "it's okay", you didn't succeed, let's do it again, everything will be fine... in a small group, children learn".</p> <p>"What are you, we didn't make it through you..." then I think that this challenge is that social-emotional education, the rest of the class should accept and think that no matter what, they didn't make it, they didn't do it, maybe they shouldn't be given those competitive games. Maybe we shouldn't compete so that everyone can develop on their own.</p>	

Focus group interview results from Poland

General information

Focus group (on-line) in Poland (2 groups). Report prepared by Natalia Morgulec-Adamowicz and Marta Łabęcka from Faculty of Rehabilitation, Jozef Pilsudski University of Physical Education in Warsaw.

Date: 2022 06 2

Duration: 2 hour

Number of participants: 12 (2x6)	Females - 10	Males - 2
Teaching experience (years)	7-21	8-12
Work place	Urban 8	Rural 4
Working with SEN (current situation and experience in the last 7 years)	Asperger's, Autism Spectrum Disorders (ASD), Aphasia, attention deficit hyperactivity disorder (ADHD), Down Syndrome, Tourette's, sensory processing disorder, hearing impairments, visual impairments	

Experience, as a teacher, using digital technologies as a consequence of COVID-19, and briefly describe (in a few words), your experience of working with pupils with SEN.

<i>Statements</i>	<i>Quotes</i>
<p>Majority of teachers have a positive opinion about the possibility to use digital technologies when running PE classes. They search for inspiration, forms of support so that their classes become more interesting, more varied – they really want the kids to willingly participate in them.</p> <p><u>Among the key advantages of such digital technologies, one can find:</u></p> <ul style="list-style-type: none"> • quick access to information – finding interesting materials takes just a second. • simplicity - even when browsing through one's social media, the teachers may come across interesting, inspiring videos they 	<p>„But why sit all the time when we have the possibility to play football during PE classes, play handball. We have jump ropes, stretching. I don't think we need this sort of technology during PE classes, not that much. Other teachers use digital technologies, so often during other classes that the kids are practically surrounded by digital technologies. My view is that we can easily do without this. WE would actually be better off without it cause the kids would take a rest from all those smartphones, all computers, all technology.”</p> <p>„In December, January and February, it is not always possible to go and ride the sleigh or ice-skate. So this would be a good time to make use of this, this could be helpful then.”</p>



<p>may make use of during their classes.</p> <ul style="list-style-type: none"> • amount of content - one can find materials for all sorts of occasions – creative games prevents the kids from getting bored <p>However, after the pandemic, one can clearly see that the kids have been overloaded by digital technologies. This was particularly true for PE classes, the nature of which is traditionally said to be far away from technology.</p> <p>Before the pandemics</p> <p>Before the pandemics, the teachers were making use of digital technologies to a very limited extent.</p> <p>The tools they employed:</p> <ul style="list-style-type: none"> • Music from YouTube • Happy Yoga Channel <p>The pandemics</p> <p>The pandemics had a significant influence upon digital technologies as a tool to be implemented at schools. It forced the teachers to find themselves in an entirely different situation. Most of all, during this period, they resorted to such tools as:</p> <ul style="list-style-type: none"> • Instruction videos on YouTube • Google • Facebook groups • Worldwall • Applications that count steps • e-WF Platform <p>Nowadays</p> <p>The pandemic period allowed the teachers to gather much information and to create their own data bank that they use until this day.</p> <p>It seems though that after the pandemic, this overload of digital technology, is so immense that the teachers try to avoid it at all costs, if possible. If so, then they make use of it while preparing for the classes rather than when conducting actual activities.</p>	<p><i>„Well, before, I resorted less often to this digital communication. I haven't been searching for inspiration that often. Well, perhaps when I needed some video showing how the handicapped play sports. I really enjoyed things live. It was only during this isolation that I started searching for things online.”</i></p> <p><i>„I must admit that I haven't been that active online in the past. It was the pandemic period that made me look up information online.”</i></p> <p><i>„I have been looking up things online all the time cause I work a lot with music. I make use of music and movement. So this is why I needed the projector quite often and I employed different types of training... To show the kids that they can practice by themselves, when they are alone (not only at PE classes, not only outside).”</i></p> <p><i>„Before the pandemics, I never took into consideration that I might be searching for exercises, let's say on YouTube.”</i></p> <p><i>„The pandemics has activated me so much cause I could show those videos to my kids straight away”</i></p> <p><i>„We cannot pretend it does not exist. But I guess there is too much of it all around. So even when I tried to make use of Endomondo or other bike apps among older pupils – they did not feel like</i></p>
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	<p><i>making use of it. They had too much of those things during the pandemics. They told me they don't want anymore of this, they are fed up with this, they don't care about this. They simply take their bikes and go cycling. And the same applies to those younger pupils - they take their bikes, scooters and so on and go play."</i></p> <p><i>„As the girls here said, this period made me look for the rare and interesting things for my PE classes online. We made some gymnastics alphabet – this is something I found via a browser. I was inspired by my colleagues' songs (teachers of integrated education) for example the veggie gymnastics, and we were exercising listening to this. So I have been using YouTube and different browsers. Before, I never thought about it at all. I had my own tools and I had training from time to time."</i></p> <p><i>„I think I drew inspiration earlier on, but during the pandemics this phenomenon has only intensified when working with my pupils."</i></p> <p><i>„There was this moment that I have been browsing and looking up one game and then I started reading about another one and so I could spend hours doing this and so I collected lots of these ideas."</i></p>
<i>Please, share your experiences in using digital technologies in</i>	
6. Preparation	
<p>When preparing classes, the teachers make use of digital technologies, first and foremost, to look for inspiration. They search for interesting, creative methods of running PE classes which would integrate the healthy kids and pupils with SEN. They browse through social media, thematic groups on Facebook, inspiring videos on YouTube.</p> <p>Facebook</p> <p>The teachers browse through different Facebook groups, among others:</p> <p><i>„Nauczyciele klas trzecich" (</i></p>	<p><i>„This is true that when conducting PE classes right now, we can do outside or go to the gym and we don't really need this digital technology now. Nonetheless, it may help us prepare for the classes."</i></p> <p><i>„YouTube as well. We resorted to YT during the pandemics. You can find lots of cool things over there that may be helpful when running classes."</i></p> <p><i>„If you are a member of some Facebook groups on creative exercising, creative PE teachers, then people upload lot of videos. You actually don't need to type in anything. It's enough to watch it and you get tips and hints instantly."</i></p>



