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EMPIRIKUS TANULMÁNYOK / EMPIRICAL STUDIES

IS THERE AN IDEAL AGE TO WIN AN OLYMPIC MEDAL?

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Abstract

Knowledge of the age at which elite athletes achieve peak performance could provide invaluable information for the athletes to plan their career, to carefully select sport events promising successful participation. We aimed to identify the age at which top athletes achieved their Olympic medals, and to observe any changes of the average medal-winning age over the last decades. The age of Olympic medalists between 1960 Rome and 2016 Rio were collected using online database. Data were gathered from the following individual sports: track and field, swimming, fencing (foil, épée, sabre), triple jump, long jump, high jump, and wrestling (57 events all together). The study evaluates and compares the trends in age of the winners in each discipline. Disciplines of this study show one of the two trends: trend of increasing in age, or trend of decreasing in age. In those disciplines, in which the Olympic medallists were younger than 26 years at the beginning of the examination period, such as swimming, the medallists became older over the decades. In those disciplines, however, in which the top three were older than 26 years at the beginning of the examination period, such as fencers, younger and younger athletes won their Olympic medals as time went by. The age, and the trend in the changes of the age of the medallists in the examined disciplines supports the theory of an optimal age, being around 26 years.

Keywords: Olympic medallists; peak performance; 26 years; optimal age; individual sports

Disciplines: sports science

Absztrakt

MELY ÉLETKORBAN A LEGVALÓSZÍNŰBB EGY OLIMPIAI ÉREMSZERZÉS?

Annak ismerete, hogy egy sportoló milyen idős korában éri el teljesítőképessége maximumát, fontos szempont lehet a sportolói karrier tervezésében, illetve azon sportesemények kiválasztásában, melyeken a sportoló eredményesen vehet részt. Munkánk során – az utóbbi évtizedek olimpiai versenyeinek eredményeit felhasználva – azt az életkort kívántuk azonosítani, amikor a sportolók eséllyel indulnak olimpiai érmek megszerzéséért. Az elemzéshez az 1960-ban Rómában és a 2016-ban Rio de Janeiroban rendezett olimpiák közötti összes olimpia éremszerzőinek online adatbázisokban elérhető adatait használtuk fel. A következő egyéni sportágakat értékeltük: futás, úszás, vívás (kard, tőr, párbajtőr), hármasugrás, magasugrás, távolugrás és birkózás, összesen 57 versenyszám. Vizsgáltuk, hogy megfigyelhető-e valamilyen trend az éremszerzők életkorának változásában. Megállapítottuk, hogy mind emelkedő, mind csökkenő életkori trendek azonosíthatók, mégpedig úgy, hogy azon sportágak esetén, ahol az éremszerzők a vizsgált periódus elején 26 évnél fiatalabban voltak – úszás, futás –, ott az átlagos életkor emelkedése, míg amennyiben 26 évnél idősebbek voltak – vívás –, ott annak csökkenése volt igazolható. Összességében megállapítható, hogy a vizsgált versenyszámok esetén a 26 éves életkor tekinthető optimálisnak az olimpiai éremszerzés szempontjából.

Kulcsszavak: olimpiai érmesek, csúcsteljesítmény, optimális életkor, egyéni sportágak

Diszciplína: sporttudomány

INTRODUCTION

The modern Olympic Games, held every four years with more than 200 nations participating, are considered to be the world's most prestigious sports competition. Olympic medallists are flowers of the nations, they are held in high regard and everyone respects them. Since the number of participants is strictly limited (only qualified competitors can enter for Olympic events), Olympic Games often serve as milestones in an athlete's life.

Knowledge of the age at which elite athletes achieve peak performance could provide invaluable information for the athletes, their coaches, and their clubs to plan a career, to carefully select events and to make strategic decisions regarding resource allocation. Adequate information about incidental variances between the age of peak com-

petitive performance for different sports and events might help the athlete who is over the hill for a „young sport” to switch to another discipline where his peak performance is yet to be reached.

The physiological parameters characterizing human capacities follow a biphasic pattern: performance is limited at birth, increases to a maximum and then decreases back to zero at death (Berthelot et al, 2012). Both physical and intellectual skills follow such a pattern, except, of course, when injuries, illness, or amnesia *ad interim* impair certain capabilities, which might favourably be regained afterwards. Various biological capacities typically reach their peak at different stages of an individual's life (Simonton, 1988). It would, therefore, be reasonable to assume that the age of peak competitive performance varies between athletes from different

sports and events, depending on the specific skills and attributes required for success in a particular event.

Sports can be divided into three event-type categories on the basis of the predominant attributes (explosive power/sprint, endurance, and mixed/skill) required for success in the given event (Allen and Hopkins, 2015). In certain sports or events, such as discus throw, javelin throw, 100 m track and field or 50 m swimming, performance is mainly determined by explosive power or sprint. Marathoners, ultra-cyclists, triathletes, or long-distance swimmers, on the other hand, mainly require endurance to perform. Mixed skills (such as slickness, suppleness, anticipation, etc.) limit the top performance of the fencers, golf, or tennis players (Allen and Hopkins, 2015). In some disciplines the key to success is beyond the possibility to predict. Other than individual capabilities, the success in team sports is further influenced by harmony and trust among the players, knowing each other's strengths and weaknesses. In case of sports requiring special equipment the effects of the technological advances (such as reduction in weight and in resistance of the bikes) cannot be excluded. Not to mention judgement-based sports, including figure-skating, gymnastics, and combat sports, where the performance would be difficult to connect to the racer exclusively.

The first systematic review on the topic of age of peak competitive performance of elite athletes concluded that the age of peak performance depended on the duration of the event (Allen and Hopkins, 2015). In explosive power/sprint events, younger athletes performed better in longer competitions: in athletics throws (taking 1-5 s only) top performance is estimated at 27 years, while in short distance swimming (50 m, 100 m, 200 m distances, taking 21-215 s) best results can be expected from 20-years-old competitors. Conversely, estimates for endurance events increased with increasing event duration. The longer the event, the older the age of

peak performance is estimated: in 2-15 min swimming (200-1500 m distances) competitors at the age around 20 years perform the best, while in events longer than a day (such as ultra-distance cycling) the peak performance is shifted towards 39 years. A possible interpretation of these observations is that to each event-duration in each sport corresponds an ideal age, when the chances of winning culminate. According to Allen and Hopkins (Allen and Hopkins, 2015), the linearly decreasing estimates with increasing event duration for explosive power/sprint events and the linearly increasing estimates with increasing event duration for endurance events reverse at the age of 21 years and events of 4 min duration. They have found insufficient data to investigate trends for mixed/skill events.

Sport performances showed strong development over the last century (Berthelot et al, 2008), world records break every other day, thanks to a myriad of factors. Rising trends can be explained by training methods becoming more and more effective, by wider range of modern sportswear and equipment becoming available, by the number of sport facilities increasing, by conscious nutrition strategies and by the number of competitors increasing by leaps and bounds. This development seems to be slowing down recently, suggesting that a limit is soon to be reached, beyond which the performance cannot be sharpened any further.

In 2008 it was predicted that half of the world records will practically not be broken anymore (the improvement will not exceed 0.05% by 2027; 4). In light of this the topic of age of peak performance has become the focus of considerable research interest across many sports and disciplines (Allen and Hopkins, 2015).

The progressive development of sport performances over the last decades raises the question as to how the population concerned has been altered, whether or not some definable, measurable characteristics – such as age – of the top athletes contrib-

uting the ascending performance could be identified. The aims of this research have been to identify the age at which top athletes achieved their Olympic medals, and to observe any changes of the average medal-winning age over the past 56 years.

MATERIAL AND METHODS

For this research, the age of Olympic medallists between 1960 Rome and 2016 Rio were collected using online database, the official website of the Olympic Games (<https://www.olympic.org/>). Sports and disciplines were selected in our study by the following inclusion and exclusion criteria.

Inclusion criteria:

- featured as Olympic event
- individual
- at least 10 competitions between 1960 and 2016

Exclusion criteria:

- disciplines requiring equipment, where the technological development might have a strong influence on the performance (shooting, pentathlon, cycling, canoe sprint, rowing)
- disciplines where the ranking depends on the judges' scores (gymnastics artistic, diving)
- disciplines where doping is repeatedly confirmed (weightlifting, boxing)
- equestrian (equestrian dressage, equestrian eventing, equestrian jumping)

The following sports were chosen: track and field, swimming, fencing (foil, épée, sabre), triple jump, long jump, high jump, and wrestling. In track and field, nearly the full range of Olympic distances were covered: the 100 m, 200 m, 400 m, 800 m, 1,500 m, 5,000 m, 10,000 m and marathon; hurdles 100 m (F), 110 m (M), 400 m (M, F); steeplechase 000 m (M). Altogether twenty events were chosen

in long course pool swimming: freestyle 100 m (M, F), 200 m (M, F), 800 m (F) and 1,500 m (M); breaststroke 200 m (M, F) and 400 m (M, F); backstroke 100 m (M, F) and 200 m (M, F); overhand stroke 100 m (M, F) and 200 m (M, F); medley 200 m (M, F).

In the statistical analysis the age of all three medallists (gold, silver, and bronze) were unweighted, all data contributed equally to the results without considering the place. Average age of the genders were compared using Student's t-test and Mann-Whitney nonparametric test.

Evaluation of the trends in age of the winners in each discipline were performed using analysis of variance (ANOVA) and Kruskal-Wallis one-way analysis of variance. Comparisons between the average age in 1960 and in 2016 are based on the predicted values using linear regression. Figures were created using SigmaPlot 12 software (Systat Software Inc.).

RESULTS

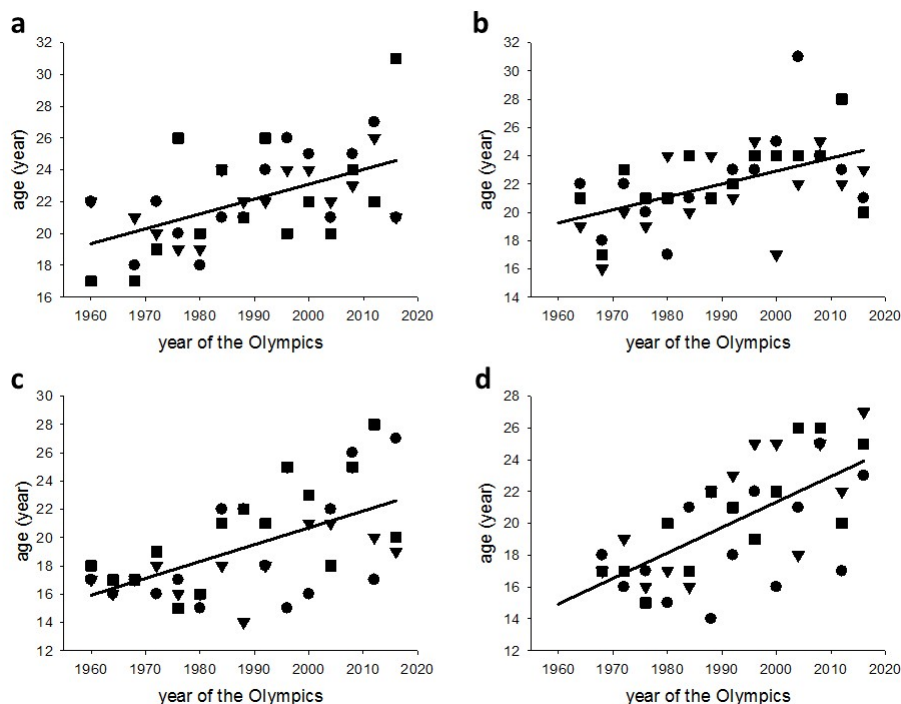
The average age of Olympic medal winners varies between disciplines and events. Swimmers are the youngest (20.9 ± 0.1 years), followed by the athletes (being 4.7 years older than the swimmers), and fencers win their medals at the age of 27.2 ± 0.3 years. In some disciplines there are significant differences between the medal winning age of men and women.

In nearly all swimming events men are significantly older than women (200 m freestyle is the only exception).

In 1500 m track and field and in high jump women are significantly older than men. Olympic medallist fencer men and women are of similar age.

The changes in the age of the medallists across Olympic Games show differences between various disciplines and events. Swimmers generally win their gold, silver and bronze medals at older age over time (Figure 1).

Figure 1. Changes in the age of the top three male and female swimmers in the Olympic Games between 1960 and 2016. a: 100 m backstroke male, b: 200 m backstroke male, c: 100 m backstroke female, d: 200 m backstroke female. Values are presented as individual data (● first place, ▼ second place, ■ third place) with linear regression.



For example, the predicted age of the women's 100 m backstroke medallists was 15.9 years in 1960, which increased to 22.6 years by 2016. The predicted age of the men's 100 m backstroke medallists increased from 19.4 years in 1960 to 24.6 years in 2016.

The trend of increasing age showed in every swimming events studied. By 2016, the average age in Olympic swimming events approximated 22-23 years for women, and 24-25 years for men. Similar to swimming events, trend of increasing in age was observed in short distance running events (Figure 2). While the predicted age of women's 100 m track and field medallists was 21.3 years in 1960, it increased to 29.1 years by 2016. The predicted age of men's 100 m track and field medallists was 23.5

years in 1960, and it increased to 26.9 years by 2016. The average age of the top short distance runners appears to approximate 26-28 years.

In triple jump, long jump, and high jump events, where the Olympic medallists were younger than 26.1 years in 1960, the average age of the top three increased in both genders, similar to swimmers, and short distance runners. Studying the age of long distance runners revealed, however, a reverse tendency compared to the changes observed in the age of swimmers, short distance runners, or jumpers. The Olympic medallist marathon runners were 28.9 years old in 1960, and 27.6 years old in 2016. The predicted age of men's 10 km track and field medallists was 27.9 years in 1960, and it decreased to 24.7 years by 2016 (Figure 3).

Figure 2. Changes in the age of the medallists in male (a) and female (b) runners (100 m distance) in the Olympic Games between 1960 and 2016. Values are presented as individual data (● first place, ▼ second place, ■ third place) with linear regression.

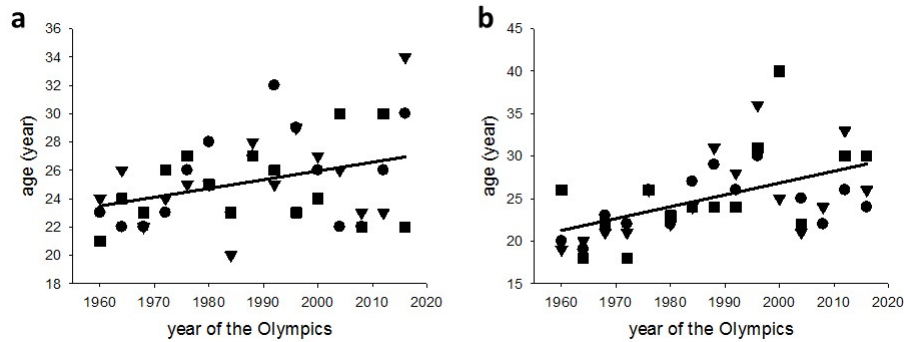
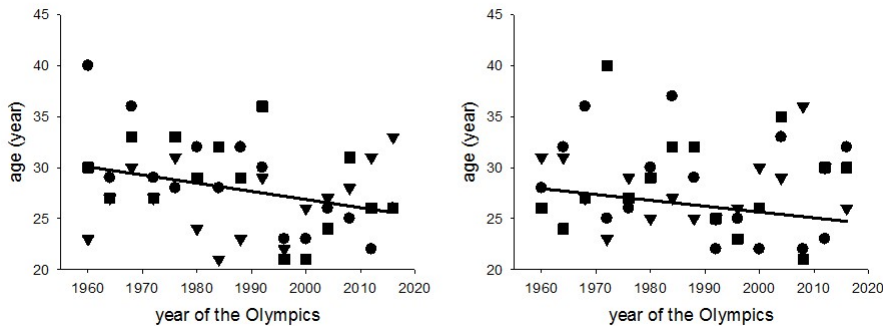


Figure 3. Changes in the age of the medallists in male sabre (a) and male marathon (b) in the Olympic Games between 1960 and 2016. Values are presented as individual data (● first place, ▼ second place, ■ third place) with linear regression.



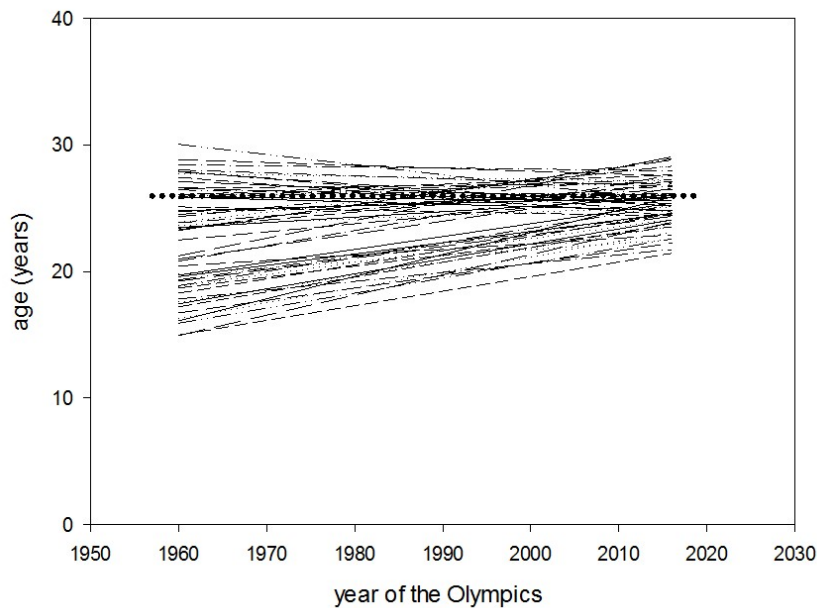
In those running events, where the predicted age of the top three was older than 26 years in 1960, the age of the Olympic medallists shifts towards younger ages by 2016. Similar trends can be observed in the age of sabreurs (Figure 3). The average age of the top three male sabre fencers decreased from 30.1 years (1960) to 25.6 years (2016).

In summary, disciplines of this study form two groups. In those disciplines, in which the Olympic medallists were younger than 26.1 years at the beginning of the examination period (44 disciplines altogether), the medallists became older over the

decades. The only exceptions are male 800 m track and field (from 25.1 years to 24.4 years), female 800 m track and field (from 25.9 years to 25.6 years) and wrestling flyweight (from 25.9 years to 24.8 years).

