

IMPLEMENTATION OF THE GYMNASTICS CURRICULUM IN THE FIRST THREE-YEAR CYCLE OF THE PRIMARY SCHOOL IN SLOVENIA

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Original article

Abstract

Throughout the world, gymnastics is an essential part of physical education (PE) curricula, especially in the first years of schooling. In this period, PE is taught by the general teachers (GTs) with low levels of experience about how to teach gymnastics. Our study aimed to find out how GTs complied with the prescribed gymnastics curriculum contents. The sample included 90 GTs from 21 primary schools from Ljubljana, the capital of Slovenia. A self-administered questionnaire was designed to examine the opinions of GTs about some factors of importance and implementation of gymnastics contents on a five-level Likert scale. A one-way ANOVA, Tukey post hoc test, and Mann-Whitney U test were used in the data processing. GTs allocated more time to those contents of the PE curriculum that rank higher regarding the importance of child development and are easier to teach. They spent only 16.93 lessons on gymnastics per academic year, ranked gymnastics at fourth place (out of 7) regarding its importance for children's development, and gymnastics seemed to be the most challenging content to teach. Within gymnastic content, the least implemented elements were those mentioned as the most difficult to learn for children (acrobatics, hang and support, and vaults). GTs believed that teaching methods (4.29) were less important for successful gymnastics performance than children's motor efficiency (4.73) and self-activity (4.57). The outcomes of this study may aid in the future updating of GT education study programmes and designing a creative system of continuous professional development.

Keywords: *primary school, educational gymnastics, importance, difficulties, general teachers.*

INTRODUCTION

According to the legislation of the Republic of Slovenia (Primary School Act, 2007), compulsory nine-year general education for all children is divided into three periods. Physical education (PE) is an obligatory subject throughout; it serves as a venue to prepare children to be physically educated people: to teach them the importance of regular physical activity for health and to build skills that support active lifestyles (European

Commission/EACEA/Eurydice, 2013). PE is allocated 834 lessons in total (105 lessons/year from Year 1 to Year 6, 70 lessons/year in Years 7 and 8 and 64 lessons/year in the Year 9) and implemented according to curricula that prescribe its scope and structure, general and operative objectives and skills and knowledge standards for selected movements and sport disciplines (Kovač et al., 2011). In the first three-year cycle, like

in most European countries (European Commission, EACEA, Eurydice, 2013), all subjects are taught by general teachers (GTs). If schools can provide additional funding by parents or local authorities, PE can be taught together by GTs and PE teachers (PETs) (Primary School Act, 2007).

Gymnastic contents appeared in the Slovenian basic school curriculum in 1874 (at that time, Slovenia was a part of Austro-Hungarian monarchy) when PE was first introduced and included the compulsory SPIESS system (Kompara & Čuk, 2006). In the recent Slovenian PE curricula for primary school (Kovač et al., 2011), gymnastics is still one of the most important contents. Also in European and throughout the world PE curricula, gymnastic is, along with ball games, track and field, swimming and dancing, one of the obligatory contents (European Commission, EACEA, Eurydice, 2013; Hardman, Murphy, Routen, & Tones, 2014), as it offers a great range of locomotive, stability and body control movements, which are highly important for the motor, cognitive, affective, and social development of children (Baumgarten & Pagnano-Richardson, 2010; Kovač, 2012; Nilges-Charles, 2008; Novak, Kovač, & Čuk, 2008; Pehkonen, 2010; Sloan, 2007; Živčič Marković, 2010).

From the perspective of child development, gymnastics is one of the key physical activities as it requires a great diversity of movements. It includes elements that can be performed on three levels (head, hip, and horizontal), in different directions (forward, sideward, and backward), around three axes (frontal, sagittal, and vertical), and in two different phases, the support phase and the no-support phase (Ávalos Ramos, Martínez Ruiz, & Merma Molina, 2014; Kovač, 2012; Živčič Marković, Sporiš, & Čavar, 2011). Successful performance of each gymnastic element requires the accurate muscular activity of a specific intensity, through space and at the right moment, the

coordination of the whole body, flexibility, and balance. Children must overcome the weight of their own body on all gymnastics equipment, which is the most natural way to strengthen the body. With repetitive gymnastic practice, they can develop endurance in strength, which is also needed in other sports. Non-elite gymnastics participation is associated with musculoskeletal benefits in upper limb bone geometry, strength, and muscle function (Erlandson, Kontulainen, & Baxter-Jones, 2011).