<p>„Nauczyciele klas 1-3” „Kreatywni nauczyciele WF-u” „Nauczyciele wczesnoszkolni”</p> <p>YouTube They also browse via YouTube searching for inspiration. The kids enjoy exercising, listening to music and hence the teachers often make use of the music available via YouTube. They type in: <i>Zumba for kids, PE for the kids, physical exercise for children, relaxation activities.</i></p> <p>Google A browser is one of the most frequently used tools by the teachers. Among the most popular topics they look up are <i>physical exercises, exercising with rare objects, exercising in pairs, with the siblings, with the parents, physical exercises with stretching bands, balls, ropes.</i></p> <p>e-WF Platform They browse through e-WF platform and have access to videos with instructions on how to exercise.</p> <p>Training During the pandemic, some teachers took part in different training acquiring the knowledge how to implement digital technologies in teaching.</p>	<p>„Nowadays, only online, in some browsers, on YouTube. You can find lots of such things there fitting each occasion. If you type in exercising with rare objects, then you get all kinds of games in pairs or even with your siblings or parents. Lots of things like this.”</p> <p>„I really benefited from this during each PE classes and there were lots of these things. It took me literally a second and I could find an idea for a class. I told the kids what they have to prepare Ahead of time – socks or towels. And they were happy.”</p>
<p>7. Implementation with pupils</p> <p>After the pandemics, most teachers feel tired and overwhelmed by technology. Some ideologically believe that PE is the class which enables the kids to rest and detach themselves from the screens. The following situations force them to make use of technology eg bad weather when they cannot exercise at the schoolyard, playground. Currently, the most frequent method employing digital technology during PE classes is simply playing music from: You Tube, Habby Yoga, Just Dance.</p>	<p>„In my view, it is hard to take this computer with you for the PE classes or show the kids anything on the screen at all. This class is simply not fit for computers and screens.”</p> <p>„We have to motivate these kids, they sometimes run into different directions. They will not stand peacefully and look at people sorting things out on the screen. Well I simply cannot imagine not being in control, not correcting them, not managing the class, not stimulating and motivating them.”</p>



Some teachers cannot imagine working with a screen during the classes at all.

Music from YouTube

During the classes, the teachers only play music from YouTube. They do not use YT for showing instructions how to perform a given physical exercise. After the pandemics, they prefer to do this on their own; they encourage the kids to engage in exercising by demonstrating a given exercise themselves.

Happy Yoga, Just Dance

Happy Yoga channel is a series of cartoons in the course of which the kids engage in physical exercises.

Just Dance game allows the kids to play with music; it encourages them to learn how to dance.

Worldwall

In order to build motivation, they make use of Wheel of Fortune available at Worldwall platform – they pick random exercise they need to make.

Other tools

Indicated by a few people:

- pedometer, smartwatches
- Interactive tent,
- Shooting a video via smartphone demonstrating how to perform a given physical activity.

Among the most frequent barriers one could find: no equipment at school, the Principal's reluctance to using a mobile phone during the classes by the PE teacher.

„I just cannot imagine taking a computer to the gym. We would not be able to hear anything at all. It is simply out of question when we have classes in the hall and I won't be showing anything to kids via smartphone. We need to isolate the children from all the screens during the PE classes – this is a must.”

„ Well this would make me expose the kids yet again to the screen and this is so not in line with the intension behind PE classes.”

„ Well, my pupils have been making videos and sending these to me even when studying online. They demonstrated different exercises where they were to present a certain posture and they had to do this exercise correctly. So we were shooting PE classes via smartphones.”

„For example, there were raindrops shown and there was music in the background and we played pools. You had the jump when you pressed these raindrops and you had to push them. Frankly speaking, we had so much fun. There was this film projector, on the ground we could see what the table we played on looked like and there were two people standing opposite one another. 4 people could play this game.”