In those 13 disciplines, however, in which the top three were older than 26.1 years at the beginning of the examination period, younger and younger athletes win their Olympic medals as time goes by. Only exception is male wrestling super heavyweight (from 26.6 years to 27.0 years, Figure 4).

Figure 4. Changes in the age of the medallists in the Olympic Games between 1960 and 2016. Each solid line represents a discipline of the followings: female freestyle 100 m, 200 m, 800 m, backstroke 100 m, 200 m, breaststroke 200 m, 400 m, overhand stroke 100 m, 200 m, medley 200 m; female running 100 m, 200 m, 400 m, 800 m, 1500 m; female hurdles 100 m, 400 m; female high jump, long jump; female foil fencing; male freestyle 100 m, 200 m, 1500 m, backstroke 100 m, 200 m, breaststroke 200 m, 400 m, overhand stroke 100 m, 200 m, medley 200 m; male running 100 m, 200 m, 400 m, 800 m, 1500 m, 5000 m, 10,000 m, marathon; male steeplechase 3000 m; male hurdles 110 m, 400 m; male triple jump, high jump, long jump; male foil fencing, épée fencing, sabre fencing; male wrestling flyweight, lightweight, welterweight, middleweight, heavyweight and super heavyweight. The dotted line shows 26.1 years of age.



DISCUSSION

The physiological parameters characterizing human capacities show a biphasic development of growth and decline. Physical and intellectual skills evolving after birth correlate with biological development, with growing of the body and with learning. Sport performances are influenced by anthropometric data (such as height, body mass index or body fat percentage), speed, strength, slickness, age at specialization, intensity, length and frequency of the trainings, and a series of factors. The development of some capacities can be highly enhanced by learning, by practice or by experience, while other skills are hard to influence by such actions.

The contribution of these easy-to-improve skills and hard-to-influence capacities to the success of an elite athlete likely depends on the sporting event.

This sight exceedingly explains Allen's and Hopkins' (2015) observation, that in the shortest events requiring mostly explosive power or sprint, older athletes performed better, and estimates decreased with increasing event duration. One of the shortest events (1-5 s) are the athletics throws, where the need to precisely and rapidly perform a sequence of complex motor patterns clearly requires many years of training and experience to master (Hollings,

Hopkins and Hume, 2014). Sport events being a little longer (10-55 s) are typically track sprint events or short distance swimming, where the performance is more likely to depend on raw power than on acquisition and application of a specific skill (Hollings, Hopkins and Hume, 2014), explaining why younger athletes are more likely to win.

Aging is accounted for the natural decline of our capacities. Endurance athletes older than 40 years („Masters”) show „exceptionally successful aging”, since many of them deliver impressive exercise performance and physiological parameters (Tanaka and Seals, 2008). Most of the winning times of the first modern Olympic games held in 1896 have been set by athletes older than 40 years old (the winning time of the marathon winner in 1896 – who was 23 at that time – was even set by a 73 years old runner since then). The number of older adults participating in competitive events has increased in the past 100 years at a much greater rate than that of young adults. This, and the changes in training and nutritional practices together improved the peak performance of Masters athletes dramatically (Ericsson, 1993). It is known, that performance in long distance running – requiring endurance primarily – can be maintained until the age of 35 years approximately, and it only shows a slight reduction until 50-60 years of age, when the decline of performance becomes steeper (Tanaka and Seals, 2003).

The first comprehensive article of age of peak performance of top athletes was published in 1988 by Schulz and Curnow (Schulz and Curnow, 1988). They have noted that although the absolute levels of peak performance among the top athletes improved dramatically in the previous 100 years, the age at which peak performance was achieved had remained practically unchanged. They have also noticed that optimal age depended on the discipline, and they have mentioned that the age golf players, who reached their highest level of performance at the age of 31 years at that time, already

showed a slight movement towards younger ages. They have estimated the age of competitors at their peak performance in sports requiring mostly sprint or explosive power to be at about the early twenties; while in sports requiring mostly endurance, practice, and learning to be at about the late twenties or even the early thirties. Since their work many researchers have suggested, that the peak performance of the top athletes is not exclusively determined by biological factors, but it is highly influenced by learning, experience, mental resilience, and motivation (Knechtle, Wirth and Rosemann, 2010); (Parry et al., 2011) which may culminate at much older ages than biological factors do. It is a common finding that the age of the best ultra-marathon runners (any running distance longer than the classical marathon distance of 42.195 km, like 50 miles, 100 miles, 24 h, 6 days or 10 days) increase with increasing race distance (Knechtle et al., 2014). The previous experience seems to be so dominant to succeed, that the number of finishes is one of the most important predictors for successful outcome in different ultra-endurance disciplines (Knechtle et al, 2011); (Hoffman and Parise, 2015). With increasing number of finishes in the same ultra-marathon distance, the performance is expected to improve although the athletes become older (Knechtle et al, 2014). Although the current study does not include ultra-endurance disciplines, the findings support these trends. The age of gold medal winner men of 100 m freestyle swimming (requiring sprint and explosive power mostly) in the period examined was 21.9 ± 0.7 years, compared to 28.6 ± 1.3 years, the age of gold medal winner sabreurs (sabre requires learning, practice, and experience mostly). It must be noted, though, that swimmers reach their peak performance much younger than athletes from most other sports, even from those requiring sprint and explosive power mostly. It is likely that extremely early specialisation contributes to the early peaking phenomenon observed in swimmers (Vaeyens et al. reported that

among the Olympians of 2004 the mean age of specialisation was 8 years for swimmers, while it was 14 years for athletics competitors; (Vaeyens et al., 2009).

Rüst et al. (2014) studied a very similar question to ours: they determined the age and its changes across years of peak swimming performance for elite Swiss freestyle swimmers between 1994 and 2012. They investigated the association between age and swimming speed of the annual ten fastest men and women swimmers in each distances. For freestyle women, mean age of peak swimming speed increased in 50 m from 18.9 to 20.4 years, but decreased in 1500 m from 25.0 to 18.1 years, while it did not change significantly in 100-800 m distances. Men in peak swimming speed showed a tendency of „getting younger” in 50 m only, in all other distances the mean age at peak performance remained unchanged over the years. These results reveal that an investigation in a significantly shorter time period (16 years compared to 56), and although including a higher number of participants (70059 compared to 2205), but still limited to a single area (Switzerland compared to the international Olympic Games) observations might both agree (50 m women) or disagree (50 m men) with ours.

The trend of the age of peak endurance performance increasing these last decades was examined by Gallmann et al. (Gallmann et al., 2014). The age of the top ten triathletes in „Ironman Hawaii” (considered as the Ironman World Championship) was investigated between 1983 and 2012. They observed, that the age of elite triathletes, both men and women, increased over the last three decades, while their performances improved. The mean age of the annual top ten finishers increased from 26 ± 5 years to 35 ± 5 years for women and from 27 ± 2 years to 34 ± 3 years for men, while the overall race time decreased from 671 ± 16 min to 566 ± 8 min for women, and from 583 ± 24 min to 509 ± 6 min for men. Ironman triathlons covering 3.8 km

swimming, 180 km cycling and 42 km running represent endurance sports exceedingly, and since they are complex enough, their study is also suitable to reveal differences between the age of peak performance of various endurance disciplines. Considering the split disciplines, Gallmann et al. (2014) found the age to increase in all three disciplines, namely in swimming, in cycling, and in running, similarly in both genders, while the tendency to improve the performance was only apparent in the cycling and running split times for both men and women, swimming split time did not reduce for women (the latter might be related to the observation that the best female swimmers were significantly younger than the best cyclists).

Allen et al. (Allen, Vandenberg, and Hopkins, 2014) employed a different method to describe the age of peak performance: they identified the age at which top athletes achieved their best performance. They searched for annual best times of male and female swimmers who were top 16 in pool events at the 2008 or 2012 Olympics, from each swimmer’s earliest available competitive performance through to 2012. They have estimated the peak performance of male swimmers at the age of 24.2 ± 2.1 years, with 2.6 ± 1.5 years peak-performance window, which is in agreement with the observations regarding the age of male swimmers. According to Allen et al. (2014) female swimmers can achieve their peak performance at the age of 22.5 ± 2.4 years, and similar to men, their performance does not decline for another 2.6 ± 1.5 years. The significantly lower optimal age for female swimmers is also in accordance with the findings of this work.

The analysis of the Olympic disciplines covered by this study seems to outline an „optimal” age: in those disciplines, in which the winners were younger than 26.1 years at the beginning of the examination period, the medallists became older over the decades. In those disciplines, however, in which the winners were older than 26.1 years at the

beginning of the examination period, younger and younger athletes won their Olympic medals as time went by. Some data suggest, that the age of 26.1 years might be a „universal optimal age” in humans. Berthelot et al. (2012) estimated the age of peak performance of the world’s best athletes, swimmers, and chess players being at 26.1 years. This observation might be explained by biological and physiological factors which peak at similar age, such as pulmonary functions (Schoenberg, Beck and Bouhuys, 1978), cognitive capacity (Salthouse, 2009), reproductive functions (Kühnert and Nieschlag, 2004), or peak bone mineral density (Boot et al., 2010).

It has to be mentioned, though, that while the age, and the trend in changes of the age of the medallists in the disciplines examined in this work perfectly matches the theory presuming the presence of an optimal age, certain disciplines surely do not follow such patterns. Counterexamples are easiest to demonstrate among ultradistance competitors (Knechtle et al., 2014); (Hoffman and Parise, 2015); (Gallmann et al., 2014); (Hoffman and Wegelin, 2009). Overall, peak performance in endurance events is probably reached at much older ages than in explosive power/ sprint events.

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ATTITUDES TOWARDS THE SPORT OF PERSONS WITH DISABILITIES, I. E.: IS THE SPORT IMPORTANT IN THE LIVES OF PEOPLE WITH DISABILITIES?

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Abstract

The equal opportunities approach of the second half of the 20th century emphasises the social inclusion of disadvantaged groups, including persons with disabilities. Education and employment play a key role in achieving integration. Nevertheless, other fields such as leisure time and sporting activities also contribute positively to the social involvement of persons with disabilities. At present nearly 7,000 persons with disabilities are registered in Hungary who pursue sports competitively, of whom approximately 5,000 persons with intellectual disabilities (Regényi et.al, 2017).

The study discloses the partial results of a research aimed at revealing the awareness of the Hungarian population regarding the sport of people with disabilities. As such research has never been carried out in Hungary before, it can fill in a niche. The results of our exploratory research may be the starting-point for further investigations. The importance of the topic is given by the fact that thanks to the sport the focus is on the outstanding performance of the social group concerned rather than on their limitations and deficiencies, which therefore reinforces the positive and accepting attitude of citizens. Previous research findings have highlighted that the nature of disability-related knowledge influences the way the members of society think about persons with disabilities, i.e. when it is possible to provide information and gain experience focusing on the existing abilities and strengths of the above mentioned group, attitudes become more positive as well.

The findings of the research reveal that respondents consider it important to pursue sport within integrated framework, at the same time they feel it is justified to do segregated sports with a view to persons with disabilities. Based on the results we can state that the media coverage of achievements in sports competitions of persons with disabilities is perceived as low level, but apparently it is not considered to be a key area in the lives of persons with disabilities.

Keywords: integration, inclusive approach, attitude, media, sport habits, equal opportunity

Disciplines: sociology

Absztrakt

FOGYATÉKOSSÁGGAL ÉLŐ SZEMÉLYEK SPORTOLÁSÁVAL KAPCSOLATOS ATTITÚDOK, AVAGY: FONTOS-E A SPORT A FOGYATÉKOSSÁGGAL ÉLŐ EMBEREK ÉLETÉBEN?

A XX. század második felében megjelenő esélyegyenlőségi szemlélet, a hátrányos helyzetű csoportok, köztük a fogyatékossgal élő személyek társadalmi befogadását hangsúlyozza. Az integráció megvalósulásában az oktatás és a foglalkoztatás kiemelt szerepet játszik. Ugyanakkor egyéb területek, így a szabadidő és a sport területe szintén pozitívan járul hozzá a fogyatékossgal élő emberek társadalmi részvételének teljesüléséhez. Magyarországon ma versenyszerűen csaknem 7000 fő fogyatékossgal élő sportolót tartanak nyilván, közülük kb. 5000 fő értelmi fogyatékossgal élő személy (Regényi et.al, 2017).

A tanulmány a magyar lakosság fogyatékossgal élő személyek sportolásával kapcsolatos tájékozottságának feltárására irányuló kutatás részeredményeit mutatja be. Mivel ezidáig hazánkban ilyen jellegű kutatásra még nem került sor, hiánypótlónak tekinthető. Felderítő jellegű kutatásunk eredményei további vizsgálatok kiindulópontja lehet. A téma azért is fontos, mivel a sport által az érintett társadalmi csoport kiemelkedő teljesítménye kerül középpontba, nem pedig korlátaik és hiányosságaik, így az állampolgárok pozitív viszonyulását és elfogadó szemléletét erősíti. Korábbi kutatási eredmények rávilágítottak, hogy a fogyatékossgal kapcsolatos ismeretek jellege befolyásolja a társadalom tagjainak gondolkodását a fogyatékossgal élőkkel kapcsolatosan, azaz amennyiben a nevezett csoport meglévő képességeire és erősségeire fókuszáló tájékoztatásra és tapasztalatszerzésre van lehetőség az attitűdök is pozitívabbá válnak.

A kutatás eredményei szerint a megkérdezettek fontosnak ítélik az integrált keretek között zajló sportolást, ugyanakkor indokoltnak érzik a fogyatékossgal élők szempontjából a szegregált sportolást. Az eredmények alapján megállapítható, hogy a fogyatékossgal élő személyek versenyeken elért helyezéseiről szóló média megjelenést alacsony szintűnek vélik, ugyanakkor láthatólag nem érzik a fogyatékossgal élők életében kiemelten fontos területnek.

Kulcsszavak: integráció, befogadó szemlélet, attitűd, média, sportolási szokások, esélyegyenlőség

Diszciplínák: szociológia

The role and importance of sport for the individual and the society

The sport is a specific human activity and as activity it is part of the universal culture (Bíróné et al., 2011). The sport has got a number of positive effects both on the micro and the macro level. From the person's perspective the sport plays an important role in the field of education, personality development, health promotion, recreation, etc. Thanks to the sport, the person's cognitive functions, communication strategies, social (cooperation, problem solving) abilities, as well as coping strategies are developing (Pikó et al., 2010; Benczúr, 2017). The health promoting and preserving factor of the sport is well-known, but it also plays a significant role in overcoming diseases and restoring health. By doing physical exercises the physical, psychical, and mental state, the endurance of the individual strengthen (Pikó et al., 2010). The positive effects of sport on mental health are widely known, thus the intention of mental recharging and stress relief is an important motivation for engaging in leisure sports (Bartha&Bácsné, 2018). The importance of sport is reflected in the management of tension and stress, and it increases the individual's resilience (Szokolszky&V Komlósi, 2015).

In a broader context its role both in the society and economy is well-known (Bíróné et al., 2011). The sport facilitates the integration into the society, the mobility and attainment of community standards, it helps to prevent the development of deviances, on the other hand thanks to the team spirit the individual can experience the power of common goals, the particular way the community works, and significant sports achievements are acknowledged by mates and the community (Tigyi-né, 2015).

From an economic point of view, positive outcomes both on the social and the individual level have long-term benefits. The productivity, performance and consumption of economic operators increase, whereas the social (health) expenditure

becomes lower due to the health promoting and deviance preventing functions (Paár, 2015). Today sport as an economic field significantly contributes to the national income, what is more, an important source of it is the sports broadcasting (Ács et al., 2011; Ács, 2015).

Why is sport important in the life of persons with disabilities?

In the life of persons with disabilities sport has the same significance as for persons without disabilities: health promotion, self-fulfilment, success, social life, gaining publicity (Dorogi, 2012:7; Tóvári, 2015). According to Pfau (2017) sport "can also serve for disadvantaged groups as means of catching up in the society" (Pfau, 2017, p.13.), in other words, it can be an important tool for increasing chances (Pfau, 2019). A common activity done together with non-disabled people can facilitate integration, decrease the negative attitudes expressed towards them, increase their acceptance and reception in the community. Benczúr (2017) claims that the special sport also plays a huge role in rehabilitation. Through improved physical health and healthy lifestyle education, thanks to the achievements, the quality of life of athletes significantly improves (Petrika, 2012).

However, access to physical activity and sport is not always guaranteed to persons with disabilities. Recognising the positive impact of sport on the individuals and the society, the international and domestic legislation promotes equal opportunities for people with disabilities in leisure and competitive sport.

Hungary was one of the first countries to ratify the UN Convention on the Rights of Persons with Disabilities in 2007 (Act XCII of 2007). Article 19 of the Convention emphasises that persons with disabilities have the right to participate in the community on an equal basis with others, that is,

they also have the right to learn, work, have entertainment, have access to culture, and do sport. Article 30 calls on States Parties to enable persons with disabilities to participate on an equal basis with others in sporting activities, that is, they shall take appropriate steps and measures to encourage and promote persons with disabilities to participate in integrated sporting activities. The amendment of the Lisbon Treaty in 2009 gives the EU a formal competence on sport in the member states. In Hungary Act XXVI of 1998 on the Provision of the Rights and Equal Opportunities of Persons Living with Disability specifies the field of culture and sport as one of the focus areas of equal opportunities. In accordance with Section 18 (1) „persons with disabilities shall be enabled to visit cultural, sports and other types of community facilities”. The National Disability Program (2015-2025) (hereinafter: Program) calls the lack of facilities in the area of leisure sport a difficulty, on the other hand the disabled accessibility of existing facilities is also problematic, which calls for intervention. In addition to leisure sports, competitive sporting goals are also included in the Program, i.e. the development of competitive sports of persons living with disability, sports scholarships promoting competitive sports, and provision of specialised sports equipment.

Act I of 2004 on sports and the preamble to its amendment, Act XXIX of 2019, class the support of sporting activities of persons living with disability among the tasks of the state, as it has an important role in the life of the social group concerned with a view to equal opportunities.

The role of media in changing social attitudes

The existence of statutory provisions does not in itself create equal opportunities, as not only the state, but also the majority society shall regard its fulfilment as their own task (Kálmán&Könzei,

2002). The media has a significant role in shaping social attitudes by broadcasting news and information to citizens.