Due to the previously mentioned importance of gymnastics for child development, the current Slovenian PE curriculum details some practical and theoretical gymnastic themes to be implemented in all nine years of primary school to provide logical progression and development continuity of children's gymnastics skills (Kovač et al., 2011). The contents to be implemented in the first three-year cycle are presented in Table 1.

At the end of the first three-year cycle, the skills and knowledge standards are presented at two different levels (basic and minimal) (Table 2).

The quality of PE programmes depends on several factors, such as actual teaching, which means how teachers interact with their students and the contents (Kyriakides, Tsangaridou, Charalambous, & Kyriakides, 2018). Tome (1983) found that 8.8% of Slovenian PE teacher education (PETE) students did not perform forward rolls, and 38.2% of them did not perform cartwheels in primary school. Twenty years later, 56.5% of 1st-year PETE female students reported, they did not encounter cartwheels during PE at all (Pajek, 2003). Štemberger (2003) reported that children's skills in 1st three-year cycle are the best in athletics, following with gymnastics and elements with balls. Pajek, Čuk, Kovač, and Jakše (2010) were determining the realisation of gymnastic content in the third three-year cycle where PE is taught by specialised PETs. They determined that PETs mostly taught easy

contents (roll forward, roll backward, cartwheel, handstand, etc.) for which supporting assistance is not necessary, and the likelihood of falls and injuries is small; they avoided gymnastic elements that include a flight phase, turns, or have a small support area as they thought such elements were not appropriate for primary school. At the same time, PETs also reported that pupils did not attain gymnastics skills prescribed in the curriculum in the first and second three-year cycles.

Since children need to encounter gymnastic contents as soon as possible to become competent and confident in their gymnastics ability (Nilges-Charles, 2008), the aims of our study are: i) to determine

what proportion of PE lessons is allocated to gymnastics compared to other PE contents; ii) to determine what proportion of time GTs devote to different contents of gymnastics; iii) to distinguish GTs' opinion about the importance of different PE contents for child development; iv) to distinguish the difficulty of the teaching of different PE contents; v) to determine the difference in the difficulty of teaching regarding teachers experience; vi) to distinguish the difficulty of learning of different contents of gymnastics; and vii) to distinguish the importance of factors attributed to pupils' gymnastics performance.

Table 1

Gymnastic contents in the first three-year cycle of primary school (Kovač et al., 2011).

YEAR 1		YEAR 2 AND 3
Practical contents		
Calisthenics (also with different equipment and with music).		
Training courses (overcoming apparatus as obstacles).		
Basic acrobatic	Rolling, rocking, bunny jumps, shoulder stand, roll forward.	Rolling, rocking, bunny jumps, shoulder stand, roll forward and roll backward. Cartwheel.
Spring and vault	Hops over a bench and low balance beam with arm support (crouch jumping). Box horse (to 80 cm height): jump up on front support on knee or squat.	Hops over a bench and low balance beam with arm support (crouch jumping). Box horse (to 80 cm height): jump up on front support on knee or squat.
Hang and support	Climbing on different wooden ladders, leaning bench, bar climbing, etc. Swing in hang and pike inverted hang.	
Balance exercises on a narrower surface	Bench: crawling, climbing, and walking in different directions, jumps in different directions, dismount straight.	Bench or low beam: crawling, climbing, and walking in different directions, jumps and leaps in different directions, simple hold elements, turn on both legs, dismounts.
Rhythmic elements (with music)	Rope jumping. Hops, leaps, and jumps. Different simple holds.	Rope jumping. Hops, jumps and leaps, turns, different hold elements (scale etc.).
Specific theoretical contents		
Orientation in the space	Forward, backward, up, down, sideward, left, and right.	
Names of basic movements	Different arm, leg, and trunk positions. Handstand, lying and sitting positions, squat, kneeling positions, hang, support etc.	

Table 2

Basic and minimal skills and knowledge standards at the end of the first three-year cycle (Kovač et al., 2011).