„For me, this was a form of entertainment so as not to repeat the same scheme of classes all over again. So for me, it was inspiring form time to time to all this element.”

„As I have said before, there is this magic carpet (interactive lab) where you throw different things on the floor ... there are these additional features, like for example the kids may be walking on the Stones. They may run when the speed is set correctly. There is also multimedia board where we have different software with movement sensors. The kids can play tennis, dance, imitate these movements here.”

	<p>„We also have another problem – of the Principal showed up and saw that the teacher is doing something on the smartphone, then he'd be so angry. It doesn't matter what the purpose of this was – whether the teacher wanted to play music only or to take notes or to measure something...”</p>
<p>8. Implementation with other teachers</p>	
<p>Other teachers The contacts with other teachers, school psychologist, the school counsellor being part of integrated schooling rely on informal meetings and direct F2F contacts. The formal grades are assigned during the Staff Meeting.</p>	<p>„We often use electronic communication to collect documents within the team/staff preparing Individual Educational and Therapeutic Program”</p>
<p>9. Evaluation</p>	
<p>Teacher's Journal Almost everyone uses traditional evaluation methods - a piece of paper and a pen. Notes, grades and feedback about a given pupil are written down in the teacher's journal – then, these are transferred into the digital class register. Digital technologies Currently, the teachers do not evaluate the pupils using digital technology – the teachers are not aware of any platforms or applications that would allow for assigning scores in this way. On the level of declarations, some respondents would be interested in an application where they could continuously write down the pupil's scores or provide feedback/ write their thoughts and comments.</p>	<p>„The question of writing down the subject is already a challenge let alone the scores, grades or the kid's progress. And all this needs to be stored in one place. An ordinary notebook is what works best.”</p> <p>„Teacher's journal, everything within my reach, all my notes, some thoughts, everything is there.”</p> <p>„Well, a piece of paper and a pen... but I had to admit that PE teachers would appreciate some nice application. Perhaps it exists, I don't know.”</p> <p>„Ad this is hard for the PE teacher cause we are not in a classroom, we don't have a desk or a chair where we could sit. We walk around, we move a lot and so the only real tool which I carry with me right now and bring to my classes is my smartphone and it would be fantastic to have everything in one place, be able to write down everything I need, record things, click, type in.”</p>



<p>10. Communication/interactions with pupils / parents</p>	
<p>Digital technologies are used marginally for communication purposes between the pupils, the teachers or parents.</p> <p>Communication with pupils, other teachers is still based on F2F relations – as it was the case before the pandemics.</p> <p>One of the new elements, which has appeared as a result of the pandemic, are online meetings (teacher – parents).</p> <p>Pupils</p> <p>Taking into consideration the kids' age, the communication takes the form of an everyday F2F contact with the teacher.</p> <p>In older classes, they make use of other platforms such as Teams, electronic class journal</p> <p>Parents</p> <p>Online meetings</p> <p>Electronic class journal/ register</p>	
<p>Building community of practice (with teachers/families) for (inclusive) PE classes (when including pupils with SEN)</p>	
<p>Solutions and strategies</p> <p>Outdoor games</p> <p>The kids enjoy playing outside. They spend time playing games they have invented on their own. They may let off steam this way.</p> <p>Swimming</p> <p>The swimming classes are attractive for majority of children.</p> <p>Team Games</p> <p>Most children willingly take part in team games – nonetheless, they prefer these which are not competitive, which are not about rivalry.</p>	<p><i>„In general, the kids enjoy playing outdoor. Perhaps, they are not doing what we would like them to do, but the very fact that they are outside, open-air, they are moving around, this is very healthy for them.”</i></p> <p><i>„In my case for example, the kids with Down Syndrome swim very well and they really enjoy it. There were seven of such kids and they all participated willingly.”</i></p> <p><i>„On the other hand though, they really enjoy playing as a team. So if we have some team games, which are not strictly about competing with one another, then they gladly take part in them.”</i></p> <p><i>„But it all needs to be fun; nothing about rivalry – this is out of question. If something becomes too competitive, they get irritated instantly, they are unhappy they failed. Even if other kids tell</i></p>