The mass media has two important purposes in the lives of persons with disabilities. The first one is to make programmes and writings understandable and accessible for them. The other one is to inform the majority society on events connected to persons with disabilities. In the National Disability Program the national assembly requests media service providers to promote information on the program in order to further the change in social attitudes towards persons living with disability (OFP 2015- 2025).

In the Hungarian media the sport of disabled persons appears in the Paralympic broadcast: we can see the fight of Paralympians live on TV. Beyond that, there is another noteworthy programme: the report of Special Olympics Hungary on the world games, and other than that, in the media there is only occasional news on persons with disabilities.

In the written media there is also integrated information on persons with disabilities, news on the Paralympics can be read on the pages of National Sport. Special Olympics Hungary has an own publication: the World Of Champions. Both newspapers are available online.

In reality, the digital media provides most information on sporting activities of persons with disabilities, but these sites are less frequented than the popular ones, we could say they are invisible. They appear only by chance. Social media has, however, a great possibility (and responsibility) in it, as in a matter of seconds it can share news, reports, information with hundreds of people.

Sporting habits of persons with disabilities

Studies on the sporting habits of persons with disabilities are available only to a limited extent. In the census research of the Central Statistical Office,

the results on the lack of accessibility in the community life indicate the leisure and sporting habits of the population concerned. During the census in year 2011 questions connected to disability examined where the affected population experiences lack of accessibility (KSH, 2015). According to the respondents they are the least likely to find barriers in the family life (4.4%) and in the community life (8.7%) (KSH, 2015:26). Disabled groups think, however, there are differences, and in the community life persons with autism (22.2%) deaf persons (17.6%), mentally (psychically) disabled persons (16.6%) face barriers to the greatest extent.

Sáringerné (2014) pointed out, based on her research results, that almost half of the grown-up persons with disabilities did some sort of sporting activities, but one-third of those who did not do any sports would like to engage in a sporting activity too (Sáringerné, 2014). The respondents doing sport, similarly to those who are non-disabled, said that the biggest motivating factors are health promotion, recreation and the preservation of physical performance. There are also differences in the motivation of the two groups. Respondents living with disabilities considered it more likely that sporting activities promote the building and maintaining of social relationships, as well as the social integration. It supports the fact that the social role of sport has more significance in the life of the group concerned. Nevertheless, only one-third of them does this activity within integrated frameworks, and despite the fact that the National Disability Program (2015-2025) regards the availability and accessibility of sports facilities as an important goal, the respondents are only slightly satisfied with it or have positive experiences (Sáringerné, 2014:100). All of which query the possibility whether persons with disabilities could pursue sport within integrated frameworks and if non-disabled people could meet the members of the group concerned and get to know their abilities and performance. Laoues and Co. (2019a, b) studied the leisure and sporting hab-

its of disabled children (N =283). They found that passive leisure activities (watching TV, listening to music) are more dominant in the leisure consumption of both boys and girls, more than half of the children claimed to engage in leisure sports. The greater activity of boys was proved, which is also shown by research on sporting habits of the non-disabled youth. The main motivations for sporting activities are staying fit, trying out new things and in their case community experiences.

DATABASE AND METHOD OF THE RESEARCH

The research aimed at revealing the awareness of the Hungarian population regarding the sport of people with disabilities. As such research has never been carried out in Hungary before, it can fill in a niche. The importance of the topic is given by the fact that thanks to the sport the focus is on the outstanding performance of the social group concerned rather than their limitations and deficiencies, which thus reinforces the positive and accepting attitude of citizens. Previous research results (Balázs-Földi, 2018, 2019) suggest that the nature of disability-related knowledge influences the way the members of society think about persons with disabilities, that is, when it is possible to provide information and gain experience focusing on the existing abilities and strengths of the above mentioned group, attitudes become more positive as well.

According to Szilágyi (2009) everybody has specific attitudes. Previous research results suggest that gender, academic qualification, age, previously gained specific knowledge, personal experiences can contribute to different attitudes (Balázs-Földi, 2019). There are a number of techniques to measure attitudes, such as observation, Pencil and Paper Interview, i.e. a survey using a questionnaire (Forgács et al., 2010). We applied Indirect Observation as observational technique and carried out a

survey using a questionnaire, which contained mainly scale questions. In the course of direct observation the behaviour and reaction of the person concerned is observed, whereas the indirect observation can be used to examine the interest subsequently, for example by analysing the person's web search results. Therefore the sociodemographic data of the respondents of the online questionnaire are suitable to draw conclusions regarding their attitudes.

Applying an online questionnaire the research was carried out in June 2019. The advantage of the online questionnaire is behind the fact that it can reach relatively many people in a fast and cost effective way, on the other hand the disadvantage lies in the fact that the willingness to respond depends on the topic, i.e. those people are more likely to fill it in who are attracted to, affected by or interested in the topic. In general, topics connected to disabilities are not so attractive for the public, but school qualification, age, professional knowledge, personal experiences can all positively influence the attitudes (Csizmár, 2007; Balázs-Földi, 2019).

Apart from the fact that subjectivity had greater importance in the data collection, it had to be taken into consideration that the results were also influ-

enced by the circle, and characteristics of Internet users. After all, Internet is mainly used by the highly qualified urban population under the age of 50. This technique is, however, suitable to conduct an exploratory research.

The questionnaire consists of 3 parts. In the first block sociodemographic factors (school qualification, age, place of residence, etc.) were asked from the respondents. Questions in the second block were intended to explore the respondents' attitudes towards and knowledge about disability. The third question block measured knowledge about the sport of persons living with disability.

Characteristics of the research sample

The survey was conducted among 100 persons. 57 women and 43 men completed the questionnaire, which proportionally follows the gender distribution of the total population. Regarding the age distribution the biggest group of respondents was 41-64 year-olds (47%), but the proportion of the 31-40 age group was also significant (36%). 12 % of the respondents fell into the 18-30 age group, and 5% were over 65. In summary, the topic attracted mainly the middle-aged, 31-64-year-old people (Figure 1).

Figure 1. Age distribution of respondents (%). Source: researched by the authors, 2019

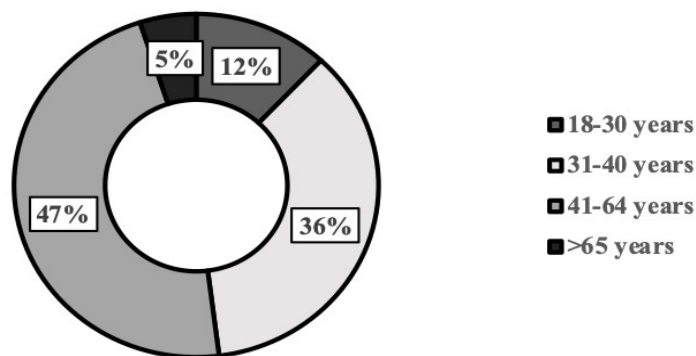


Figure 2. Distribution of respondents based on school qualification (%). Source: researched by the authors, 2019

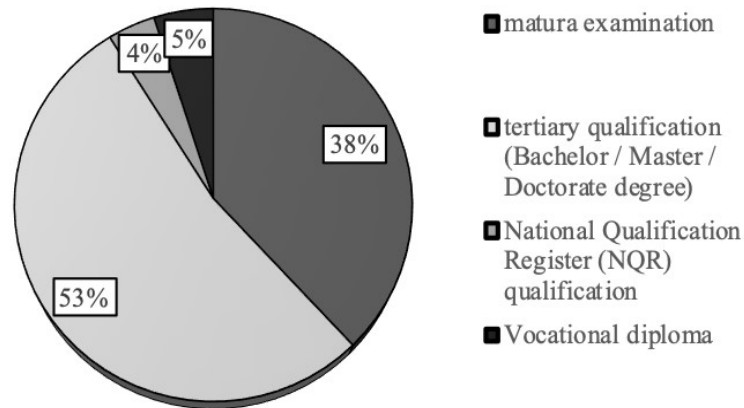
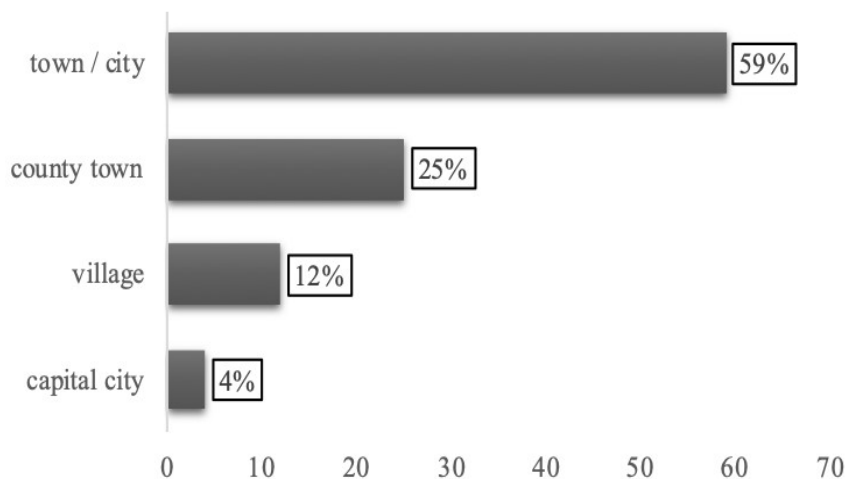


Figure 3. Distribution of respondents based on their place of residence (%). Source: researched by the authors, 2019



Regarding school qualification more than half of the respondents (53%) have tertiary qualification. 38% of the respondents have matura examination, 5% have a vocational diploma and 4% have a qualification by the National Qualifications Register (NQR).

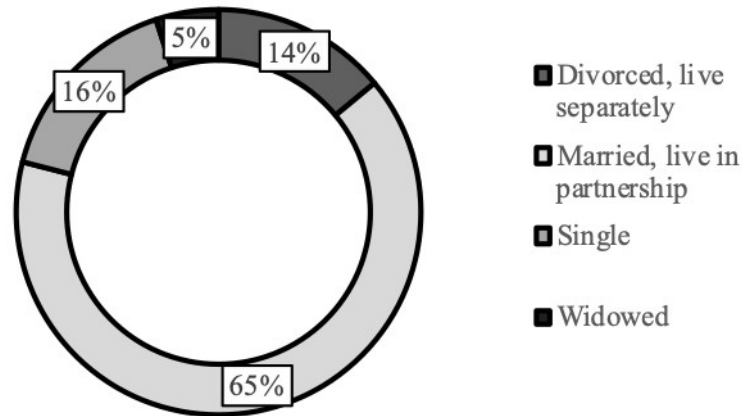
Based on the results of the research on school qualification, it can be concluded that 92% of the respondents have a matura examination or a university degree, so they are highly qualified (Figure

2). Regarding the research, further important demographic features of the sample were the place of residence and the marital status.

Regards the place of residence 59% of the respondents live in town or city, 25 % live in a county town, and 4% live in the capital city.

On the whole, the proportion of the respondents living in a village is 12% whereas 88% live in a town or city (Figure 3).

Figure 4. Distribution of respondents based on their marital status (%). Source: researched by the authors, 2019



In the questionnaire we examined the proportion of the respondents who raise a child or children, as we assumed that their attitude can be different to those who do not yet have the importance of parenting. We found that 69% of the respondents raise children and only 31% have not got children. With respect to the marital status respondents living in marriage or partnership have a significantly higher proportion (Figure 4).

89% of the respondents have already had personal experience with a disabled person, but 11% have not yet. The demographic research showed that the questionnaires were filled in most likely by persons who live in a town or city, are married, middle-aged, have secondary or tertiary qualification, raise children and have already had some experiences with a disabled person. The sociodemographic features of the respondents reflect the social sensitivity of the respondents to the topic.

RESEARCH RESULTS

In the course of the research we have also examined how close connection the surveyed persons

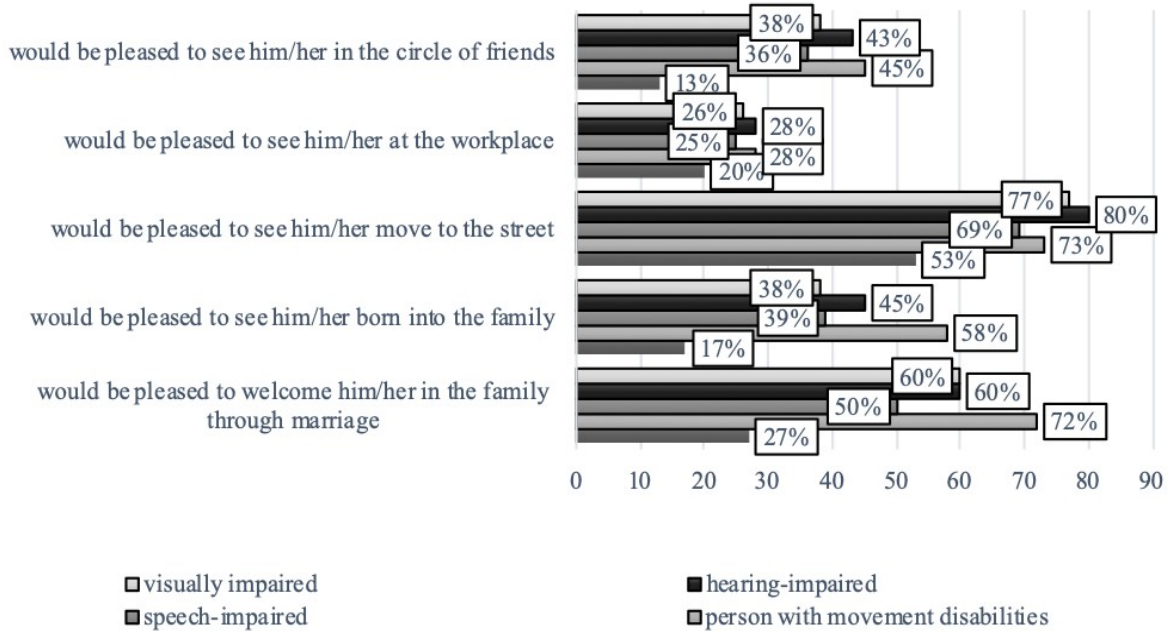
are willing to accept with disabled persons. The results allowed us to rank the acceptance of different social relationships. In case of persons with disabilities the option with the highest rejection is being born in the family and it comes before marital relationships in precedence.

On that basis it seems that for people apparently the biggest challenge is to accept a person with disabilities in the family as blood relation, or as an own child. On the third place among the hardest acceptable social relations with a disabled person is the collegial relationship, it is followed by the friendship, and at the very end comes the neighbourhoodship.

Attitudes reveal differences according to the type of disability, therefore there is a rank in the acceptance of the different disabled groups as well.

Persons with intellectual disabilities have the highest level of rejection in all social relationships, and persons with speech impairment and sensory (sight and hearing) impairment are in the middle section, whereas persons with movement disabilities enjoy the highest acceptance (Figure 5).

Figure 5: Social acceptance of persons with disabilities by disability groups (%). Source: researched by the authors, 2019



Results suggest that factors such as social relationship or the nature of disability may also influence the attitudes of the survey group with a higher level of sensitivity. The conclusion can be drawn that the respondents, based on their own experiences and assumptions, rank barriers in society according to the way they make life difficult for persons with disabilities and for those who are in contact with them. It can also be stated that the closer the social connection, or as they suppose, the bigger trouble a certain type of disability may cause, the less they would like to get in touch with the disabled person concerned and the harder they find it to cooperate with them.

More detailed information on the disability perception of respondents can be obtained by analysing the following questions (Figure 6). On a 5-point scale respondents had to rate statements concerning persons with disabilities and their situation (1: I do not agree at all, 5: I totally agree). Based on their responses two statements seem to

be above the average value (3), i.e. the survey respondents largely agree with them. One of the statements: „School integration of persons with disabilities is important for everybody” (average of 3.27), the other one is „Persons with disabilities make people feel uncomfortable” (average of 3.67). Agreeing largely with the first statement is a sign that people approve of the disabled person’s integration and equal opportunities in education and its significance is recognised, whereas the second statement points out that it can be hindered by the fact that people feel uncomfortable towards the group concerned. So they feel ill at ease and do not really know how it fits to behave around them or how to get in touch with them.

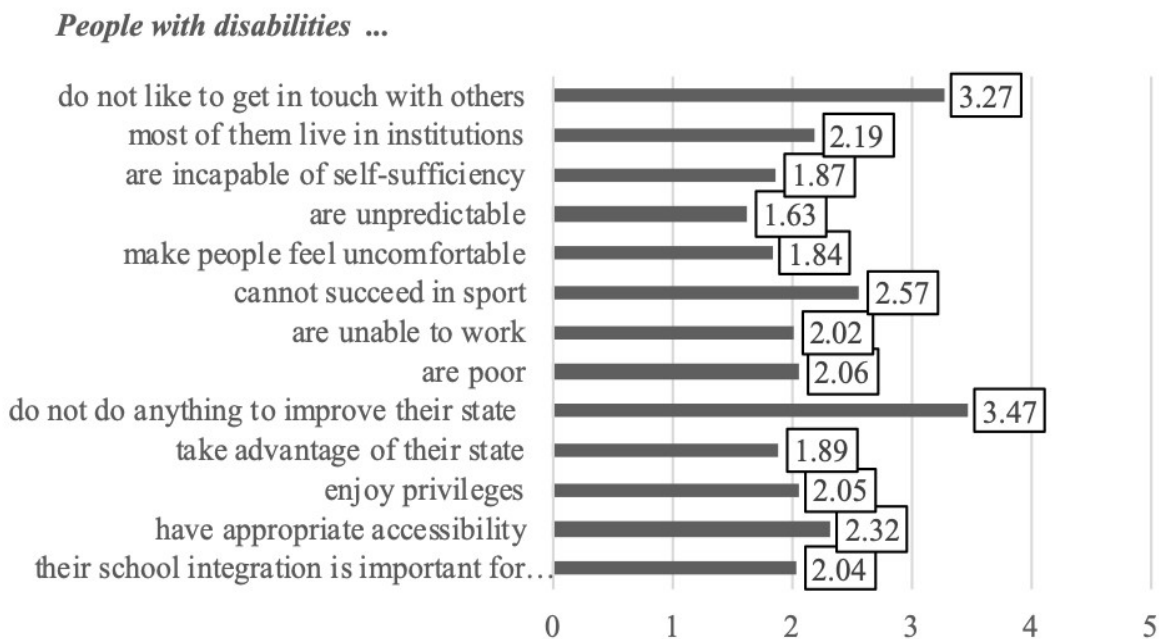
Based on the responses we can claim that respondents rejected (average of 1 to 2) the negative characteristics of disabled persons for example that they would enjoy privileges, take advantage of their state, wouldn’t do anything to improve their state, or would be unpredictable. It was also rejected,

however not in the former extent (average of 2 to 2.2) that they are unable to work, they cannot succeed in sport, they are incapable of self-sufficiency, they do not like to get in touch with others, or they have appropriate accessibility. On the other hand statements regarding their social situations produced other results (average of 2.5-3). Presumably, they find it possible that poverty may affect persons with disabilities more (2.57) and they consider most of them live in special institutions (2.67). These two former statements highlight the fact that the respondents may believe that disability considerably limits the social and economic possibilities of the group concerned as they have to face disadvantages. Examining the average of the answers given to each question, it can be concluded that the respondents have a positive attitude towards persons with disabilities, they value their abilities positively, but they consider their everyday life difficult

(Figure 6).