Basic level	The students correctly perform calisthenics. They competently and safely perform: roll forward, roll backward on a slope, shoulder stand, crawls, drag their bodies along the floor, walks and jumps on a narrow surface (low balance beam), performs a squat jump on box, climbs on various climbers (birch, bark, etc.) and performs a jump rope activity. The student is aware of terms related to body postures and the direction of movement in space.
Minimum level	The student correctly performs calisthenics. They perform: roll forward, shoulder stand, crawls, drag their bodies along the floor, walk and jump on a narrower surface (bench), with the support (of teacher or height position of take-off), performs jumps up on a lower box in front support on the knee or squat, climbs on the batten, climbing frame and sloping bench, skips the jumping rope. The student is aware of terms related to body postures and the direction of movement in space.

METHODS

This work was designed as a cross-sectional observational study. The study was approved by the commission for student affairs of the Faculty of Sport, University of Ljubljana. We enrolled 90 uninjured (2 male and 88 female) GTs who taught PE in the first three-year cycle of the primary schools in Ljubljana, Slovenia, in the 2012/2013 academic year. The 149 questionnaires with an accompanying newsletter (information on the study) were sent by e-mail or personally delivered to all 43 primary schools in Ljubljana; 21 schools (49%) accepted invitations to participate in the study. Altogether, 93 (62.4%) questionnaires were returned, of which 90 (60.4%) were entirely resolved. Participants were informed about the purpose of the study, and written informed consent was obtained from all GTs and headmasters of selected schools.

The questionnaire titled 'Implementation of gymnastics in the first three-year cycle of the primary school' was anonymous and was made solely for this study. It included three parts: the first part related to demographic characteristics (gender, age, length of service, education, the class they teach, participation of continuous professional development (CPD) with gymnastics content); the second

part related to the implementation of gymnastic contents comparing to other PE contents (fundamental movement skills – FMS, basic athletics – abcA, basic gymnastics – abcG, games with balls – GwB, dance games – abcD, water games and swimming – abcS, and obligatory physical fitness testing at national level – Slofit), and third part related to the implementation of specific gymnastics contents (calisthenics, training course, acrobatics, vaults, hang and support – H&S, balance on narrower surface – BNS, and rhythmic elements – RE). Results are presented on an ordinal scale from 1 to 5, in which 1 represents the lowest and 5 the highest level of significance.

All data were analysed using the Statistical Package for Social Sciences (SPSS, version 25.0 for Windows) and Microsoft Excel 2016. Basic descriptive statistics (mean and median) and the frequencies were calculated. Differences between average allocated time to different contents of PE and to different gymnastics' contents were evaluated with one-way ANOVA and Tukey post hoc test. The same tests were used to calculate i) the differences in GTs opinions about the importance of different contents of PE curriculum for child development, the difficulty of different contents of PE curriculum for teaching, and the difficulty

of different gymnastics' contents for learning for children; and ii) the differences between GTs' opinions regarding the different grades they were teaching. Differences between more (over 20 years of experience) and less (under 20 years of experience) experienced teachers, and their opinions were evaluated using the Mann-Whitney U test.

RESULTS

Altogether, 90 GTs participated (2.2% male and 97.8% female), aged 42.70 ± 7.96 yrs (median 43 yrs). Half of them were between 41 and 50 years old, 27.8% between 31 and 40 years, 14.4% over the age of 50, and 7.8% were younger than 30 years of age. The majority of GTs completed university education (72.2%), followed by those with finished two-year post-secondary pedagogical school (23.3%). An only a small percentage of GTs finished doctoral, scientific master's degree, or a specialisation (3.3%), and one person (1.1%) had finished only high school. More than one third of GTs in sample taught 1st grade (37.8%), 31.1% taught 2nd grade, and the same percentage 3rd grade. The sample of included GTs had 18.80 ± 9.37 yrs (median 19.50) working experiences at primary school. Most of the GTs were teaching alone (78.9%), 18.9% were teaching together with PETs one hour per week, and only 2.2% of GTs are teaching all PE lessons (three hours per week) together with PETs. Only 20% of the sample attended CPD with gymnastics content during their professional career. All schools in Ljubljana have the appropriate gym halls with good equipment for realisation the gymnastic contents and GTs implemented all PE lessons in observed academic years.