<p>Individual approach Individual approach to each pupil is highly relevant when wiring with children with SEN – their needs differ from those typical for healthy kids.</p> <p>Fewer stimuli/ relaxation Children with SEN need time for relaxation, resting, detaching themselves from the stimuli – they may calm down then, observe the group and decide whether they want to continue playing with the group or not.</p>	<p><i>them: that's ok, let's keep on playing, they simply cannot control their emotions."</i></p> <p><i>„It's obvious – you need to motivate them in a different way."</i></p> <p><i>„So my strategy is that once they get irritated and angry, they may stand next to me for a while and just watch other kids playing. They may think for a while if they'd like to continue playing with other kids or not. And then I think of a task that they gladly get involved in and they like. So they quickly realise that they want to go back and start exercising again."</i></p>
<p><i>What challenges you might face when teaching PE in a group that also includes pupils with SEN?</i></p>	
<p>Problems: organisational issues Discipline/ organisation One of the most frequent problems indicated by PE teachers are difficulties connected with maintaining discipline and with the general set-up and organisation of classes as such (the kids are running around, they are hiding, not listening, they do not understand the teacher's instructions)</p> <p>Noise The noise generated by other children, by the games, by emotions is one of the key barriers making it hard for the pupils with SE to take active part in PE classes. These children often close their ears, run away, they refuse to be close to the source of the noise. They leave the place and the teachers lose them out of sight.</p> <p>Limited access to the gym and equipment</p>	<p><i>„They are not concentrated. They are absolutely not ready to take part in exercises that require them to organise themselves and be disciplined. It is hard to gather the kids, to make them sit down. Correcting them and explaining the instructions is also problematic."</i></p> <p><i>„And this discipline is the most important thing when you think of PE classes cause, after all, we are responsible for their safety. And this is always problematic: they throw things at each other, they push themselves. It is hard for them to line up even for a tiny while."</i></p> <p><i>„And the noise is really disturbing ad this is also irritating for the kids, They very often close their ears; they say it is too loud and they want to leave."</i></p>



<p>Teachers of grades 1-3 are often forced to conduct their PE classes in the hall because the gym is booked by the upper grades.</p> <p>Problems: content-related Avoiding physical activity/ discouragement Children with SEN quickly get bored; they grow discouraged. They do not always wish to actively take part in group activities; they often avoid physical movement</p> <p>Not understanding the rules It takes much time for the children to explain what a given exercise is about. This is often connected with the impossibility to perform even the most basic physical exercise</p> <p>Not open to rivalry Some kids with dysfunctions do not like rivalry, do not like losing; they don't like comparing themselves with other children.</p> <p>Sense of failure</p>	<p><i>„We run PE classes in the hall and this is a big problem, especially when you run classes with children with SEN. They run away from classes sometimes – this is quite easy if you have your PE classes in the hall. And this is a problem. I think the problem is limited availability of the gym and the equipment typically designed for PE classes.”</i></p> <p><i>„They also sometimes run away, they are not interested, they quickly get bored, they lose interest in exercising. Children with Down Syndrome very quickly run away, they refuse to cooperate with the group altogether. They definitely prefer something for themselves.”</i></p> <p><i>„These children for example are choosy – if they feel like it, they exercise and take active part in classes, if they don't they go away. And the worst part is that they go away quite further and we lose track of them.”</i></p> <p><i>„The major problem is not understanding the rules – some things are unclear and you really need to devote much time and make use of various methods to explain the rules and to make sure they understand.”</i></p> <p><i>„They completely don't understand the rules. They are also inexperienced when it comes to physical exercise – for example they don't know what a squat jump is, they don't know what it means get into pairs or spin around.”</i></p> <p><i>„And this particularly applies to group activities, which does not include the elements of rivalry – cause the kids with Asperger's, they strongly dislike rivalry and it has negative influence upon this pupil.”</i></p> <p><i>„But all forms need to be fun. Rivalry is absolutely out of question. Cause they immediately get irritated, they are unhappy they failed.”</i></p>
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Children with SEN are often slower and less physically capable vs the pupils without SEN – they get tired more quickly. It is hard for them to come to terms with the fact that they have failed; they feel underappreciated.

Reconciling the needs of different children

It is hard for the teachers to run classes in a highly diverse and varied group of children – a group of kids that consists of healthy kids and children with different SEN (children with ADHD who need to be all around, who need to be first, who seek touch – they exercise together with calmer kids, who find it hard to function in bigger groups (children with ASD), who dislike touching.

Peers' approval

For some of the healthy children, integrating with the kids who suffer from various dysfunctions is hard – this is especially problematic when children are blamed for the team's failure.

No support from the parents

At times, it is the cooperation with the parents of children with SEN that is problematic. The teachers need their help e.g. to take care of the child when going to the swimming pool, when the pool is 30 km away from school. Taking care of both pupils with SEN and of healthy kids is very difficult for the teacher. These kids are afraid; one needs to devote much more time to them.

„And some kids refuse to do this [exercise]. They get tired easily. And we also have this boy who constantly feels not appreciated enough – so even though we provide him with positive feedback, he still feels not appreciated.”

„But all needs to be fun-giving. Rivalry is out of question. Cause they get irritated instantly, they are unhappy they failed. And then they refuse to continue exercising.”

„I tried to think of a win-win situation which is not always possible cause again you have kids who are hyperactive and those who are more sensitive and have sensory problems – they have the need to bash, bump into one another, touch other kids. We also have kids who experience problems functioning in larger groups, who closes his ears, who shouts cause there is something going on and so this is all very difficult and everything depends on the kids and the class.”

„We also need to work with the whole group so that the kids are not rejected. It is hard to deal with failures for them at this stage.”

„There are also these kids who absolutely refuse to be with such children in one group. They often blame this kid for all the bad things going on – they say ‚He was in our group and that's why we lost’.