The next part of the questionnaire examines the attitudes towards the sporting activity and sports skills of persons living with disability. The survey respondents could select „yes” if they agreed with the statement, „no”, if they disagreed and „I do not know” if they were uncertain. The majority agreed with the following statements: „Athletes with disabilities also participate in official international competition” (85%), and „Athletes with disabilities have their own national official competitions” (65%). In case of the latter statement the proportion of uncertain respondents was higher (32%). These two statements are very general in terms of sporting activities of persons with disabilities, since the news of Paralympics gets to almost every citizen during the Olympic Games. It allows us to assume that this is the reason why the respondents show higher level of awareness in this question.

Figure 6: How persons with disabilities are seen based on the average values of a 5-point. Source: researched by the authors, 2019



The number of those, however, is significantly lower (22%) who agree that „Competitions of athletes with disabilities are regularly broadcasted by a TV channel”, almost half of the respondents (49%) disagree with that statement, and one-third (29%) is unable to tell. The conclusion can be drawn that reports on this competitions are omitted from the media so most people do not see them or know about them. Regarding the integrated sporting activity of persons with disabilities opinions are mixed. More than half of the respondents (54%) disagree with the following „Athletes with disabilities do not like to pursue sport with others” although 41% of them agree that „Disabled and non-disabled athletes do not compete in the same

team”, and 32% think that „It is beneficial for persons with disabilities to compete in a separate team from the non-disabled”.

However, it is positive that 40% disagree with the latter statement. It can therefore be stated that the respondents find integrated sporting activities important, but they also see advantage in the segregated sport and competition and they feel that integrated sporting activities are not typical of persons with disabilities.

In terms of financing we found that most of the respondents, above 50%, feel that the state aid is not enough and they think there are financing differences in the field of sport among groups of persons with disabilities (Figure 7).

Figure 7: Awareness of sports of persons with disabilities (%). Source: researched by the author, 2019

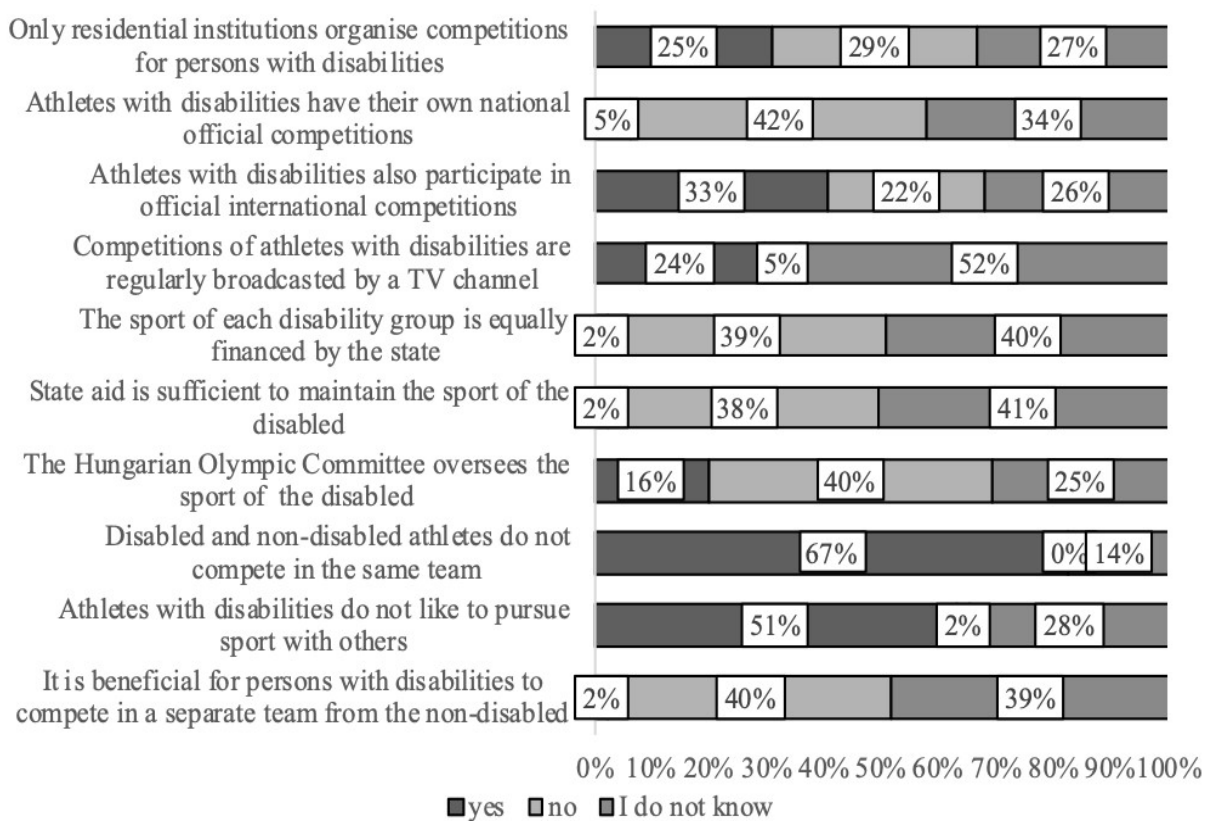
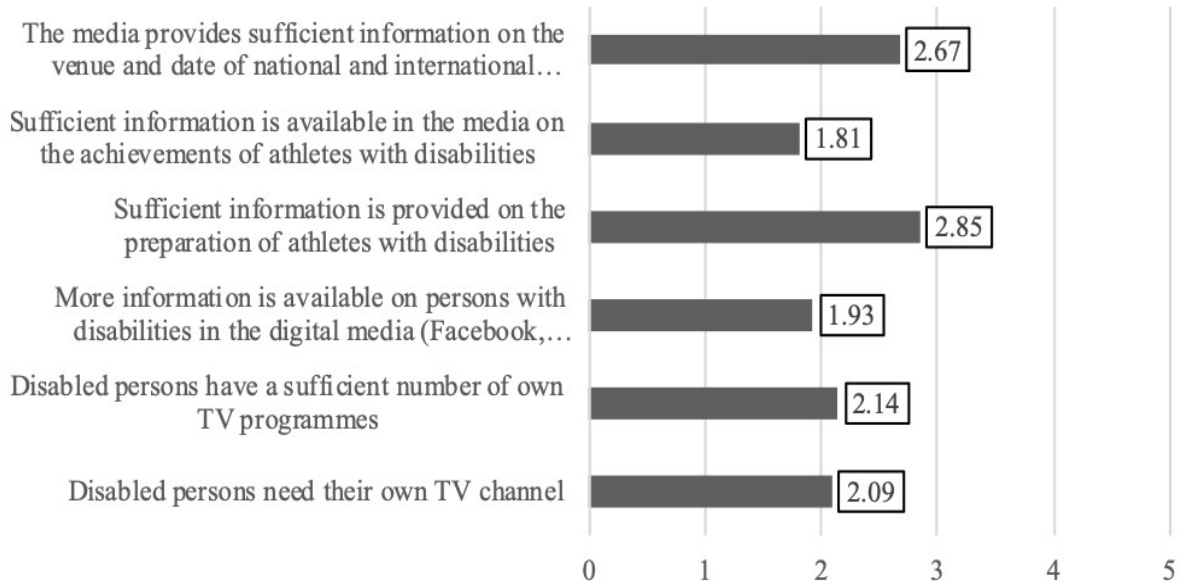


Figure 8: Views on the role of the media coverage of the sport of persons with disabilities, based on the average values of a 5-point scale. Source: researched by the author, 2019.



The final part of the research examined the role of the media in providing information on the sport of persons with disabilities. Not only did we examine whether the respondents see or hear anything about the sporting events organised for persons with disabilities, but also if they are informed by the media about the results or preparation of the disabled persons. The survey respondents had to rate the statements made in this regard using a five-point scale (1: I do not agree at all, 5: I totally agree) (Figure 8).

According to the respondents the media coverage of achievements in sport competitions of persons with disabilities is perceived as low level, the average was only 2.14. In their opinion especially news about the disabled athletes' preparation for competitions is excluded from the mass media.

The surveyed respondents do not agree (average of 1.81) with the statement that persons with disabilities have sufficient amount of own sports pro-

grammes, and it was rated higher (average of 2.67) that sport of persons with disabilities should have an own channel.

Based on the answers the conclusion can be also drawn that the respondents find the role of the Internet media more dominant compared to the traditional mass media (average of 2.87).

A peculiarity of the results is that none of the statements reaches or exceeds the average of 3. Therefore the averages spread between the 'I do not agree at all' and 'I partially do not agree' values

The average values of only two statements are near the value 3 (agree and disagree as well).

It sheds light on the fact that the respondents see the information on the sport of persons with disabilities as low level, but it also shows their overall uncertainty with regards to the topic and they do not feel it should be a key area in the lives of persons with disabilities.

CONCLUSIONS

The social involvement of persons with disabilities is significantly behind that of the non-disabled persons. Increase in the social involvement is positively influenced by integrated participation at leisure, cultural and sports events. Both national and international decrees point out the role of sport in enhancing social inclusion, and they set common goals in this regard. Tolerant social approach and unprejudiced attitudes promote inclusion. Mass media plays a significant role in informing and shaping public attitudes. The media can contribute to raising the public's awareness and sensitivity to social issues through news on sports achievements of persons with disabilities.

Demographic characteristic of the research sample support previous research results according to which school qualification, age, personal experiences positively contribute to people's tolerant and accepting attitudes. The survey respondents were typically middle-aged, urban citizens with higher level of education and have already had experiences with disabled persons. Based on the findings of the survey the following conclusions can be drawn:

- It can be ascertained that factors such as social relation or the nature of disability can also influence the attitudes of the survey group with a higher level of social sensitivity. The acceptance of the closest emotional connection enjoys the lowest level. Accepting a person with disabilities as blood relation or as an own child is the biggest challenge for people to have.
- Attitudes reveal differences according to the type of disability. The bigger trouble a certain type of disability may cause, the less they would like to get in touch with the disabled person concerned and the harder they find it to cooperate with them.
- They approve of the integration of and equal opportunities for persons with disabilities.

- The social integration can be hindered by the fact that people feel uncomfortable towards persons with disabilities. So they feel ill at ease and do not know how it fits to behave around them or how to get in touch with them.
- Disability is believed to significantly limit the social and economic possibilities of the group concerned.
- Integration in sport is considered to be important, but segregated sporting activities and competitions can also have advantages.
- It is thought that integrated sporting activities are not typical of persons with disabilities.
- Compared to the mass media, the Internet media plays a more dominant role in conveying information on sports achievements of persons with disabilities. The media coverage of achievements in sports competition of persons with disabilities is perceived as low level. Especially news about the preparation of athletes with disabilities is excluded from the mass media.
- The respondents perceive the information on the sport of persons with disabilities as low level, but the research results also shed light on their overall uncertainty with regards to the topic and they do not feel the sport should be a key area in the lives of persons with disabilities.

According to the above, more frequent media coverage of sports news about persons with disabilities would be essential. Previous research has also confirmed that the youth mostly volunteer in the field of competitive sport (67.5%) and leisure sport (48.5%) and they are less likely to take a role in the sport of persons with disabilities (15,6%) and that of the elderly (13,5%), which is also due to the fact that media coverage of the sport of these two target groups is significantly lower than that of the

competitive and leisure sport of the non-disabled (Bácsné et. al. 2018). Information should be provided regularly on events such as unified sports (I1). Unified sports involve teams made up of athletes with intellectual disabilities and athletes without disabilities. The organisation, Special Olympics Hungary helps coaches and teams with methodological publications in order to increase inclusion. Unfortunately, this technique is barely or not at all present in the sporting system of other types of disabilities, although it could be utilised anywhere and it could bring the two “worlds” closer together. This method enables not only sports professionals dealing with persons with disabilities, but also their family members and acquaintances to get familiar with this spirit and the special athletes themselves. All this will result in a change in social attitudes towards persons with disabilities.

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**INCLUSIVE EDUCATION IMPLEMENTED IN THE FORM OF EXTRA-CURRICULAR
ACTIVITIES**

CASE STUDY

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Abstract

The aim of inclusive education is to adapt educational requirements, educational organization and learning conditions to the needs and capabilities of each pupil in a multifaceted way. Inclusive education is implemented by the educational systems of the European Union Member States. In Poland its history began in the 1990s. Many activities are currently being undertaken to create the best possible conditions for the development of the potential of each pupil. The school environment in cooperation with the family is responsible for taking all possible measures to eliminate barriers which prevent the child from being given proper education. In particular, this task is related to the care for a child with disabilities.

In the Polish educational system, there are many forms of implementing the postulate of inclusive education. It is worth emphasizing the activity of day-care centres which provide extra-curricular education for children. The school day-care centre is a place where inclusive education is a daily practice. The article presents a case study of the activity of a day-care centre in one of the schools with inclusive classes in Krakow. The description of the day-care centre functioning made it possible to present the diversity of activities undertaken in it. The data was extended by referring to the opinions of parents and children.

Keywords: inclusive education, inclusion, day-care centre, extra-curricular activities

Discipline: pedagogy

Absztrakt

INKLUZÍV OKTATÁS TANÓRÁN KÍVÜLI TEVÉKENYSÉGEKBE ÁGYAZVA. ESETTANULMÁNY

Az inkluzív oktatás célja, hogy az oktatási elvárások, az oktatási szervezet és a tanulási feltételek sokoldalúan igazodjanak minden egyes diák igényeihez és képességeihez. Az Európai Unió tagállamiban az inkluzív oktatás az oktatási rendszerek szerves része. Lengyelország az 1990-es években kapcsolódott be a folyamatba. Jelenleg számos módszerrel igyekeznek a lehető legjobb fejlesztési lehetőségeket biztosítani minden egyes diák számára. Az iskolai környezet a családdal együttműködve felelős azért, hogy a gyermek megkapja a számára megfelelő oktatást. A megfelelő fejlesztés biztosítása különös jelentőségű a fogyatékkal élő gyermekek esetén. A lengyel oktatási rendszer számos lehetőséget biztosít az inkluzív oktatás alkalmazására. Fontos hangsúlyozni az iskolai napközik azon tevékenységét, amelyek délutáni nevelést biztosítanak a gyermekek számára. Az iskolai napközi az a hely, ahol az inkluzív nevelés napi gyakorlat. A tanulmány egy krakkói, inkluzív oktatást folytató iskola napközi tevékenységét mutatja be. A napközi otthon lehetővé tette, hogy bemutassuk az ott folyó változatos tevékenységeket. Az adatgyűjtés során a szülők és a gyermekek véleményét is kikértük.

Kulcsszavak: inkluzív nevelés, inklúzió, napközi, tanórán kívüli tevékenységek

Diszciplina: pedagógia

Introduction

Inclusive education as a development within systemic changes is implemented in countries where a vast majority of children have access to education, but the extent of the access is not equal due to developmental disorders or disability (Chrzanowska, 2018). The main goal of inclusive education is to provide such pupils with equal opportunities to gain education and integrate them at all levels of education (The Polish Ombudsman, 2012).

The idea of inclusive education has been implemented in Poland for several years, which allows for an assessment of the current level of educational inclusion. The many areas of its implementation include day-care centres where extra-curricular activities are provided for pupils with both standard and special developmental and educational needs.

The description and assessment of the activity of a day-care centre in one of the primary schools in Krakow (Poland) will throw some light on the specificity of inclusive education and enable indicating the directions of its further development.

Inclusive education in Poland

Inclusive education in Poland is the result of many years of experiments and reflection on education of children who have individual developmental and educational needs. It can be maintained that the system of special education in Poland currently covers three main areas, i.e. segregation, integration and inclusion. Their common feature is the demand for equality of all pupils before the law and equal opportunities to choose an individual path of education (Szpak, 2017). The differences

concern the ways of achieving the educational goals. The segregation system assumes a selection due to disability and education in special schools. The departure from these standards led to the development and implementation of inclusive education, which made it possible for a child with a disability to participate in school life; the focus, however, was still on their deficits. It was only in 2014 that changes were made to the education system in Poland, which allowed to adopt and implement the idea of inclusive education (Szpak, 2017). It is significant that in subsequent years, the term *'special educational needs'* started to be replaced by the term *'individual developmental and educational needs'* in legislation (Regulation of the Minister of National Education of 9th August 2017), which is evidence of the positive changes taking place in Polish education. The understanding of inclusive education is closely linked to the definition presented by the UNESCO:

“Inclusion is seen as a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. It involves changes and modifications in content, approaches, structures and strategies, with a common vision which covers all children of the appropriate age range and a conviction that it is the responsibility of the regular system to educate all children” (UNESCO, 2019).

The above definition highlights all relevant assumptions and areas of education of pupils with special educational needs. Moreover, unlike segregated and integrative education, the definition assumes that integration will take place in a completely different way: “Rather than being a marginal issue on how some learners can be integrated in mainstream education, inclusive education is an approach that looks into how to transform education systems and other learning environments in order to respond to the diversity of learners” (UNESCO, 2019).

An important assumption of this education is that a child with a disability should be able to participate in education at the institution closest to their place of residence (Regulation of the Minister of National Education of 9th August 2017), which contributes to social inclusion of their family. Does the acceptance of these assumptions mean that every Polish school will create suitable conditions for education of all learners? This question is largely rhetorical since the success of inclusive education depends on a large extent on the attitudes of the people responsible for education (headmasters, teachers and other staff) and those who participate in education as pupils or their parents (Szczepkowska, 2019). Thus, an illustrative analysis of this environment is justified.