Table 3 showings the average allocated time (in lessons and percentage) that GTs dedicate different contents of PE in each grade of the first three-year cycle: FMS, abcA, abcG, GwB, abcD, abcS and SLOfit. GTs spent the most time during school year

on FMS (23.86 hours/year; 22.7% of allocated average time), GwB (20.58; 19.6%), abcA (17.13; 16.3%) and abcG (16.93; 16.1%). A statistically significant difference in allocated average time between different contents of PE ($F=108.31$, $p=0.00$) is revealed. Post-hoc analysis also showed significant differences in allocated time between all contents of PE ($p<0.02$). One-way ANOVA did not show significant differences between the allocated average time for different contents of the PE curriculum in the 1st, 2nd, and 3rd grades ($p>0.05$).

GTs believed that the most important contents for child development were FMS (4.98), abcS (4.73), and GwB (4.51); abcG was ranked at 4th place (out of 7) with an average score of 4.30 (Table 4). Significant differences in the contents of PE regarding their importance for child development were found ($F=22.36$, $p=0.00$). Tukey's post hoc test revealed there were differences in the importance of different contents between ($p<0.05$): FMS and abcA, FMS and abcG, FMS and GwB, FMS and SLOfit, abcA and GwB, abcA and abcS, abcG and abcS, GwB and abcD, abcD and abcS, abcD and SLOfit. There was no statistical difference ($p>0.05$) regarding their opinions between those taught in 1st, 2nd, or 3rd grades (Table 4).

For GTs, the most difficult content to teach in the first three-year cycle was abcS (4.52), which was followed by abcG (4.18) and SLOfit (3.64) (Table 5). We found significant differences between the contents of PE regarding difficulty for teaching ($F=39.71$, $p=0.00$). Tukey's post hoc test revealed there were differences ($p=0.00$) in difficulty for teaching between FMS and all other contents except GwB ($p=0.18$); abcA and abcG, abcA and GwB, abcA and abcS; abcG and GwB, abcG and abcD, abcG and SLOfit; GwB and abcS, GwB and SLOfit; abcD and abcS; and abcS and SLOfit. A one-way ANOVA test showed no significant differences in opinions about the difficulty of teaching between 1st, 2nd, and 3rd grade teachers ($p>0.05$).

Table 3

Allocated average time (lessons/yrs, %) for different contents of PE curriculum.

	FMS	abcA	abcG	GwB	abcD	abcS	SLOfit
Average	23.86	17.13	16.93	20.58	9.72	9.99	6.79
time	22.7%	16.3%	16.1%	19.6%	9.3%	9.5%	6.5%
1 st grade	24.00	17.23	17.18	20.31	9.75	9.70	6.83
	22.9%	16.4%	16.4%	19.3%	9.3%	9.2 %	6.5%
2 nd grade	23.71	16.41	15.53	21.76	9.59	11.18	6.82
	22.6%	15.6%	14.8%	20.7%	9.1%	10.7%	6.5%
3 rd grade	20.00	20.00	20.00	20.00	10.00	10.00	5.00
	19.1%	19.1%	19.1%	19.1%	9.5%	9.5%	4.8%

Note: FMS – fundamental movement skills; abcA – abc athletics; abcG – abc gymnastics; GwB – games with balls; abcD – abc dance; abcS – abc swimming; Slofit – physical fitness testing.

Table 4

Importance of different contents of PE curriculum for child development.

	FMS	abcA	abcG	GwB	abcD	abcS	SLOfit
Average	4.98	4.21	4.30	4.51	4.06	4.73	4.17
score							
1 st grade	4.97	4.17	4.25	4.51	4.06	4.69	4.15
2 nd grade	5.00	4.29	4.41	4.53	4.06	4.88	4.12
3 rd grade	5.00	5.00	5.00	4.50	4.00	5.00	5.00

Note: FMS – fundamental movement skills; abcA – abc athletics; abcG – abc gymnastics; GwB – games with balls; abcD – abc dance; abcS – abc swimming; SLOfit – physical fitness testing.

Table 5

Difficulty for teaching.

Difficulty for teaching	FMS	abcA	abcG	GwB	abcD	abcS	SLOfit
Average score	2.81	3.60	4.18	3.06	3.34	4.52	3.64
1 st grade	2.80	3.56	4.21	2.97	3.30	4.52	3.65
2 nd grade	2.88	3.65	4.00	3.35	3.47	4.47	3.59
3 rd grade	2.50	4.50	4.50	3.50	4.00	5.00	4.00

Note: FMS – fundamental movement skills; abcA – abc athletics; abcG – abc gymnastics; GwB – games with balls; abcD – abc dance; abcS – abc swimming; SLOfit – physical fitness testing.