„In our school, the kids with Down Syndrome don't take part in the swimming classes. ...Either the parents agree or not. The kids don't know how to behave, they are scared of everything. So what we did is that we ask the parents for example, to go with us to the pool for the first 2 classes. And there was this boy for example who felt better when his mom was around; he was peaceful then”.

What kind of support would you need for your work with SEN and in the collaboration with school?



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Empowering primary school teacher to
include pupils with special education
needs into physical education classes
using digital tools



SENDITEACH

Teacher's Support

A Teacher's Support is a relevant source of help for each headteacher of an integration class. This allows to divide the tasks, make sure that the teachers assume an individual approach to each pupil with SEN. It is a great facilitation when running classes. It allows the teachers to better manage the entire group.

Other children

The teachers also get support from other kids. They know how to motivate and encourage children with SEN – they are very helpful. This creates a very favourable atmosphere and helps the integrate with other kids in the class.

„Well, it's true... they get a bit crazy, they start shouting, kicking, beating one another and so on. At the same time, there are two of us, so it's a good idea that one of the teachers may always take this kid aside and walk out.”

„There are classes where the kids really integrate well with pupils with SEN. They offer help, they motivate such kids. Some children are simply very helpful, they are just wonderful kids cause they take care of their peers, they stimulate them, they offer assistance, they encourage them to do things.”

● Conclusions

Regarding experience of teachers using digital technologies as a consequence of COVID-19, and their experience of working with pupils with SEN.

Although teachers used variety of digital technologies during pandemic of COVID-19, it is not clear:

- what technologies in PE/APA/APE were the most effective during COVID-19 restrictions?
- which digital technologies became part of teachers routine during inclusive PE classes with pupils with SEN?
- what are advantages and disadvantages of particular digital technologies used in the context of inclusive PE classes?

In general, PE and early school education teachers appreciate the digital technologies and resources in their practice, especially its simplicity, quick access to information and enormous resources.

CONCLUSION: Broader analysis is needed with more specific questions regarding appropriateness, advantages and disadvantages of various types of digital technologies for particular groups of pupils with SEN used during inclusive PE.

*Regarding using digital technologies in **preparation** of PE/APA/APE classes*

It seems interesting to connect using digital technologies for preparation classes with idea of “life long learning” among PE and early school education teachers.

Mainly internet resources are listed by teachers in the phase of class preparation, but it seems to be a result of spontaneous and accidental process rather than systematic and technological content knowledge based.

*Regarding using digital technologies during **implementation** of PE/APA/APE classes*

There is rather limited use of digital technologies during implementation of inclusive PE classes due to trends of screening time limitations after COVID-19 pandemic, lack of technological devices adapted for both pupils with and without SEN, and organizational problems (e.g. lack of additional teacher assistant or forbidding of mobile phones in school).

There are class management challenges related to limited technologies that address certain PE related goals, for example, behavior change (e.g., promote positive behaviors and interactions between

students), attitudes (e.g., reduce stereotypes and stigma). These are important goals for implementing inclusive PE.

*Regarding using digital technologies during **evaluation** in PE/APA/APE classes*

Very limited use of digital technologies for evaluation in APE classes due to young age of pupils, limited access to IT devices and lack of digital skills in 1st-3rd grade pupils, especially considering individuals with SEN.

*Regarding using digital technologies for **communication/interactions with pupils / parents** within PE/APA/APE classes context*

Teachers are familiar with digital communication channels and still use it if it is needed.

Teachers indicate the easiest/fastest digital communication channels with pupils/parents. They also indicate digital communication channels that hinder contact with pupils/parents

CONCLUSION: More detailed analysis of digital resources for PE and early school teachers working in inclusive PE could help to build up digital platform integrating available resources with needed content

CONCLUSION: The data base of good practices and strategies regarding use of digital technologies during implementation and evaluation of inclusive PE class, integrated with digital platform could inspire PE and early school teachers working with pupils with SEN

*Regarding building **community of practice** (with teachers/families) for (inclusive) PE classes (when including pupils with SEN)*

There are some strategies, good practices and examples, but inclusive PE still remains very big challenge.

*Regarding **challenges** when teaching PE in a group that also includes students with SEN*

There are organizational challenges (lack of equipment, limited access to gym, “discipline” problems, noise) and content-related challenges (discouragement and lack of motivation of pupils with SEN, problems with understanding of rules, limited sense of failure, lack of peers acceptance and interest, no parents support).

*Regarding **types of support needed to work with students with SEN and in the collaboration with school***

More training and resources within digital technologies are needed specifically for PE and early school teachers working with pupils with SEN during PE classes.

CONCLUSION: Although PE and early school teachers use various digital technologies, the digital literacy training is needed to make sure they choose the best available solution for pupils with and without SEN.

CONCLUSION: Training for pupils with SEN how to use digital technologies is needed.

CONCLUSION: Digital platform combining in intuitive way various channels and resources for PE and early school education teachers working with pupils with SEN is desirable.

CONCLUSION: Additional human resources are necessary to provide inclusive PE, especially when implementing digital technologies.

Quantitative research report on primary school teachers' technological pedagogical content knowledge and self-efficacy in inclusive physical education lessons

Aim of the study

To investigate primary school teachers' use of technology for inclusive physical education and self-efficacy in Finland, Latvia, Lithuania, Poland.