The school environment and its inclusive activities

The activities of the school environment aimed at implementing inclusive education are carried out along two lines. The first line involves taking formal actions as defined by the education law. The second way is to try to change the perception of disability and integration by those involved in education. It is estimated that approx. 30% of pupils in Polish schools are currently those with special educational needs, with even 40% in preschools (Łaska, 2019). Thus, in each school there are pupils who require an individual approach and adaptation of the educational process to their developmental and educational needs as well as psychophysical abilities. This poses a major challenge to the school environment, which is matched by measures taken to sensitise pupils to the needs of others. In order for the objectives of inclusive education to be achieved, all pupils, regardless of their own abilities, must learn this and identify with such an idea (Bednarz, 2015). Pupils should be supported within their family environment and by teachers, who should have the following skills if they work with

children with varied developmental and educational needs and psychophysical abilities:

- to recognize the needs and abilities of children and act in accordance with that recognition;
- to use methods and forms of work that are effective in teaching children and their learning;
- to grade pupils;
- to collaborate with their pupils' parents;
- to collaborate with other teachers;
- to solve problems and take advantage of the support from educational institutions;
- to include, on a continuous basis, issues concerning values, interpersonal communication, prevention and patriotism in the educational process (Łaska, 2019).

The skills listed above are not fundamentally different from what is expected of any teacher, whether they work with pupils with standard or special developmental and educational needs. However, with regard to the objectives of inclusive education, these skills take on added importance as they enable the integration of actors in the education system. Inclusive education in preschools and schools can be pursued taking using various forms of classroom, extra-curricular and out-of-school activities. Worthy of notice are extra-curricular activities that take place at school, most commonly at the day-care centre.

School day-care centre as a place of educational inclusion

The day-care centre plays a significant role in fulfilling the tasks related to care and education by the school. It is also an important form of assistance to the child and the family. It is an example of an intra-school care and education facility that supports and complements the work of the school in all the

aspects of care, education and teaching as well as in the preventive and therapeutic impacts (Pery, Kmita, 2014). The amendment to the Act on the Education System of 2014 introduced the necessity to provide day-care activities for primary school pupils and to enable schools providing special education to organise such activities. The main underlying reason was the difficulties related to the parents' long working hours and consequently to transport to and from school. The number of pupils in a day-care centre under the care of one teacher was limited to 25; however, at mainstream schools the number of pupils under the care of one teacher corresponds to the number of pupils required for a special class to be formed (Act of 24th April 2014 amending the Act on the education system). Day-care centres in primary and special education schools provide day-care activities "taking into account the educational and developmental needs of children and adolescents, as well as their psychophysical and physical abilities, in particular activities that help to develop pupils' interests, activities that ensure their proper physical development and help pupils with their homework" (Act of 24th April 2014 amending the Act on the education system).

In order to implement the above requirements, the school headmaster should have a day-care room prepared and equipped according to the needs and constraints of all the children including pupils with disabilities. Schools where there is a need for it may, with the approval of the relevant body, employ educators specialising in particular areas, such as deaf education, education of people with intellectual disabilities or education of the blind. They can also use the help of psychologists, speech therapists or other therapists.

The headmaster may allocate tasks to teachers who support children with individual developmental and educational needs or to teacher assistants in such manner that some of their tasks are related to supporting children during their stay at the day-

care centre. The school headmaster has the right to take on volunteers to help at the day-care centre under a relevant agreement (Szczepkowska, 2019).

The implementation of the changes enabling the pursuit of inclusive education at school day-care centres was evaluated by the Supreme Audit Office in 2017. As a result, it was found that the care functions were performed correctly at the day-care centres in most of the schools that were inspected. Some shortcomings, however, were found; they were mainly due to the fact that “ significant proportion of the pupils enrolled at the day-care centres were not provided with the opportunity to participate in activities which would take into account their identified individual interests and educational needs, the implementation of which would promote each pupil’s psychophysical”(Supreme Audit Office, 2014, 2017).

These briefly presented results of the evaluation of the functioning of school day-care centres in the perspective of inclusive education provide inspiration to make constructive changes in the organisation of the care and education activities provided at day-care centres. In order for such changes to bring about an improvement in the operation of day-care centres, it is necessary to carry out evaluations of the individual educational institution in this respect. This requirement defined the objective of the research carried out.

Own research

This research provides a case study of a day-care centre in one of the primary schools with inclusive classes in Krakow. The day-care centre serves regularly 75 pupils, mainly at the early education level. The school day-care centre is open from 7 am to 5 pm with a break when children have lessons (8.50 to 11.20). Care is provided by 4 educators. They are joined by other teachers and also special educators if necessary.

During the morning activities (7 am to 8.50 am) children spend time relaxing with music, playing board games or preparing for lessons. During this time, the children work in one group. During the afternoon activities (11.20 am to 5 pm) pupils are divided into three age groups. For each day there is a schedule which includes time for free play, additional activities (e.g. dancing, art, music or reading activities), time for learning teamwork and home-work time.

The day-care centre is used by healthy and non-disabled children as well as those with mild and moderate intellectual disabilities, children with Asperger’s syndrome, autism spectrum disorder and motor disabilities. The purpose of the work done at the day-care centre is to include all members of the group to the activities before and after the lessons, to teach them respect for each person and the skill to work together with their peers.

The research carried out in November 2019 is the first stage of the evaluation of the activities at the day-care centre initiated by the school management. Further research is planned for June 2020. Parents and children attending the day-care centre were asked to fill in a questionnaire to evaluate the work of the day-care centre. For this purpose, questionnaires (different for children and parents) prepared by the teachers of the day-care centre and approved by the headmaster were used. The survey resulted in 22 questionnaires from first-form pupils and parents, 14 questionnaires from second-form pupils and parents, and 6 questionnaires from third-form pupils and parents, i.e. 42 questionnaires in total. Despite the relatively low response rate, the research material contains information that is worth analysing.

The parent questionnaire contained 7 questions. Respondents rated the functioning of the day-care centre on a scale of 1-5 where 1 represents the worst rating and 5 the best. The items evaluated comprised the division of the day-care centre into age groups, the level of satisfaction with the care

provided to children, the offer of additional activities and reliability of information provided by day-care centre teachers. The parents were also asked to indicate activities that were missing in their opinion and to list the strengths and weaknesses of the centre.

The pupil questionnaire contained 4 questions. Children responded in the presence of their parents and indicated whether or not they enjoyed spending time at the day-care centre, what they liked most and what they did not like at the day-care centre; they also indicated what they missed most. At the end, space was left for any suggestions from parents and children.

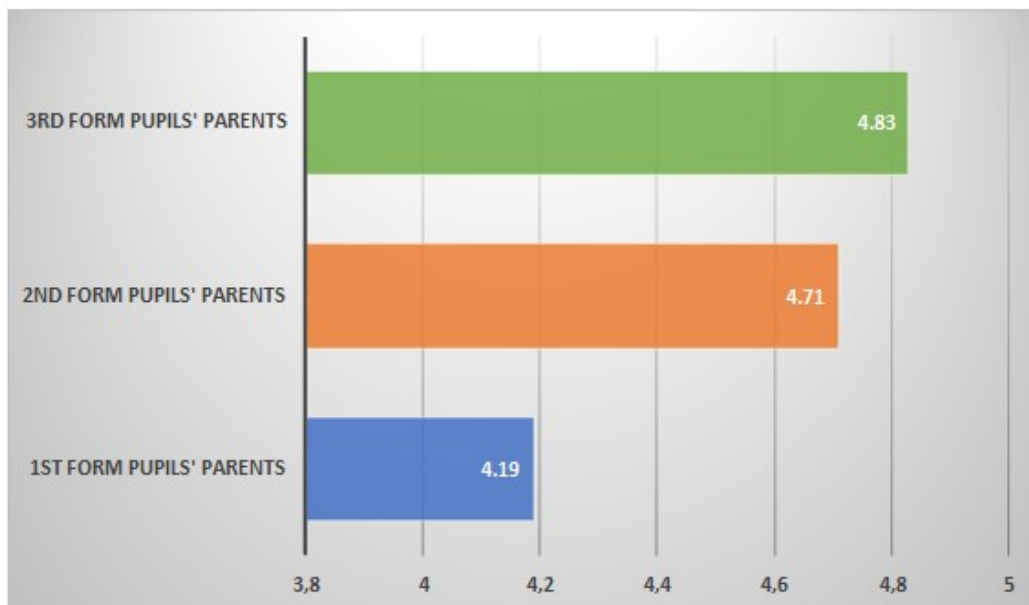
Analysis of results

The first analysis concerned the results of the survey conducted among the parents. The first question in the questionnaire was, *'How do you rate the division into age groups at the day-care centre?'* The parents were also asked to justify their statement. The parents' justifications were divided into groups of positive and negative opinions concerning the age division. The parents of first-form pupils pointed

out the positive aspects, such as building relationships with peers, easier integration, special care and the lack of discomfort due to the presence of older children, as well as one negative aspect, i.e. the lack of contact with older children. The parents of second-form pupils pointed to building relationships with the peers and less noise as the positive effects of dividing children into groups. They also mentioned the negative sides, i.e. the lack of integration with older children, the necessity to contact and help younger children and the sense of superiority among children from the second form. The parents of third-form pupils, in turn, indicated adjustment to their children's emotional and social development, similar interests and ease of establishing contacts as positive. On the other hand, they negatively assessed the organization of games and additional activities.

The question about the level of parents' satisfaction with their children's participation in the day-care centre activities allowed to obtain data which have been presented graphically in Figure 1. It presents the average ratings for each parent group (1-5).

Figure 1: Parents' level of satisfaction with care provided at the day-care centre. (By the Authors)



The presented results show that the parents of first-form pupils gave the lowest rating of care in the day-care centre (4.19) the parents of second-form pupils had much higher rating (4.71) and the parents of third-form pupils had the highest rating (4.83). The order of the ratings corresponds to duration of the parents' collaboration with the day-care centre. This means that the parents of third-form pupils have been working with the day-care centre for the longest time - the third year, and the parents of first-form pupils rate the day-care centre based on a period of about three months. As can be noticed, a closer familiarity with the functioning of the day-care centre increases the parents' rating. This may also be influenced by the fact that parents who have been working with the day-care centre team for a longer period are more familiar with their difficult working conditions and see their commitment.

The parents could also justify their assessment which 27 parents did. The comments included the following, the most common categories: involvement of staff, satisfaction with care, the opportunity to talk, and to communicate information about children's behaviour.

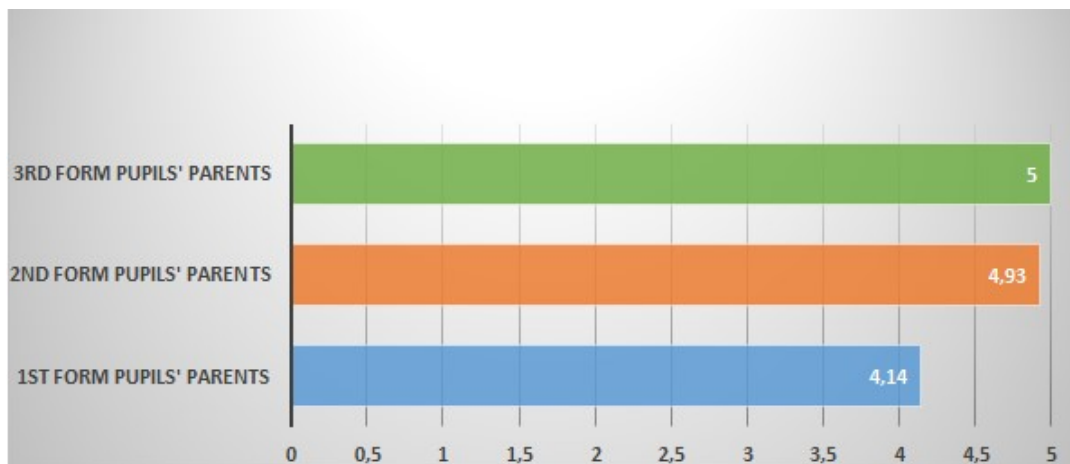
The next question parents answered was, '*Please assess the reliability of the feedback you get from the educators about your child (successes and difficulties)*'. The average ratings are shown in Figure 2.

The question about the reliability of the information provided by the teachers working in the day-care centre is related to the task of observing the pupils and passing on information and observations to parents. The results presented show that it is the parents of children in the third-form that give the highest ratings for the reliability of the feedback with the average being 5.

The parents of children in the second-form give an average rating of 4.93 while the parents of children in the first-form give a rating of 4.14. Thus, the responses correspond to those to the first question. It can be assumed that the assessment of the communication channel between teachers and parents is varied but relatively high.

This means that parents are convinced that they receive information about their children's behaviour, development and needs to a satisfactory extent.

Figure 2: Reliability of feedback in parents' opinion. (By the Authors)



The next two questions concerned the strengths and weaknesses concerning the work of the day-care centre. The parents were asked to provide a response in the form of an open statement. The most frequent responses have been presented in the Figure 3 below. The percentage results in Graph 3 and the following ones do not add up as the respondents could provide more than one statement.

The parents surveyed considered good time organisation to be the main strength of the day-care centre's work. As a strong point of the day-care centre's work 33.3% of parents of third-form pupils, 31.8% of parents of first-form pupils and 21.4% of parents of second-form pupils indicated it. Moreover, parents of children from the third-form also pointed out the stock of toys in the day-care centre. It is worth emphasizing the good orientation of parents in the areas of activities undertaken in the day-care centre.

It probably results from their cooperation with teachers working in the day-care centre and discussions with children about day-care activities.

Parents do not only notice the strengths of the day-care centre. The request to identify its weak-

nesses allowed to obtain data which are presented in Figure 4.

The presented results show that parents see a shortage of sports activities or going outside the school building, as well as a need for more space for their children. Especially the parents of second-form pupils (21.42%) and third-form pupils (16.66%), while the parents of first grade pupils rarely mentioned physical activity as a weakness of the day-care centre (4.54%). Parents are aware that their children are developing and need more and more space to function comfortably. It can be presumed that children also show this need at home, which increases their parents' sensitivity in this respect. The parents of students from the first (13.63%) and second form (7.14%) also pointed to the negative impact of the fact and the way children's behaviour is assessed. There were also opinions indicating a difficulty in agreeing with the teacher of a given group - the highest percentage of parents of students from second-form (21.42%), followed by first-form (18.18%), while the parents of students from third-form did not mention the difficulty in agreeing with the teacher as a weakness of the day-care centre's work.

Figure 3: Strengths of the day-care centre in parents' opinion (By the Authors)

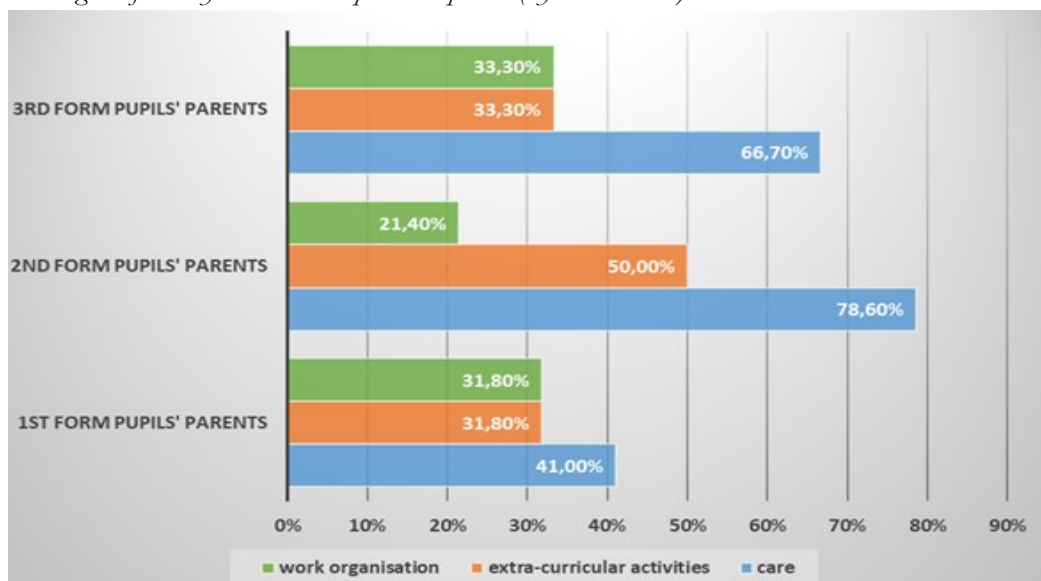
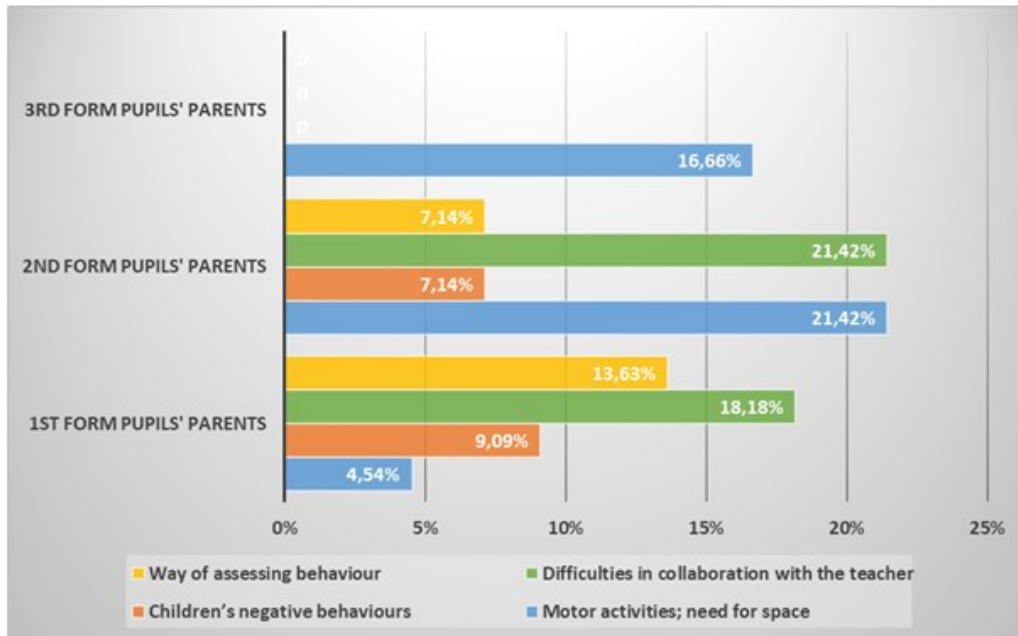


Figure 4: Weaknesses in the work of the day-care centre in parents' opinion (By the Authors)



Therefore, it seems appropriate to work on positive reinforcement that might create more space to motivate children to change their behaviour for the better. This is related to another weakness in the work of the day-care centre, which parents mentioned. Negative children's behaviours, which affect the atmosphere of the classes, were mentioned by parents of first-form pupils (9.09%) and second-form pupils (7.14%).