Table 6

The difficulty for teaching different contents of PE regarding GTs' experiences.

	FMS	abcA	abcG	GwB	abcD	abcS	SLOfit
average	2.81	3.60	4.18	3.06	3.34	4.52	3.64
score	Z=-0.38 (p=0.71)	Z=-0.77 (p=0.44)	Z=-1.45 (p=0.15)	Z=-0.26 (p=0.79)	Z=-0.60 (p=0.55)	Z=-0.76 (p=0.45)	Z=-1.54 (p=0.12)
under 20 years of experience	2.84	3.67	4.29	3.07	3.40	4.60	3.49
more than 20 years of experience	2.78	3.53	4.07	3.04	3.29	4.44	3.80

Note: FMS – fundamental movement skills; abcA – abc athletics; abcG – abc gymnastics; GwB – games with balls; abcD – abc dance; abcS – abc swimming; SLOfit – physical fitness testing.

Table 7

Allocated average time to different contents of abcG and ANOVA results.

	calisthenics	training course	acrobatics	vaults	H&S	BNS	RE
Allocated average time (%)	23.7%	18.1%	9.9%	14.2%	9.6%	12.8%	11.7%
	F(2)=3.20 (p<0.05)	F(2)=15.11 (p=0.00)	F(2)=3.62 (p=0.03)	F(2)=0.91 (p=0.41)	F(2)=1.28 (p=0.28)	F(2)=0.78 (p=0.463)	F(2)=1.83 (p=0.17)
1 st grade	24.7%	17.9%	9.0%	14.2%	9.5%	13.1%	11.6%
2 nd grade	21.2%	16.4%	12.2%	14.7%	10.4%	12.0%	13.1%
3 rd grade	10.0%	40.0%	20.0%	10.0%	5.0%	10.0%	5.0%

Note: H&S – hang and support; BNS – balance on narrower surface; RE – rhythmic elements.

Table 8

How difficult are gymnastics' contents for children to learn.

Difficulty for children	calisthenics	training course	acrobatics	vaults	H&S	BNS	RE
Average score	3.53	3.39	4.18	4.06	4.08	3.58	3.84
1 st grade	3.51	3.42	4.11	3.93	4.03	3.52	3.83
Difference between 1 st and 2 nd grade	H=0.37 (p=0.55)	H=0.29 (p=0.59)	H=2.87 (p=0.09)	H=4.79 (p=0.03)	H=0.78 (p=0.38)	H=0.76 (p=0.38)	H=0.03 (p=0.85)
2 nd grade	3.65	3.24	4.47	4.47	4.24	3.71	3.82
Difference between 2 nd and 3 rd grade	H=0.18 (p=0.67)	H=0.13 (p=0.72)	H=1.54 (p=0.22)	H=1.49 (p=0.22)	H=0.13 (p=0.72)	H=0.94 (p=0.33)	H=1.11 (p=0.29)
3 rd grade	3.50	3.50	4.00	5.00	4.50	4.50	4.50
Difference between 1 st and 3 rd grade	H=0.41 (p=0.82)	H=0.36 (p=0.84)	H=3.20 (p=0.20)	H=7.47 (p=0.02)	H=1.25(p=0.54)	H=2.70 (p=0.26)	H=1.20 (p=0.55)

Note: H&S – hang and support; BNS – balance on narrower surface; RE – rhythmic elements.

The Mann-Whitney U test showed no differences ($p>0.05$) in opinions about how difficult the different contents of PE are for teaching between more (more than 20 years of experience) and less (under 20 years of experience) experienced GTs (Table 6).

Within abcG, GTs allocated the most time to calisthenics (23.7%), training course (18.1%), and vaults (14.2%) (Table 7). They allocated the most time to calisthenics and training courses in the 1st (24.7%; 17.9%) and 2nd grades (21.2%; 16.4%), and to training courses (40.0%) and acrobatics (20.0%) in the 3rd grade. One-way ANOVA revealed significant differences between the average allocated time to abcG content ($F=56.12$, $p<0.05$). Tukey's post hoc test revealed there was a significant difference between following the contents of abcG ($p<0.05$): calisthenics and all other contents; training course and all other

contents; acrobatics and vaults, acrobatics and rhythmic elements (RE); vaults and hang and support (H&S) and H&S and balance on a narrower surface (BNS). We established significant differences between the time allocated to calisthenics, training course, and acrobatics in the 1st ($p<0.05$), 2nd ($p=0.00$), and 3rd grades ($p=0.00$) (Table 7). Tukey's post hoc analysis showed GTs allocate significantly more time to calisthenics in the 1st than in the 3rd grade, significantly more time to training courses in the 3rd grade compared to the 1st and the 2nd grades ($p<0.05$). GTs allocate significantly more time to acrobatics in the 3rd grade compared to in the 1st grade ($p<0.05$).