Methodology

Sample

Teachers' recruitment was conducted in January and February 2023. Participants were general teachers and physical education (PE) teachers, providing physical education classes in the first three grades of primary (n = 119) and special education classes or schools (SECS; n = 90), recruited from Latvia, Lithuania, Finland, and Poland. The teachers were contacted in each of the countries through school mailing, national teaching associations, as well as postings on social media channels. Participants had to give their active consent to take part in the study voluntarily. The study was conducted in compliance with the Declaration of Helsinki and the participants were assured their data was confidential and anonymized during data analyses.

Methods

The questionnaire with background information was adapted from Ng et al. (2021) and dealt with demographic data such as respondents' gender, age, general work stress, and prior training (formal) regarding adapted physical activity (APA) or adapted physical education (APE) and/or students with special needs (SEN). The next part of the questionnaire included some questions about respondents' teaching experience with SEN in the context of physical education (PE), adapted physical activity (APA), adapted physical education (APE), and digital resources such as the number of years teaching PE and students with SEN, the type of school they work in (i.e. general school, special school classes in general school in the same or separate building, or special education schools), report of use digital teaching resources for PE with SEN students, experience with the students and people (family member, a friend, or someone at school/work) with cognitive, physical or visual disabilities in PE.

To investigate the mediating effect of the concept of technological pedagogical and content knowledge of primary school teachers **the TPACK-21 scale** was used (Valtonen et al., 2017). The TPACK framework consists of three different areas of knowledge: pedagogy (1), technology (2), and content (3), and the combination of these: technological pedagogical (4), pedagogical content (5), technological content (6), and pedagogical, technological and content (7). Each item has a six-point response scale ranging from '1' representing 'I need a lot of additional knowledge about the topic' to '6' representing 'I have strong knowledge about the topic' (Valtonen et al., 2015). The original items

were modified from knowledge in ‘natural sciences’ to ‘physical education for students with special educational needs’ (i.e. TPACK-21-PE).

To investigate teachers’ self-efficacy toward the inclusion of students with disabilities in physical education **The self-efficacy scale SE-PETE-D** was used (Block et.al, 2013). The English version of the scale was modified to address the professional context (PE teachers and/or general teachers) and educational stage where the teaching is performed (first grades of primary school). The narration (i.e., vignette) preceding each subscale which describes situations that students with intellectual impairment (II), physical disability (PD), or visual impairment (VI) would have during PE classes was adapted to the program content of PE classes in the first grades of primary school. Consistently, the subscale items covering the dimension of self-efficacy (i.e. the instruction to peers, specific adaptations, staying on task, and safety) were limited to 6 items per subscale and focused on games and sports, instead of sport skills and fitness testing. All responses were rated on a five-point confidence Likert scale, ranging from 1 (no confidence) to 5 (complete confidence). Higher scores indicate a higher perception of the teacher’s self-efficacy to include students with II, PD, or VI in PE classes.

Organization

Online survey instrument was first designed in English. Then each language (Latvian, Lithuanian, Polish) was translated using a two-step back translation process described by Brislin (1970). Adapted physical activity expert review was performed in the context of the clarity, conciseness, and terminological precision of the language versions. Translated questionnaires were uploaded in ITA-SUOMEN YLIOPISTO university platform (<https://link.webropol-surveys.com/S/FF60683D91127E11>).

Teachers were informed of the objective of the investigation and provided a universal link to an online survey with available language selection. Participants had to give their active consent to take part in the study voluntarily. Due to the non-invasive nature of the study with adult participants through surveys, this type of data collection did not require institutional ethical approval from the lead author’s ethics committee. Nevertheless, the study was conducted in compliance with the Declaration of Helsinki and the participants were assured their data was confidential and anonymized during data analyses.

Statistical analyses

Teachers who worked in special education classes were grouped with those who work in special education schools and were compared against teachers who taught in the general school setting. Differences were tested using Chi-square test of independence for category variables (gender,

age, level of experience, prior training, use of technologies). T-tests were used to examine differences between school settings in TPACK and self-efficacy scales. Cohen's d was used for reporting the effect size of the difference.

The self-efficacy scale and TPACK-21-PE items were tested by a principal component analyse using SPSS 22.0. To test the mediating effect of TPACK on the relationship between technology use and self-efficacy, the minimum likelihood estimator with 10,000 bootstrap replications was used in a mediation analysed conducted in JASP 0.17.1.

Results

A total of 209 teachers responded to the online survey from Latvia (n = 42), Lithuania (n = 88), Poland (n = 67) and from other European countries (n = 12). There were insufficient number of respondents in Finland and those results were combined with other English-speaking countries. The majority of teachers were females (90%) and worked in general schools (57%). A third of the teachers (33%) worked in general schools with special education classes in the same building. Details about the age and prior training are reported in Table 3.