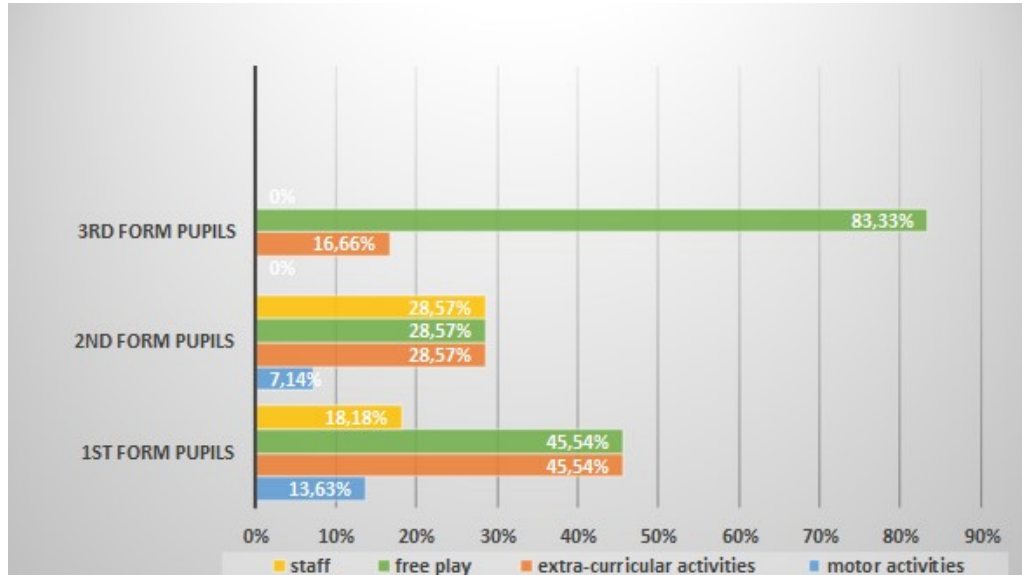
The final questions concerned the extra-curricular activities offered by the day-care centre. Their assessment by the parents of children of the third-form pupils was the highest, (4.64), followed by the parents of the first-form pupils, which was 4.64. The parents of children of the second-form assessed the extra-curricular activities as 4.5, which gave the worst result. The marks may be related to the next question in which the parents listed the extra-curricular activities which in their opinion are missing in the day-care centre work schedule. Language and sports activities were the most frequent.

The parents of first-form students also pointed out the need for more hours of programming classes.

The next questions were addressed to the children. They completed the survey in writing in the presence of their parents. The question whether children like spending time in the day-care centre was answered positively by 100% of children. The second question was: 'What do you like most in the day-care centre?' The most frequent answers are presented in Figure 5.

The areas of activity particularly liked by children from all the forms mentioned above are extra-curricular activities and free play time - the highest percentage of choices among third-form pupils (83.33%), followed by first-form (45%) and second-form (28.57%). Children from the second-form also point to the staff working in the day-care centre (28.57%), emphasizing their positive contribution to the score of day-care centre activities, also children from the first-form (18.18%) consider the staff as an strength of the day-care centre. In

Figure 5: The strengths of the day-care centre in the pupils' opinion. (By the Authors)



the light of the analysis of the results, the popularity of extra-curricular activities is also noticeable. 45.54% of first-form pupils, 28.57% of second-form pupils and 16.06% of third-form pupils indicated them as the strength of the day-care centre's work. Motor activities are also attractive for pupils, 13.63% of first form pupils and 7.14% of second form pupils consider them to be a liked element of the day-care centre's work. Then the children were asked to answer the question: *What do you dislike most about the day-care centre?*

The responses are shown in Figure 6.

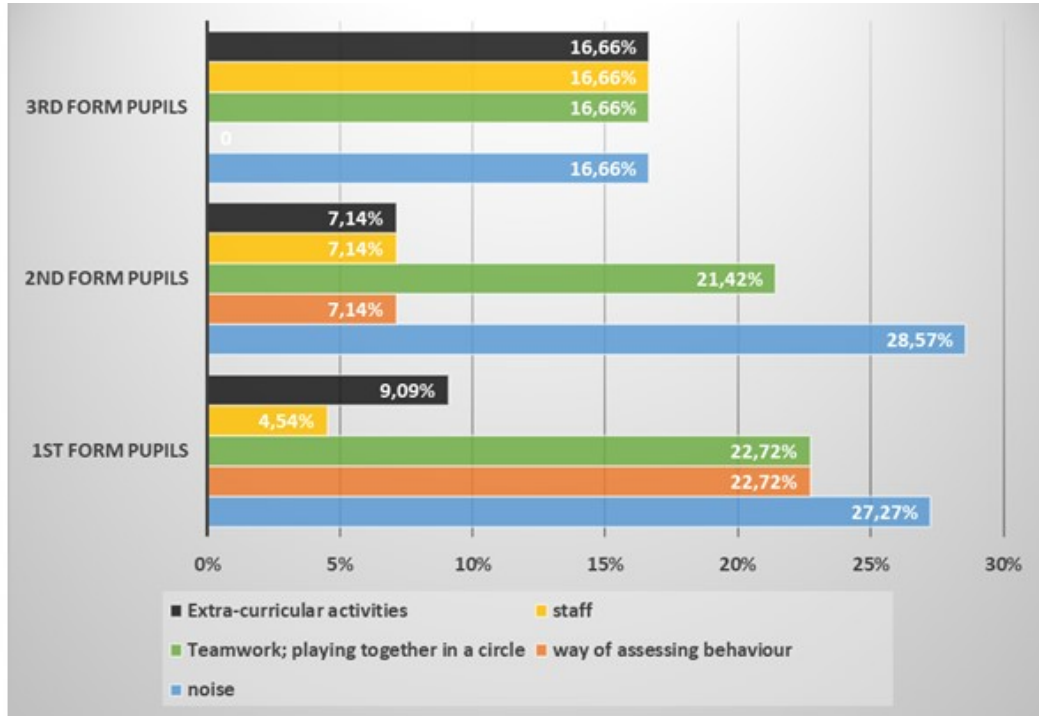
Based on the data contained in Figure 6, it can be assumed that, in the opinion of the pupils, the biggest weakness in the functioning of the day-care centre is noise. 28.57% of second-form pupils indicated it as a weakness of the day-care centre, followed by first-form pupils (27.27%) and third-form pupils (16.66%). It is generated by the pupils themselves, but it is perceived negatively by them.

It causes tiredness, difficulties in concentration and communication. A factor contributing to noise is the limited space of the school, which causes

many children spending time in one room. Noise is also caused by the fact that the age of the group varies, as well as various individual difficulties of the students, confirmed in diagnoses established at psychological and educational counselling centres.

Teachers make efforts to counteract the noise using assessment of the pupils' behaviour as a tool for this purpose, but it meets with low acceptance by children. The pupils surveyed pointed out that the team activities needed improvement. Most pupils from first-form see it as a negative aspect (22.72%), followed by second-form pupils (21.42%) and least third-form pupils (16.66%). Working together is a big effort for them. It can be assumed that this difficulty is due, among other things, to the fact that the children's educational needs vary a lot. Perhaps teachers do not always manage to motivate their pupils to cooperate properly or to apply the right methodology when working with such a varied group. The children's indications show that the issue of integration and cooperation in a group is still a challenge for the team of teachers. The same applies to the

Figure 6: Weaknesses in the work of the day-care centre in the pupils' opinion. (By the Authors)



assessment of behaviour, which was indicated by the pupils as a weak element in the work of the day-care centre. It was negatively assessed by the first-form students (22.72%) and second-form students (7.14%). 16.66% of the third-form pupils indicated problems with the teacher and specific additional activities which are not interesting.

Summary

A school day-care centre is a space for care and educational activities. It is a place where the idea of inclusive education can be successfully implemented. Children, regardless of their limitations, can spend time together before and after lessons, and the teacher should create the right conditions to support their development. The case study presented shows that the implementation of educa-

tional ideas always encounters difficulties, but these can be overcome. Such a process is taking place in the day-care centre under scrutiny. Taking into account the difficult conditions for inclusive education and the shortage of space in the school, the positive opinion concerning the functioning of the day-care centre should be emphasised. This score is high in most of the areas examined, which provides grounds for optimism regarding the process of implementing inclusive education in Poland.

The shortcomings that have been noted in connection with inclusion activities indicate that constant effort is required in order to optimise the work of the team of teachers as well as support from the authorities responsible for the school. This would enable e.g. more frequent outings, more sports activities or a modification of the behaviour assessment system. Pupils' opinions indi-

cate the areas that should still be present in the offer of the day-care centre, e.g. extra-curricular activities or free play. The need for freedom in the choice of activities and their forms determine the next stage in the development of the day-care centre scrutinised in this study.

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**COMPARISON OF THE FAMILIARITY OF GRADE 4 ROMA AND
NON-ROMA SCHOOL CHILDREN WITH SOME BIOLOGICAL TERMS IN ENGLISH AS
A FOREIGN LANGUAGE**

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Abstract

Most of the Roma settlements in Croatia are spatially segregated from the settlements of the majority population. Specific cultural elements constitute the ethnic border towards the local population, making it difficult and reducing the possibility of their integration into the majority population. One of the results of that segregation is the unfamiliarity of the Roma children with the language of the majority population. This unfamiliarity with the Croatian language is a big obstacle for the integration of the Roma children into the Croatian society through school education. Starting from Grade 1 they follow the regular school curriculum. Two of the subjects that are taught from the very beginning of their primary school education are Natural Science and English as a foreign language. In this paper the authors present the results (a statistical analysis and discussion) of their research study. It compares the familiarity of Roma and Non-Roma Grade 4 children (age 10) with some biological terms in English as a foreign language. Based on their results of their research, the authors suggest modifications of school curriculum for Roma children that would enable their better school achievement and subsequently their easier integration into the Croatian society.

Keywords: biological terms, English, Roma and non-roma school childrens

Discipline: pedagogy

Absztrakt

NEGYEDIK OSZTÁLYOS ROMA ÉS NEM ROMA TANULÓK ÖSSZEHASONLÍTÁSA AN- GOL NYELVŰ TERMÉSZETISMERETTEL KAPCSOLATOS KIFEJEZÉSEK ISMERETE ALAP- JÁN

Horvátországban a legtöbb roma település szegregáltan helyezkedik el a többségi társadalom életterétől. Lokális szinten az etnikai határt néhány jellegzetes kulturális tényező képezi, ami megnehezíti a többségi társadalomba való integrálódás lehetőségét. A szegregáció egyik legfőbb következménye, hogy a roma gyerekek nem sajátítják el megfelelően a többségi társadalom nyelvét, ezáltal az iskolai oktatáson keresztül megvalósítható integráció komoly akadályba ütközik. A tanulók már általános iskola első osztályától tanulnak természetismeretet és angolt mint idegen nyelvet. Ebből kiindulva, jelen tanulmány arra vállalkozik (statisztikai elemzések és diskurzusok felhasználásával), hogy negyedik osztályos roma és nem roma tanulókat hasonlítson össze, abban a vonatkozásban, hogy milyen természetismerettel kapcsolatos kifejezéseket ismernek angol nyelven. A kutatási eredmények alapján a szerzők javaslatokat fogalmaznak meg a roma tanulók oktatásával kapcsolatban, abban bízva, hogy a tantervi változtatások következtében jobb tanulmányi eredményeket tudnak majd produkálni, s ezzel a horvát társadalomba való integrálódásuk is új irányt vesz.

Kulcsszavak: természetismeret, angol nyelv, roma és nem roma tanulók

Diszciplína: pedagógia

Introduction

The research study presented in this paper is a comparison of the familiarity of Grade 4 Roma and Non-Roma school children with some biological terms in Croatian and in English as a foreign language (EFL).

Croatian Primary School lasts eight years. Children start attending it when they are six or seven years old. It is divided into two parts: the so-called lower (Grades 1-4) and higher grades (5-8). In the former children are taught all the core subjects: Croatian (first language for over 90% of the population), Mathematics, Natural Science, Music, Arts and Physical-Health Education by a single class teacher. English or some other foreign language (German, Italian or French) is also taught as an obligatory subject from Grade 1 by another teacher

who is a qualified teacher for that foreign language. Many primary school children also take Religious Education as an optional subject starting from Grade 1. It can be learnt through the whole duration of Primary School and it is also taught by a teacher who is not a regular class teacher but a qualified teacher for that subject. In the latter (higher grades) children have more subjects and they are all taught by a different qualified teacher. In Grades 1-4 children learn about biological terms in the subject that is called Science and Social Studies (in Croatian: prirodnaidruštvo). In English speaking countries it is usually referred to as Science.

Research for this study was interdisciplinary and was carried out in the Međimurje County. The researchers were three scholars and teacher trainers employed at the Faculty of Teacher Education of

the University of Zagreb: a biologist, a pedagogue and a linguist. They were interested in this topic because of the characteristics of the Roma national group and their educational problems and their problems with integration into the Croatian society.

**Roma National Minority
in Croatia and their problems
of integration into the Croatian society**

According to the results of the 2011 census (Državnizavod za statistiku, 2011) there are 16.975 members of the Roma national group in Croatia, or 0.4% of the whole population. They are the fifth largest national minority group of 22 that are recognized in the country. Larger minority groups in Croatia are Serbs (186.633 or 4.36%), Bosnians (31.478 or 0.73%), Italians (17.807 or 0.42%) and Albanians (17513 or 0.41%).

The same source reveals that the most of the Roma live in the northern part of the country. 5107 Roma live in the Međimurska County. It is the smallest one in Croatia and Roma constitute 4.49 % of the whole population of that county and are the largest national minority in that area. Most Roma in that county state Romanian as their first language and not Romani Chip which is a very common first language among Romani population in the rest of the country.

Roma are an ethnic minority group that are least integrated into the modern Croatian society of all ethnic minorities. There are two main reasons for this. The first relates to the extremely high level of prejudice and stereotypes of the majority population. The consequence of this is the high social distance (Hrvatić, 1996), and the problem of social and spatial segregation of the Roma community (Banovac and Boneta, 2006). Another major problem is the lack of competencies of Roma children in their own language. This means that Roma children do not only learn Croatian lexemes, but no-

tions and concepts behind these lexemes (Novak Milić, 2007). Many researchers dealing with the issue of Roma in Croatia agree that education is the best way to integrate the Roma community into Croatian society (Hrvatić, 2000; Šučur, 2000; Dragun, 2000). The authors of this paper agree with Štambuk (2000) who points out that "insisting on training and progress on that plan are a long-lasting, expensive and difficult way, but truly the only one that will produce results in the future, and is therefore the only rational one in this respect." Progress in learning of Roma students is largely determined by the specificities and character of the Roma community. Roma communities represent an environment that does not favor education sufficiently (Lapat and Šlezak, 2011).

Roma in the Međimurska County where the research for this paper was conducted also live mainly in their small settlements that are spatially segregated from the majority population. One of the results of that segregation is also the unfamiliarity of the Roma children with Croatian as the majority language. The consequences of this unfamiliarity with the language of instruction and of their ethnic and cultural characteristics are that Roma children are currently lagging behind other school children. Their advancement in learning Croatian is usually slow. As a result of the school enrolment they are supposed to become bilingual and reap some advantageous of bilingualism.

TIMSS (Trends in International Mathematics and Science Study) Reports 2011 & 2016

In 2011 Croatian students took part in the TIMSS research study (BuljCulej, 2016). According to 2011 Report on the Results for the Reference Levels for Natural Science, Grade 4 students have the basic knowledge of the thematic domains of the Science of Life, Physical and Chemical Sciences and the Earth Science. Students know the basic

facts about human health, ecosystems and the physical characteristics and behavior of animals. Croatian Grade 4 students were surveyed again in 2016 (Slobodna Dalmacija, 2016). They progressed in every sense and were above the standard. In Natural Science they were 18th in the world and ninth in Europe of the total of 47 countries that took part in the survey. They got 33 points more than the required average. They got 17 points more than their peers in 2011.

Guidelines from this study were also taken into consideration when the authors constructed their achievement tests for the familiarity of students with biological terms in Croatian and in EFL. See 6.3.

Bilingualism and foreign language teaching

Since 1960's it is generally accepted that a child can benefit from growing up with two languages. Peal and Lambert's study (1962) has shown that bilingualism can result in higher verbal and non-verbal intelligence. According to Hamers and Blanc (2000) bilingual children show advanced metalinguistic awareness in their control of language processing. Cognitive effects of bilingualism appear early in the process of bilingualisation and they do not require high level of bilingual proficiency or balanced competence. Bialystok mentions that bilingual children are aware at an earlier stage of the arbitrariness of the linguistic sign and that they can focus their attention more intensely on a particular, more important segment of information so that they can easily exclude redundant information (Bialystok, 2001). This enables the working memory to process more information. Jessner has pointed out that this metalinguistic awareness is a key element that makes it possible for bilingual students to learn easier a new FL than their monolingual counterparts (Jessner, 2006; 2008). However, it should be noted that some authors have warned

that improper and inappropriate treatment of children in their growing up with two languages during educational development can sometimes even have negative effects (Cummins, 1979; 1981; 1991; Verhoeven, 1991; 1994). These two authors have warned that wrong educational development can end up in potential semilingualism of children.

Research with bilingual children that are members of other national minorities in Croatia (mainly Italian and Czech) have shown that bilingual children can outperform monolingual (Croatian) schoolchildren in learning English as a foreign language (EFL). Bilingual children achieved better results in EFL in listening skill (Legac, 2007), speaking skill (Legac, 2014a), writing skill (Legac, 2014b). It was also shown that they had better results in affective factors in EFL than monolingual students. They had lower foreign language anxiety in all stages of the foreign language process (Mihaljević Djigunović and Legac, 2008; Legac, 2012), they were less shy (Legac, 2008) and were more motivated to learn EFL (Legac, 2009). However, the research in learning foreign languages (English and German) with Roma national minority in Croatia has shown different results. They had lower grades and had higher foreign language anxiety (Legac, Mikulan and Siročić 2006), and had a lower self-concept in learning a foreign language (Legac and Filipan-Žigniċ, 2004).