GTs believed that the most difficult contents for children's learning were in 1st grade acrobatics (4.11), H&S (4.03) and vaults (3.93); in 2nd grade acrobatics, vaults

(both 4.47) and H&S (4.24); in 3rd grade vaults (5.00), H&S, BNS and RE (all three 4.50) (Table 8). We found statistical differences between different contents of abcG regarding difficulties to learn ($F=56.12$, $p<0.05$). Tukey's post hoc test revealed, there were differences ($p<0.05$) in the difficulty of learning between: calisthenics and all other contents; training course and all other contents; acrobatics and vaults; vaults and H&S; and H&S and BNS. There were also statistically significant differences between the difficulty for pupils of vaults between the 1st and 2nd grades ($p<0.05$) and between the 1st and 3rd grades ($p<0.05$).

The teachers attributed the most significant importance for pupils' gymnastics performance to motor efficiency (4.73), followed by the self-activity of the pupils (4.57), and teaching methods (4.29). They also highlighted other factors regarding gymnastics performance, such as material conditions, the support of family, physical characteristics, and the influence of classmates (Kavčič, 2015). We did not find any significant differences ($p>0.05$) in GTs' opinions regarding the mentioned factors between those, teaching at the 1st, 2nd, or 3rd grades.

DISCUSSION

One significant result of this study was that GTs allocated more time to the specific contents of PE curriculum that they rank higher regarding their importance to child development. Their opinion about the importance of different contents was not dependent on the GTs' experiences. GTs rated abcG as less relevant PE content for child development (4.30) than FMS, abcS, and GwB; therefore, they also spent less time on this content. They devoted only 16% (16.93 lessons) of PE to gymnastics, which is partly in contrast to the findings of the studies in the past. It was estimated that Slovenian GTs and PETs allocate 20% of lessons for the implementation of gymnastics from the total amount of PE

lessons per year, regardless of the lower or upper part of primary school (Medved, 1985; Sever, 1985). It was also found that 56% of PETs from Ljubljana, Slovenia devoted 16-30% of the PE to gymnastics, 29.7% of them devoted 0-15% of the time, and 14.3% more than 31% of the time in relation to other contents in the PE curriculum (Rogelja, 1985). Pajek et al. (2010) determined that gymnastics contents accounted for 10.6 school lessons in the 7th grade, 9.7 school lessons in the 8th grade, and 9.2 school lessons in the 9th grade in Slovenian schools. Živčič-Marković (2010) reported that among 106 types of educational content in the Croatian PE curriculum from 1st to 4th grade, 47 (44.4%) include different gymnastics structures. The latest research conducted in Osijek, Croatia, indicated that 97% of GTs devoted about 30% of PE content to gymnastics (Badić, Živčič-Marković, Sporiš, Milanović, & Trajković, 2012).

As open-ended curricula provide teachers with a higher level of autonomy, it often happens that contents that are difficult to teach because they require more management and, where injuries are more likely, are not allocated enough lessons in the teacher's annual work plan (Pajek et al., 2010; Kovač, 2006; Štemberger, 2003). Furthermore, in this study, GTs spent only 16.93 lessons per year on gymnastic contents but, at the same time, they highlighted abcG as one of the most difficult types of content to teach. With an average score of 4.18, abcG was ranked immediately after swimming, which is organised by external associates in Ljubljana, and GTs do not teach it during PE (Javni zavod Šport Ljubljana, 2020). There are many reasons for this opinion of GTs:

a) GTs teach different school subjects, and they need to prepare for different content simultaneously (Štemberger, 2003);

b) a small amount of obligatory European Credit Transfer System (ECTS) for Didactics of PE during the study programme for GTs (12 to 13 ECTS). In