Table 3. Sample demographics

		Latvia (n = 42)	Lithuania (n = 88)	Poland (n = 67)	Other (n = 12)		Total (n = 209)
Gender							
	Male	28.6	0.0	13.4	0.0		10.0
	Female	71.4	100.0	86.6	100.0		90.0
Age Group							
	18-29	9.5	4.5	4.5	8.3		5.7
	30-39	21.4	8.0	25.4	8.3		16.3
	40-49	23.8	31.8	31.3	58.3		31.6
	50-59	38.1	45.5	34.3	16.7		38.8
	60-69	7.1	10.2	4.5	8.3		7.7
Formal Training (% yes)							
Experienced teaching children with SEN?		45.2	34.1	41.8	33.3		38.8
Completed APA/APE coursework?		45.2	27.3	3.0	25.0		23.0

Attended additional or optional training regarding APA/APE and/or SEN?	23.8	59.1	52.2	33.3		48.3
What type of school do you teach in?						
General school	40.5	88.6	32.8	16.7		56.9
General schools with special education classes in the same building	16.7	8.0	65.7	83.3		32.5
General schools with separate building for children with special education needs	7.1	0.0	1.5	0.0		1.9
Special education school	35.7	3.4	0.0	0.0		8.6

Of the different technological use, videos were used the most (33%), followed by technology integration in PE (30%) and digital assessments (27%). Over half the respondents reported they never use podcasts (54%) or large-scale interactive platforms (51%). There were some differences in the frequency of using different technology tools (Figure 1). Teachers in Lithuania reported using the technologies in PE more frequently than those in Latvia in seven technologies and in three (websites, use of screens, and digital teaching tips) in Poland. Furthermore, following post-hoc tests, sum scores were statistically significantly higher in Lithuania than Latvia ($p < .001$) and Poland ($p = .015$) (Fig.1).