Aim of the study

The aim of this study was to explore the familiarity with biological terms in Croatian and in EFL in Roma and Non-Roma Grade 4 Primary School students. The following two hypotheses were tested:

- H1 – Familiarity with biological terms in Croatian will be lower in Roma than in non-Roma students.

- H2 – Familiarity with biological terms in EFL will be lower in Roma than in non-Roma students.

Both hypotheses were grounded on the results of the research studies and literature mentioned in the chapters above.

Methodology

Variables and problems of evaluation and assessment

Five variables were tested in this research study. Three of them were school grades in three subjects that were important for our research study: school grades in Croatian, school grades in EFL and school grades in Natural Science and two of them were students familiarity with biological terms: familiarity with biological terms in Croatian and familiarity with biological terms in EFL. They were tested on two groups of participants: Roma and Non-Roma Primary School children. In Croatian Primary School students' achievement is measured with grades. For each subject they are given one of the following five grades: excellent (5), very good (4), average (3), sufficient (2) and insufficient (1). Grade insufficient (1) means that a student has failed. There are different attitudes towards evaluation and assessment and there are different perceptions about it as well as. Evaluation is usually defined as the assignment of a certain grade for student achievement according to agreed criteria (Matijević, 2004). Cindrić et al. consider it to be a process in achieving set goals and curriculum principles (Cindrić, Miljković and Strugar, 2010). These approaches to the assessment coincide with the opinions of teachers who feel that students do not learn for themselves, but rather to have a "position" among their peers, to be subordinate to the teacher, school, and later to their college or univer-

sity and finally to their workplace (Kačapor, 2003). The basic purpose of assessment is to achieve the best organization and realization of learning (Kruj, Kačapor and Kulić, 2003). Evaluation has multiple functions:

- 1) diagnostic - student, teacher and parent get feedback on the achieved results in learning;
- 2) prognostic - a good grade encourages the students to do even better work, and a worse grade indicates to the student (teacher and parent) the need for a change in work effort, learning and teaching; and
- 3) motivational - assessment in form of grades can serve as a means of extrinsic motivation for students.

Evaluation and assessment in form of grades in primary school can in addition to all the possible positive effects also have many disadvantages that depend on the teacher as a measuring instrument: personal equation, "first impression" effect, logical error, middle error, error of differentiation, error of contrast and tendency to adjust the criteria for assessing the quality of one particular student group (Grgin, 1986). This last tendency of adjusting the criteria is probably present in all schools but it might also play even more important role in giving grades to Roma minority students. It is possible that in their efforts to encourage positive discrimination of Roma minority, teacher sometimes give better grades to students that they really deserve. This means that a student can get a positive grade for their achievement although for the same achievement another student from a different group would be given a fail. This was a reason big enough for these three researchers to design their own achievement test that would be used for measuring achievement with participants in this study.

Participants

A total of 57 Croatian Roma and non-Roma Grade 4 Primary School students from the Međimurje County took part in the study. 31 of them were boys and 26 were girls. They were all about 10 years old at the time of data collection. They attended four different schools in and around the county capital. Their class teachers and their English as a foreign language teachers were all qualified teachers with a similar teaching experience. The participants were assigned to one of the two groups: Roma (26 students) and non-Roma (31 students). The non-Roma group was the controlled group for our research study. Table 1 below illustrates the breakdown of the Roma participants with reference to their gender and the breakdown of the non-Roma group with the same reference is presented in Table 2 below.

Roma students were from Primary School Vladimir Nazor Pribislavec (21 students) and Primary School Kuršanec (5 students) and Non-Roma students were from Third Primary School Čakovec (17 students), Primary School Vladimir Nazor Pribislavec (4 students) and Primary School Strahoninec (10 students).

Instrument

Only one instrument was used in this study: a self-constructed achievement test. In order to test

our participants' familiarity with biological terms in Croatian and in EFL the authors constructed a test. It consisted of 30 questions. Students were shown pictures. They had to say in Croatian and English what they presented: e.g. river, lake, sea, tree, grass, etc. The test also included two items that are not distinguished in Romani Chip. They were "sheep" and "goat". In Romani Chip, which is the mother tongue of the participants in our study, there is only one lexeme that is used to refer to both of these animal species. It is "birka".

In Croatian there are two different lexemes as in English. They are "ovca" and "koza". For each correct answer in Croatian and English students were given one point. The total theoretical score was 30 for each language and the theoretical range was 0-30 (0 if the child does not know any right answers and 30 if the child gives all the correct answers for the respective language). All the pictures were slides in a PPT presentation.

The biological terms of our achievement test have been drawn from the current curriculum of the Ministry of Science and Education and the guidelines given by the TIMSS (Trends in International Mathematics and Science Study) for the basic knowledge of thematic units for the domains of the Science of Life, Physical and Chemical Sciences and Earth Science.

Table 1: Characteristics of Roma Participants (N=26)

Roma Group	Number of students	
	Male learners	Female learners
	13	13

Table 2: Characteristics of non-Roma participants (N=31)

Non-Roma Group	Number of learners	
	Male learners	Female learners
	18	13

Procedure

In all four schools the data were collected in January and February 2017. It should be noted that children’s parents had consented that their children could take part in the study. There was no single case where the parents would not have expressed their willingness. The researchers acquainted the students with the aim of the research and asked them to cooperate. They were guaranteed anonymity. Students came one by one to three examiners (the authors of this text) It usually took them about 5 minutes to answer what was shown in the pictures on the slides.

RESULTS AND DISCUSSION

The data were analyzed using the statistical package SPSS 17.0 for Windows.

Results of the school grades.

Grades in three school subjects that were important for this research study were analyzed. They were school grades in Croatian (language of instruction in all subjects and the mother tongue of the majority population in the country), English (the main foreign language), Natural Science (the most relevant subject for the familiarity of students with biological terms). For each variable the authors analyzed the results of the measures of central tendency and variability and they calculated *t*-test results.

The first of these three variables that was compared between Roma and non-Roma students was school grade in Croatian. Better results of the Non-Roma participants in this variable can be observed from all the values of the scores of central tendency and variability (see Table 3 below):

- mean is higher in the non-Roma group than in the Roma group (Roma = 3.23 and S.D.=0.9, non-Roma=4.74 and S.D.=0.44)
- median splits the two halves of the scores at a higher value in the non-Roma group; in fact it is at the highest possible point in the non-Roma group (Roma=3, non-Roma=5)
- mode in the non-Roma group is at the highest possible point and in the Roma group it is much lower (Roma=3, non-Roma = 5)
- minimum score in the Roma group is the lowest passing grade and in non-Roma group it is the second best grade (Roma= 2, non-Roma=4)
- maximum score in the non-Roma group is the best possible grade (5) and in the Roma it is only the second possible passing grade which is two levels lower than in the non-Roma group (3)

It is positive that no student in both groups had the negative grade insufficient (1). It can be seen from Table 4 that the differences between Roma and Non-Roma Croatian students are statistically significant ($t = 8.179, p < 0.01$) and that they belong to two different populations.

Table 3: Measures of central tendency and variability – school grades in Croatian (N = 57)

Variables	Roma Students	Non-Roma Croatian Students
Number	26	31
Mean	3.23	4.74
Standard Deviation	0.9	0.44
Mode	3	5
Median	3	5
Minimum	2	4
Maximum	3	5
Range	3	1

Table 4: Differences between means inschool grades in Croatian (*t*-test results)

Variables	N	Mean	Standard Deviation	<i>t</i>	<i>p</i>
Roma	26	3.23	0.9	8.179	0.01
Non-Roma Croatian	31	4.74	0.44		

Results of the measures of central tendency and variability for the second school subject (EFL) also show better performance of the non-Roma than Roma participants (see Table 5 below). We can deduce that even in the non-Roma group there are some students who struggle with EFL (as the minimum score is 2 in both groups). However, we can be certain from other values that the number of such students is low in the non-Rom group, whereas in the Roma group there are many more students whose knowledge of English is pretty poor

- mean (Roma = 2.81 and S.D.=0.85, non-Roma =4.61 and S.D.=0.46)
- median (Roma = 2, non-Roma = 5)
- mode (Roma =3, non-Roma = 5)

It is good again that there are no students with negative grades in neither of the tested groups as well as that there are students with the highest grade (excellent 5) in both groups.

The results of the *t*-test presented in Table 6 prove that the difference between the means in this variable is statistically significant ($t = 8.985$, $p < 0.01$).

Table 5: Measures of central tendency and variability – School Grades in EFL (N = 57)

Variables	Roma Students	Non-Roma Croatian Students
Number	26	31
Mean	2.81	4.61
Standard Deviation	0.85	0.46
Mode	3	5
Median	2	5
Minimum	2	2
Maximum	5	5
Range	3	3

Table 6: Differences between means inschool grades in EFL (*t*-test results)

Variables	N	Mean	Standard Deviation	<i>t</i>	<i>p</i>
Roma	26	2.81	0.85	8.985	0.01
Non-Roma Croatian	31	4.61	0.67		

Table 7: Measures of central tendency and variability in school grades in Natural Science (N = 57)

Variables	Roma Students	Non-Roma Croatian Students
Number	26	31
Mean	3.35	4.81
Standard Deviation	0.85	0.47
Mode	3	5
Median	3	5
Minimum	2	2
Maximum	5	5
Range	3	3

Table 8: Differences between means inschool grades in Natural Science (t-test results)

Variables	N	Mean	Standard Deviation	<i>t</i>	<i>p</i>
Roma	26	3.35	0.85	8.19	0.01
Non-Roma Croatian	31	4.81	0.47		

The results of the central tendency and variability in school grades in Natural Science reveal that the situation in this variable is pretty much the same as in EFL (see Table 7 below). In both groups there are students who have problems in mastering the course materials (the minimum value 2 was again found in both groups, and there are students with the highest grades again in both groups, but the non-Roma students have outperformed the Roma group, which can be seen from other values:

- mean (Roma = 3.35 and S.D.= 0.85, non-Roma = 4.81 and S.D.=0.47)
- median (Roma = 3, non-Roma =5)
- mode (Roma = 3, non-Roma = 5)

Statistical significance of the differences between the means in school grades in Natural Science can be seen from Table 8 where the results of the t-test procedure are presented ($t = 8.19, p=0.01$).

Results of the achievement tests for the familiarity with biological terms in Croatian and in EFL

The results of all the measures of central tendency and variability (see Table 8 below) have shown that non-Roma students have outperformed the Roma students (values of the mean, mode, median and minimum score are lower in the Roma group than in the non-Roma group), but it can be also seen that Roma students are doing pretty well and that they have mastered these biological terms in

Croatian pretty well:

- mean (Roma = 25.42 and S.D.=4.99, non-Roma =28.84 and S.D.=2.48)
- median (Roma =26.5, non-Roma = 30)
- mode (Roma =29, non-Roma=30)
- sum of points (Roma =661, non-Roma = 894)

Table 9: Measures of central tendency and variability – achievement test: familiarity with biological terms in Croatian (N = 57)

Variables	Roma Students	Non-Roma Croatian Students
Number	26	31
Mean	25.42	28.84
Standard Deviation	4.99	2.48
Mode	29	30
Median	26.5	30
Minimum	7	17
Maximum	30	30
Range	23	13
Sum	661	894

Table 10: Differences between means in the Achievement test: Familiarity with biological terms in Croatian (t-test results)

Variables	N	Mean	Standard Deviation	<i>t</i>	<i>p</i>
Roma	26	25.42	4.99	3.36	0.01
Non-Roma Croatian	31	28.84	2.48		

It can be seen from Table 10 below that the difference between the means of the two studied groups is statistically significant ($t = 3.36, p < 0.01$), thus the first hypothesis was confirmed:

H1 - Familiarity with biological terms in Croatian is lower in Roma students than in non-Roma students.

The results of all the measures of central tendency and variability (see Table 11 below) have shown that non-Roma students have outperformed the Roma students (values of the mean, mode, median and minimum score are lower in the Roma group than in the non-Roma group), but it can be also seen that Roma students are not doing well in this subject, in fact, that they lagging behind non-Roma students much more than in the previous variable.

To put it differently, they have not mastered these biological terms in EFL at all well:

- mean (Roma = 5.19 and S.D.= 3.76, non-Roma =20.13 and S.D.=6.2)
- median (Roma =3.5, non-Roma = 21)

- mode (Roma =3, non-Roma =624)
 - sum of points (Roma =1351, non-Roma =894)
- Results of the *t*-test presented in Table 12 above show that the difference between means of the two tested groups is also statistically significant in this final variable that was tested in this research study ($t = 3.76, p < 0.01$), thus the second hypothesis was confirmed: H2 - Familiarity with biological terms in EFL is lower in Roma students than in non-Roma students.

It should be noted that participants in both groups have shown better results for their familiarity with biological terms in Croatian than in EFL. However, that is quite natural. It is a foreign language to both studied groups, but the results of the Roma group should not be that much below the results of the participants in the non-Roma group. If we want the members of the Roma group to do well in the modern society, then they ought to do well in EFL too.

Table 11: Measures of Central Tendency and Variability – Achievement test: Familiarity with biological terms in EFL (N = 57)

Variables	Roma Students	Non-Roma Croatian Students
Number	26	31
Mean	5.19	20.13
Standard Deviation	3.76	6.2
Mode	3	21
Median	3.5	21
Minimum	0	8
Maximum	17	30
Range	17	22
Sum	135	624

Table 12: Differences between means in the Achievement test: Familiarity with biological terms in EFL (t-test results)

Variables	N	Mean	Standard Deviation	t	p
Roma	26	5.19	3.76	10.74	0.01
Non-Roma Croatian	31	20.13	6.2		

Conclusion and implications for further studies

From the review of the literature and the results of the research studies that were done before this current research study it was clear that Croatian society should work on lowering prejudices and stereotypes of the majority population towards Roma minority, that Roma people should be less segregated and that education of that minority group is the only rational way for their progress. In earlier studies it was also seen that Roma minority themselves should change their attitudes towards education and should regard it as the chief contributor for their success in life. Earlier research studies of bilingualism have pointed to possible advantages of bilingual children from other minority groups in their achievement in learning foreign languages over other students. This advantage was not recorded in earlier studies or Roma minority students

in learning foreign languages. One of the possible reasons might have been in the fact that Roma children were not truly bilingual.

The results of this research study have shown that Roma school children have lower school grades in all three school subjects that were taken into consideration. They have confirmed the first and the second of our starting hypotheses

H1 - Familiarity with biological terms in Croatian is lower in Roma students than in non-Roma students

H2 – Familiarity with biological terms in EFL is lower in Roma students than in non-Roma students.

They have shown much better progress in their familiarity with biological terms in Croatian as the language of school instruction than in EFL.

It can be concluded that Roma students do not reap advantages from their potential bilingualism.

A later start of FL learning of Roma children should be considered (Grade 2 instead of Grade 1). Getting in touch with two new languages in Grade 1 might be a too large burden for Roma children. There might even be a threat of possible semilingualism that Cummins (1979; 1981; 1991) and Verhoeven (1991; 1994) have warned about.

According to the authors of this paper, the results of their research study indicate that it might not be enough to integrate Roma minority students into regular education, but that some modifications might be useful. This modification would mean that Roma minority children could start their learning of foreign languages one year later. This later start might help them to become truly bilingual at the end of their Grade 1. This would entail that they could have better school grades and that they would be better familiar with biological terms as well as in other terms in Croatian as their language of instruction, in EFL and last but not least in their mother tongue as well.

The authors of this paper see implications for further research studies. They think that similar research in these variables (school grades in the same three school subjects as in this research study and in a similar achievement test of familiarity with biological terms in other languages of instruction and the familiarity with biological terms in English and other foreign languages) should be replicated in other countries with Roma and Non-Roma children and other languages of school instruction (Hungarian, Romanian, Serbian, etc.) and different ages of the start of FL learning (Grade 2, Grade 3, Grade 4 or Grade 5) so that wrong conclusions are not drawn.

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MÓDSZERTANI TANULMÁNYOK / METHODOLOGICAL STUDIES

**THE OXIPO GAME COLLECTION
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Abstract

This study is a presentation of the first phase of a complex research project which aims to present the theoretical background of a new game collection (based on OxIPO model). We have compiled a game collection to improve cognitive abilities in early childhood. Concerning cognitive abilities, Affolter's (1972), Sindelar's (1994) and others' earlier developmental approaches took into account visual, auditive or motoric (inter) modalities of perception, however, we believe we need a more complex model to cover the full capability. Within the framework of the OxIPO model (Mező, 2002, 2016), learning is interpreted as an information processing process. In the OxIPO model (Field, 2002, 2016), Learning = Organization x (Input + Process + Output) allows us to control and systemize not only the input modalities but also the output modalities and also to interpret some cognitive abilities in the process phase. We have created a game-collection based on six input (visual, auditive, kinesthetic, olfactory, gustatory, and tactile) modalities and five cognitive abilities (perception, attention, memory, conceptual thinking, problem-solving thinking) and three output (visual, auditive, motoric) modalities. The outcome of the six input modalities and the five target abilities and the three output modalities there are 90 different games that can be described by the OxIPO model. In the future, we would like prove with empirical studies that this game collection can be used for testing and developing 90 independent cognitive abilities. On the other hand, we need to prove that these cognitive abilities indeed influence the daily lives of children and their effectiveness.

Keywords: OxIPO model, ability, development, learning, game.