Slovenia, three initial teacher education providers (faculties of education at the universities in Ljubljana, Maribor and Koper/Capodistria) prepare GTs for teaching all subjects on the curriculum from Grades 1 to 5 at primary school. Initial teacher education consists of a four-year undergraduate programme across all curricular areas and an additional one-year master's programme in Primary School teaching. A four-year undergraduate programme is required to accumulate 240 ECTS; among them, only 12 or 13 ECTS (depending on the university) are obligatory for PE. All programmes also include options for elective subjects, such as athletics and racket sports, gymnastics in primary school, and similar. The primary school teaching professional master's programme is required to accumulate 60 ECTS. The Faculty of Education, at the University of Ljubljana offers only two elective subjects on PE programmes, Selected topics in didactics of PE and Research in PE, each with six ECTS (University of Ljubljana. Faculty of Education, 2020);

c) lack of the content knowledge (CK), since 30% GTs in this study reported that they had not encountered gymnastics during their studies and only 20% of them attended CPD with gymnastics content in their professional career; according to Ward (2009) CK consisting of common CK (how to perform in a content area, e.g., knowing how to perform a gymnastic element as a forward roll or swing on bars) and specialised CK (didactic knowledge how to teach gymnastic elements, e.g., knowing that an inclined mat will help students to learn the backward roll) are both necessary for successful teaching;

d) fear of injuries (Štemberger, 2003): gymnastics has one of the highest injury rates (the number of injuries sustained per 1000 participants per year for the ages 6 to 11 years was 3.6) and 40.0% of gymnastics' injuries in the United States occurred in school settings (Singh, Smith, Fields, & McKenzie, 2008).

e) their age (the average age was 42.7 yrs).

Štemberger (2003) and Pajek et al. (2010) noted that GTs spend too few lessons on gymnastics, which leads to very modest knowledge of the subject in children. Within abcG, GTs seemed to allocate the most time to elements that are technically easier to perform: calisthenics (23.72%) and training courses (18.07%) for which supporting assistance is not necessary, and the appropriate organisation of the learning process is simple. The least implemented were H&S and basic acrobatics elements (less than 10% of allocated time). GTs also stated that those elements were the most difficult for children to learn correctly (acrobatics 4.18; H&S 4.08, vaults 4.06). At the same time, GTs attributed motor efficiency (4.73) the greatest importance for children's gymnastics performance. Šturm and Strel (2002) reported poor results in the muscular strength in arms and shoulders of Slovenian primary school students in the period between 1971 and 1980 as a consequence of negligent attitudes toward gymnastic elements in school programmes. Starc et al. (2016) also found that in recent decades there has been a very significant decline in this ability among Slovenian students. Many authors (Ávalos Ramos et al., 2014; Pajek et al., 2010; Živčič-Marković, 2010) reported that H&S and acrobatics are especially effective in building up strength in arms and shoulders.

For this reason, GTs should include more climbing and other basic H&S and acrobatics elements on PE lessons. Climbing demands the highest degree of good physical condition, while requiring strength of the flexing muscles and a certain level of movement coordination as the child needs to coordinate the movement of legs and arms and find support on different wooden ladders, leaning bench, or bar (Novak et al., 2008; Pajek et al., 2010; Živčič-Marković, 2010); therefore, those preparatory exercises are necessary for child development. Slovenian PETs also

often avoided those elements while they reported that H&S and acrobatics elements that include a turn of the body around different axes, a reduction in the support surface or require more muscular strength of arms and shoulders are very difficult to teach (Pajek et al., 2010).

The second main result of the present study is about the GTs' perceptions of what is important for pupils' gymnastics performance. They believe that the most important is children's motor efficiency (4.73), followed by children's self-activity (4.57). Teaching methods were put only on third place (4.29). This order indicates that they did not emphasise their role as very important for pupils' achievements compared to pupils' performance factors. Nonetheless, it shows the lack of the CK, since 30% GTs in this study reported that they did not encounter gymnastics during their studies, and only 20% of them attended CPD with gymnastics content in their professional career. As a result, the skill level attained by children is frequently stagnated, as they received little more than exploratory simple gymnastics elements (Nilges, 1997). Therefore, Slovenian PETs reported problems in teaching gymnastics while children did not attain gymnastics skills prescribed in the curriculum in the first and second three-year cycles (Pajek et al., 2010). Due to significant declines in arm and shoulder strength among Slovenian children (Starc et al., 2016), GTs should also adequately differentiate goals regarding pupils' motor efficiency and thus, in more interesting ways, bring gymnastics contents to various target groups of children. They should also include more climbing, simple hangs and support elements, and acrobatics in the PE lessons.