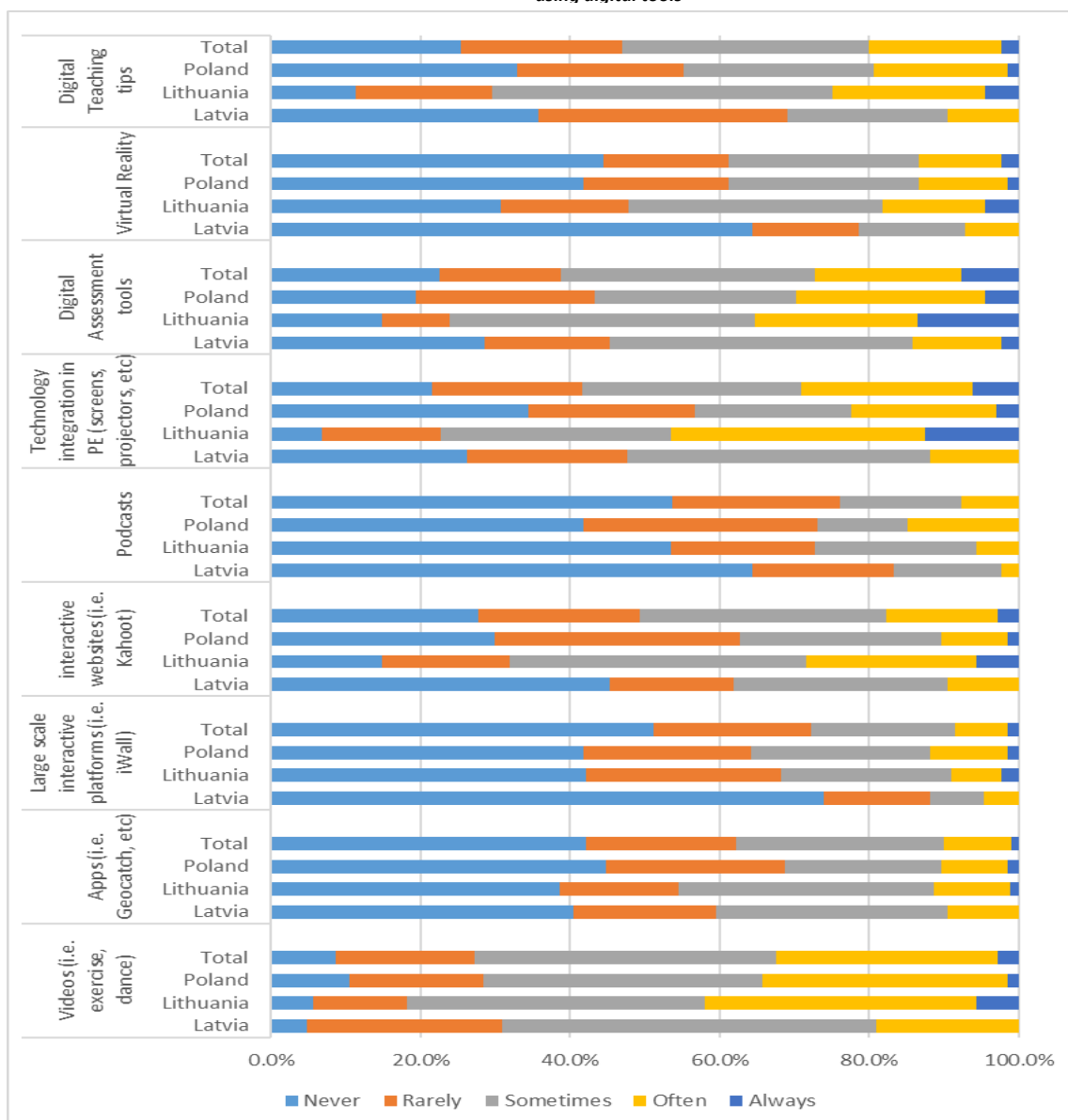


Figure 1. Frequency of technology use by country

Across the teachers, pedagogical knowledge (PK) had the highest mean (mean = 4.3, SD = 0.95), whereas technological and content knowledge (TCK) had the lowest mean value (mean = 3.1, SD = 1.18). General education teachers had higher scores in PK ($p < .001$), technological knowledge (TK) ($p = .01$), technological pedagogical knowledge (TPK) ($p < .001$), and TPACK ($p = .02$) than special education classes and schools (SECS) teachers. All differences were considered to have small effect sizes (Table 4).

Table 4. TPACK-21 alpha and mean scores

			GE		SECS		Total		T-test	Cohens
	Items	Alpha	Mean	SD	Mean	SD	Mean	SD	p	d
Pedagogical Knowledge	10	0.938	4.51	0.092	4.11	0.95	4.34	0.95	<.001	0.42
Content Knowledge	4	0.901	3.32	1.20	3.37	1.04	3.34	1.13	.072	0.05
Technological Knowledge	4	0.893	4.09	1.09	3.70	1.09	3.92	1.11	.01	0.36
Pedagogical and Content Knowledge	9	0.966	3.42	1.12	3.82	1.05	3.60	1.11	<.001	0.37
Technological and Content Knowledge	4	0.922	3.11	0.120	3.04	1.16	3.08	1.18	.68	0.06
Technological Pedagogical Knowledge	10	0.974	3.86	1.10	3.45	1.14	3.68	1.14	<.001	0.37
TPACK	7	0.98	3.61	1.21	3.23	1.12	3.45	1.18	.02	0.32

Note: SECS – special education classes and schools, GE- general education, TPACK – Technological Pedagogical and Content Knowledge

Teachers in SECS scored higher than general school teachers in the self-efficacy scores in teaching pupils with cognitive impairments (mean = 3.6 v 3.3, p .005, d = .38) and physical impairments (mean = 3.3 vs 3.0, p .045, d = .28). There were no statistically significant differences between the teachers for self-efficacy in teaching pupils with visual impairments (p = .354, d = .13).

The direct effect between increased technology use and self-efficacy was only statistically significant with working with students like Ashton (Physical) and not with students like Noah (Cognitive) or Sofia (Visual). PCK and TPACK were statistically significant mediators for teaching all three types of students. TPK was a negative mediator between technology use and self-efficacy for teaching students with physical disabilities but was not statistically significant for self-efficacy in teaching students with other types of special education needs (Table 5).

Table 5. Mediation regression coefficients with confidence intervals

	Effect on IEN $r^2 = 0.33$				Effect on PEN $r^2 = .36$				Effect on VEN $r^2 = .23$			
	Beta	LCI	UCI	p	Beta	LCI	UCI	p	Beta	LCI	UCI	p
Direct effect												
Tech Sum	-0.31	-0.14	0.12	0.97	0.11	-0.41	0.23	0.08	0.09	-0.05	0.22	0.21
Indirect												
Tech – PCK – SE	0.15	0.07	0.26	<.001	0.17	0.08	0.28	<.001	0.12	0.04	0.24	<.001
Tech – TCK – SE	-0.03	-0.12	0.04	0.41	-0.03	-0.12	0.05	0.46	-0.05	-0.17	0.03	0.23
Tech – TPK – SE	-0.37	-0.07	0.10	0.91	-0.07	-0.16	0.01	0.04	-0.03	-0.1	0.04	0.37
Tech – TPACK – SE	0.07	-25.8	0.20	0.05	0.09	0.02	0.20	0.02	0.1	0.04	0.21	0.02
Total effect												
Tech Sum	0.19	0.04	0.34	<.001	0.27	0.15	0.41	<.001	0.23	0.08	0.36	<.001

Note: IEN-cognitive, PEN-physical, VEN-visual disability.

Conclusions

1. Teachers in general schools tend to use technology in physical education more than teachers in special education classes or schools.
2. Teachers from Lithuania demonstrate significantly higher and more frequent use of technology compared to their counterparts in Latvia and Poland.
3. The most common types of technology use among teachers for inclusive physical education were the use of videos, technology integration and digital assessments.
4. Teachers in special education classes or schools had higher self-efficacy than teachers in general education schools in all three disability groups.
5. The direct effect between increased technology use and self-efficacy was only statistically significant with working with pupils with physical disability.
6. Pedagogical content knowledge (PCK) and TPACK were statistically significant mediators for teaching all three types of students. Technological pedagogical knowledge (TPK) was a negative mediator between technology use and self-efficacy for teaching students with physical disabilities but was not statistically significant for self-efficacy in teaching students with other types of special educational needs.

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