In the European Union, at the primary education level, schools usually pursue a single-teacher model, in which non-specialist teachers are allowed to teach PE. Nilges (1997) and Štemberger (2003) reported that GTs lacked knowledge about how to teach some difficult content, such as gymnastics; therefore, they often feel

unprepared to address progression within the educational gymnastics setting. It has been shown that PEs are more effective for children's physical development and sports skills compared to GTs, especially in the pre-adolescent period (Jurak, Cooper, Leskošek, & Kovač, 2013; Jurak, Strel, Leskošek, & Kovač, 2011; Štihec & Kovač, 1992). Studies of the effects of joint teaching on the physical fitness of children have also shown that those taught by GTs and PETs together are more motor efficient than those taught only by GTs (Starc & Strel, 2012; Štihec & Kovač, 1992), which is expected due to the differences in the competencies of the two profiles (Jurak, Kovač, & Strel, 2004); therefore, both the European Commission and the Council of Europe recommended that 'Qualified and specialised PE teachers should be preferred at all educational levels. When not possible, as a minimum, qualified PE teachers or certified coaches should counsel and support GTs' (European Commission/EACEA, 2017). PETs and GTs can together offer a large amount of knowledge and skills to children; therefore, it is unfortunate that joint teaching is offered only as a higher school standard in Slovenia.

CONCLUSIONS

Gymnastics is one of the key physical activities as it requires a great diversity of movements (Ávalos Ramos et al., 2014; Nilges-Charles, 2008; Novak et al., 2006; Živčič-Marković, 2010); therefore gymnastic contents are an important part of PE curricula throughout the world (Hardman et al., 2014).

The decision to make the first three-year cycle the focus of our research was based on the reports of PETs that children in the last three-year cycle did not attain the gymnastics skills prescribed in the curriculum in the first and second three-year cycles (Pajek et al., 2010). In this age group, it is particularly important that teachers insist on the performance of simple organic

forms of movements, preparatory exercises, and exercises to strengthen specific groups of muscles, as this is the only way to successfully maintain or even improve the level of children's movement abilities. Children in the first stages of schooling must develop basic gymnastic skills and learn to incorporate these skills into a variety of self-designed combinations and sequences to develop a broad movement repertoire (Nilges-Charles, 2008).

This study represents an important contribution toward understanding the implementation of the gymnastics curriculum in the first three-year cycle of primary schools in Slovenia. The findings show that GTs did not spend enough lessons on gymnastics per academic year. Moreover, contents that are difficult to learn because they require a higher level of children's physical fitness were not allocated enough lessons in the GTs' annual work plan. Their perception of what is the most important for children's gymnastics performance is contrary to the results of some studies (Ward, 2009); they believe that specialised CK (teaching methods) is less important than children's motor efficiency and self-activity are.

The results warrant debate on the organisation of schoolwork; therefore, the following recommendations are suggested to schools and policymakers on the level of educational policies:

- implement the gymnastics programme in such a way that gymnastic contents are implemented in all stages to realise the educational objectives of the PE curriculum;
- transform and reconcile study programmes regarding gymnastics in all three teaching faculties in Slovenia;
- relevant sophisticated system of CPD for GTs should be designed, which will equip GTs with both common CK (how to perform in a content area) and a specialised one (how to teach gymnastic elements) as this would probably increase the quality of abcG teaching and make gymnastics lessons more efficient;

- prepare web pages with guidelines and examples of good productive learning activities by Gymnastic Association of Slovenia and the Faculty of Sport, University of Ljubljana, to show how GTs could improve their practice with including different gymnastics elements in PE lessons;

- qualified PETs' should support GTs as their mentors;

- promote joint teaching with GT and PET in the first three-year cycle, especially in PE lessons with gymnastics content, which is considered by GTs to be one of the most challenging types of content to teach.

LIMITATIONS

The limitations of this study are in the considerable differences in the organisation and contents of PE curricula and teacher education systems worldwide; therefore, readers should be careful when generalising findings to different countries. As we predefined the scale of the answers in the questionnaire, the respondents were not able to contribute their own opinions on their realisations of PE lessons. Another issue to consider is that only GTs from the capital city Ljubljana were included in the sample.

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Article received: 14.4. 2020

Article accepted: 31.5. 2020