Disciplines: pedagogy, psychology

Absztrakt

AZ OXIPO JÁTÉKGYŰJTEMÉNY A KOGNITÍV KÉPESSÉGEK FEJLESZTÉSÉÉRT

Jelen tanulmány egy komplex kutatási projekt első szakaszának bemutatásáról szól, melynek célja egy új (az OxIPO modell alapján kidolgozott) játékgyűjtemény elméleti háttérének megismertetése. A játékgyűjtemény a gyermekkorban kialakuló kognitív képességek fejlesztése érdekében került összeállításra. A kognitív képességekkel kapcsolatban Affolter (1972), Sindelar (1994) és mások korábbi fejlesztési megközelítései figyelembe vették az érzékelés vizuális, auditív vagy motorikus (inter) modalitásait, de úgy gondoljuk, hogy komplexebb modellre van szükségünk a teljes képességrendszer lefedéséhez. Az OxIPO modell (Mező, 2002, 2016) keretén belül a tanulást információfeldolgozási folyamatként értelmezzük. Az OxIPO modellben (Mező, 2002, 2016) a Tanulás = Organizáció - szervezés x (Input - bemenet + Process - feldolgozás + Output - kimenet), ennek segítségével nem csak a bemeneti modalitásokat tudjuk szabályozni és rendszerezni, hanem a kimeneti modalitásokat is, és emellett értelmezhetünk néhány kognitív képességet a folyamatfázisban. Készítettünk egy játékgyűjteményt, amely hat bemeneti (vizuális, auditív, kineztikus, szaglás, ízléses és tapintható) modalitáson, öt kognitív képességen (észlelés, figyelem, memória, fogalmi gondolkodás, problémamegoldó gondolkodás) és három kimeneti (vizuális, auditív, motorikus) modalitáson alapul. A 6 bemeneti modalitás, az 5 célképesség és a 3 kimeneti modalitás eredményeként 90 különféle játék létezik, amelyeket az OxIPO modell leírhat. A jövőben empirikus vizsgálatokkal be kell bizonyítanunk, hogy ez a játékgyűjtemény 90 független kognitív képesség tesztelésére és fejlesztésére használható. Másrészt be kell bizonyítanunk, hogy ezek a kognitív képességek valóban befolyásolják a gyermekek mindennapi életét és az eredményességüket.

Kulcsszavak: OxIPO modell, képesség, fejlesztés, tanulás, játék.

Diszciplínák: pedagógia, pszichológia

What do we consider a development game?

Development game is a practice (or series of practices) that is used to develop cognitive or non-cognitive personality variables or skills (in the form of a game to arouse and maintain motivation during practice). This definition's justification is summarized in the following table (Table 1).

It is the best to follow some principles when applying development games. Here you can find the 10 principles of applying development games:

1. *The principle of playfulness.* The core activity of developing lessons should be the game. On the one hand, this is necessary to look from the aspect of

characteristics of 0-10 age group (playcentric) and, on the other hand, to create the motivational base for the occupations.

2. *The principle of interactivity.* If a development game is used in a group, then it is a must to make available to connect with peers, to communicate, and to develop social skills in general. It is also possible during the group development, but in the individual development position it is the only way to shape the social skills and competences in the intergenerational (adult educator and the child, student) relation. The essence is that the participants do master the rules of adaptation and behavior during the game.

Table 1. The explanation of the definition of the development game. (By the Authors)

Text excerpt	Explanation
The development game is a practice...	The developer game practices something (ability, skill, role, etc.) - and therefore we can also use the practice phrase for it. The term "development game" may sometimes refer to a separate practice, but we can use this concept for a complex set of exercises built on one another.
... that is used for cognitive or non-cognitive personality variables ...	Cognitive personality variables include: perception, detection, attention, memory, imagination, thinking. Non-cognitive personality variables include: anxiety, extraversion, aggression, etc
... or some kind of skill ...	Skill: Performance-driven, practiced set of actions with concrete content using capabilities and abilities that do not require constant thinking control when implementing our actions. For example, speaking skills, reading, writing, counting, etc.
...we aim to develop...	The development game (at least from the perspective of the developer pedagogue, which may not be the identical with the child's or learner's point of view) is not a self-destined activity, or an action done only for the sake of the game, but a practice (set of practices) for achieving a definite development goal. The goal of development games – not being mutually exclusive (according to Kovács and Pálfi, 2015): a) catalysing child development and stimulating development; (b) overcoming, compensating and eliminating disadvantages; c) strengthening or developing the elements of positive self-image; (d) reducing and eliminating developmental dissynchronisation; (e) achieve the transfer effect of the game in other activities.
... (for forming and maintaining motivation achieved by practice in a game's form).	The purpose of gamification of practices is to make - sometimes in itself - monotonous, exhausting, or perhaps uninteresting (as a result of the high number of repetitions) practices interesting and attractive for children and students. Exercises may also be used in non-gaming form, if required by the developing person.

3. *Principle of establishing a partner relationship.* The success of a developing session is greatly influenced by the success of creating such a trustful, partner-based atmosphere during the games. Roger-Triassic: Empathy, unconditional acceptance, and credibility are crucially important to the developer teacher (and is ideal, if the child or student also adopts these values). The management of the sessions is the task of the developer teacher (it is go-

od, if the player feels it), but it is reasonable to involve the player in the decisions as much as possible. For example, the rules the players set up themselves are tend to be more accepted by the participants than those that are forced on them.

4. *Principle of ensuring positive self-image.* The developer should select the game (especially the closing session) so that the child's positive image

becomes stronger. It is advisable to use the following "sandwich model" for games designed for one occupation: after the first exercise that brings absolute success (encouraging), the more challenging games will come, and the last game will be a guaranteed success again (leaving a positive impression). The developer pedagogue should emphasize the learner's strengths, positive points, evolution signs and evidences in front of the child, learner and the social environment (family, educators, contemporaries) that are important to him!

5. *The principle of preferring multifunctional games.* If there are multiple games available to achieve the same goal, it is advisable to select a suitable game for the most purpose (e.g. to develop perception, attention, memory, etc. at the same time), as opposed to a game used to develop specifically one particular mental function. An exception is, if we are only interested in the functionality of a specific function due to diagnostic/development purposes. It should be noted, however, that basic mental functions are not independent. Therefore, we cannot talk about a practice that only requires attention because what requires attention that also needs the control processes of perception, detection, memory, and thinking. For example, in classical observation-examination procedures in a given time given characters (say "a" letters) should be striked through in a task sheet filled with symbols (all sorts of letters). In addition to attention, it is also needed to detect and perceive signals, to understand and remember the task, etc.

6. *Principle of using a three-level target system.* There may be a three-level target system for applying development games. These:

- Mission: the goal that needs to be achieved by the end of the development process (for example, development of monotony tolerance) by using different exercises and games.
- Direct goal: the goal of a child, learner in the game is (for example, "Sort out the blue and red cards").

- Indirect goal: this is the goal why the developer has selected the particular task (for example: examining ability to distinguish between red and blue colors, and investigating / developing attention in case of a monotone task). This is not a secret to the player, but not sure if he is interested or understands.

7. *The pursuit of harmony between personal orientation and goal orientation.* the purpose of development can usually achieved in a variety of ways, through multiple games. The developer educator should strive to choose a game that takes into account the characteristics of the given child and learner (such as their level of development and interest) while respecting the development goal. This, of course, requires a wide-ranging methodological repertoire and/or game-creator competence.

8. *Principle of process nature.* As skill development is process-like, it is also necessary for player development. A gaming (or non-gaming) practice will only have ability-enhancing effects, if there is a chance for the child to frequently practice it - on a daily or at least weekly basis. We can not wait any development effect from an approx. 1-30 minutes long game. However, after 2-6 months of practice there is a chance of measurable and / or visible development.

9. *Variety principle.* The purpose of involving of games into development is to make the lessons more motivate him to participate in the sessions. At the same time - with varying tendencies per enjoyable for the child / student and thus child - some games may no longer be attractive to him (or not even appealing at first try). At this point, the task of teacher is to play other games or game variants, which help to achieve the goal (mission) defined in the development plan. For example: it may happen that the classic paper-pencils tasks of development of attention may no longer motivate the child, but games that have the same ability but

which require high-motion performance can give it new impulse.

10. *Structural principle.* The methodological game steps of developing games (Kovácsné and Pálfi, 2015) also reflect the general structure of games:

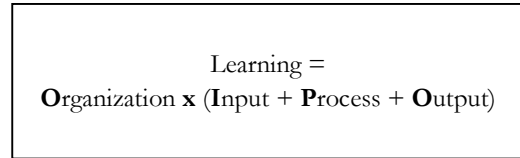
- Tuning. In the case of a known game, this recalls previous experience of the game, reconciling the previous and the current course of the game, and distributing props and roles. In the case of a new game, it is advisable to play a test game after introducing of the game's rules, roles and accessories. Tuning can happen by introducing a frame story (even from week to week) – see: Mező és Mező, 2013.
- The process of the game. In doing so, the role of the teacher may be: participant, game master, "fan". In order to maintain motivation, it is possible to incorporate new elements into the game's replay.
- Deduction, finish of the game. In doing so, the task of the developer teacher is to highlight and feedback the child's positive aspects, to initiate a voluntary conversation about the game's experience, to introduce the continuation of play and the game or to prepare and tune the child for the next game.

Based on the OXIPO model the main cornerstones of ability development

The OxIPO-model of learning according to the OxIPO-model (built on a cognitive psychology basis), learning is an information processing procedure, and has four components: input, process, output and organizing (Mező, 2002, 2011; Figure 1). Every component is built on the basis of special abilities, motivations, and methods.

Based on the OxIPO model, three development programs have been developed. These are the following:

Figure 1. The OxIPO-model (by Mező,2002,2011)



- OxIPO-Minimum Program (Mező, 2002, 2011) (formerly known as IPOO-Minimum Program)
- OxIPO personality- and behavior-forming toolkit (Mező, 2016)
- OxIPO Learning Skill Game Pack (The present study concerns the latter)

Integrated diagnostics in ability development based on the OxIPO Model

While diagnostics are an inseparable part of development, in practice it is not necessarily the task of the developer. This problem can be remedied by skill development developed under the OxIPO model, if development and diagnostics are not separate, but the development game also provides (it may not be standardized, but from a particular child it is accessible only and exclusively by the developer pedagogue, and therefore unique) diagnostic information. The games used in the OxIPO model are therefore primarily intended for development, but a diagnostic practice can use for development, and a development practice can use for diagnostics, too.

The appearance of the OXIPO model in development games

The input component of the OxIPO model in development games. Input (= the information that the player perceives during the game. Typical input: the referee's instructions) modalities (of sensory channel) include:

- visual: the information seen
- auditory: the information heard
- kinesthetic: information on movement
- olfactory: the fragrance information
- gustatory: tasteful information
- tactile: the perception and detection of tactile information
- multisensory

The process component of the OxIPO model in development games. OxIPO ability developing games are organized around the process phase of information processing and promote the ability (e.g. attention, memory, etc.) indicated there. Although a game can develop more than one ability at the same time, the main effect can be clearly defined in most (Gyarmathy, 1998). In OxIPO ability-developing games, you must define at least one target ability from the set of capabilities that the game can mobilize.

The output component of the OxIPO model in development games. For OxIPO ability-developing games, the output (the player's response after information input, and followed by processing) can usually occur verbally, in writing / drawing or by performing some movement.

Based on these, the output can happen:

- Using visual modality (the player draws, writes, shows something whose sight is the key and not what the player is doing). So, if the essence of the task is to create a visually perceptible piece of work (writing, drawing, etc.) and evaluate the work, not the motion needed to produce it (which we might not have observed e.g. in a homework assignment). We will continue to treat such works as visual output for simplicity - although we add that through fine-motor skills, eye-hand coordination, device management, etc. experience can also be obtained.

- Using auditory modality (the player claps, beats, says or sings something, the sound of which are more important than the movements which needed for these auditory responses). If a player produces a sound (an auditory stimulus) with some motion, the sound is more relevant from the developer teacher's point of view than the movement leading to it (which may not be noticeable to the observer, like in case of a tape recorder or a phone), then we are talking about auditory output.
- With a kinesthetic nature: the output may incur movement (in which case the player's movement is the point, not the view or sound of the motion, which ultimately can be regarded as visual or auditory information for the referee). Regarding movement, it is customary to distinguish between fine-motorics (actions requiring precise action, fine, coordinated movements of hands and fingers such as writing, drawing), or movements that involve high moves in body posture.

Typically, the production of visual (written, drawing) outputs assume the player's fine motoric action (writing, drawing), and auditory outputs (motion output, clapping) also assume movement. Exercising the motion output can also be used to develop the body scheme, spatial and temporal orientation, fine motorics and high motion (see Csányi, 2015 - a wealthy collection of tasks) as well as for its energetic and refreshing effect.

Uni-, multi- and intermodality in input and output components. Affolter's (1972) model of the perception development - which partly forms the theoretical background of the Sindelar program (Sedlak and Sindelar, 2005) - distinguishes three stages of the development of perception:

- Modality specific level: visual, auditory, and tactile-kinesthetic information is processed separately.

- Intermodal level: information from different detection areas is interconnected. For example, during school learning, it is essential that a learner is able to connect a page that is requested by a teacher in the context of a page number (auditive modality) and a page in a textbook (visual modality).
- Level of serial integration: the sequence of information is understood and maintained.

In the development of abilities based on the OxIPO model, the modality theme raised by Af-folter in relation to perception is applied after thorough revision:

- We consider not only the input (perceptual) modalities, but the output modalities too.

- Instead of "intermodal", the word "multimodal" is used in relation to development games. Cause: The term "intermodal" refers to the perception of a person's connection to different modal stimuli, and the term "multimodal" refers to the different modality of stimuli expressed during the development game.
- We consider the modality identity or difference between the input and output.

The input / output modality has 6 possible types (the modality of the task and the requested way of responses are in brackets).

These are the following (Table 2):

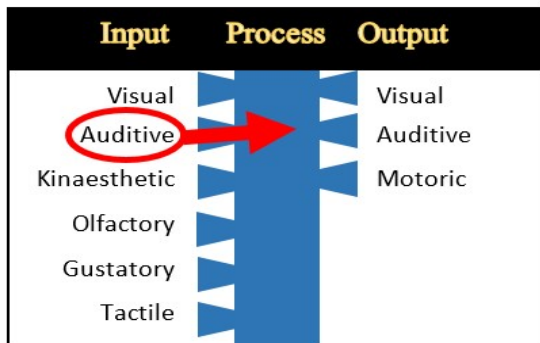
Table 2: six possible types of input/output modality – task and response requested are in brackets (source: Mező and Mező, 2019, Mező and co., 2018)

N	Input (Example)	Output (Example)	Homogeneity of input and output (Example)
1	Unimodal (verbal)	Unimodal (verbal)	Homogene (Tell your name!)
2	Unimodal (verbal)	Unimodal (drawing)	Heterogene (Draw yourself!)
3	Unimodal (verbal)	Multimodal (verbal+drawing)	Heterogene (Draw something then tell what you drew!)
4	Multimodal (verbal+written)	Unimodal (drawing)	Heterogene (Read the task then draw what it asks!)
5	Multimodal (verbal+written)	Multimodal (verbal-written)	Homogene (Read the task then write down and explain your answer!)
6	Multimodal (verbal+taste)	Multimodal (motional+written)	Heterogene (Close your eyes and taste the contents of the two glasses. Then you can open your eyes, run to the board, and write the order in which you tasted the flavors. How was the first taste and how was the second)

We can difference the next possibilities from aspects of number and similarity of modality of input (=stimuli what are given by game master) and output (= observable responses of player).

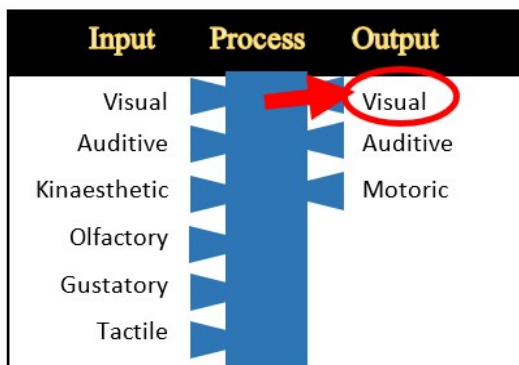
Unimodal input: the information input is performed via only one channel (for example, we can use the visual input channel, when our instruction is in writing; Figure 2).

Figure 2: unimodal input (By the Authors)



Unimodal output: information output is performed via only one channel (for example, in the visual channel when our response is a drawing; Figure 3).

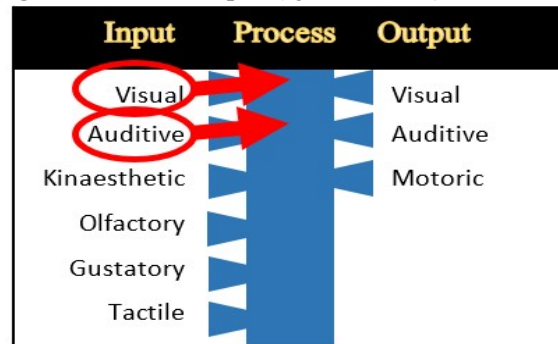
Figure 3: unimodal output (By the Authors)



Multimodal input: the information input is executed via multiple channels (e.g., visual and auditory

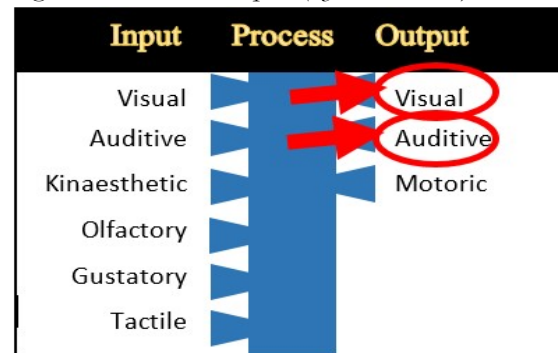
channels, when the assignment of tasks is done in writing and in words; Figure 4).

Figure 4: multimodal input (By the Authors)



Multimodal output: the information output is performed via multiple channels (verbal and written answers are also given by the student; Figure 5).

Figure 5: multimodal output (By the Authors)



Homogeneous input/output (I/O) modality: the input and output channels are identical (for example, auditory: verbal answer to verbal question, Figure 6).

Heterogeneous input/output (I/O) multimodality: the input and output channels are different (for example: In case of "Draw something!" instruction we give an auditory input, and we wait for a visual output; Figure 7).

Figure 6. homogeneous input/output (I/O) modality (By the Authors)

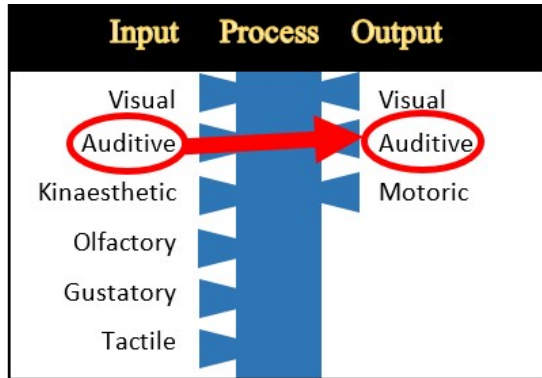
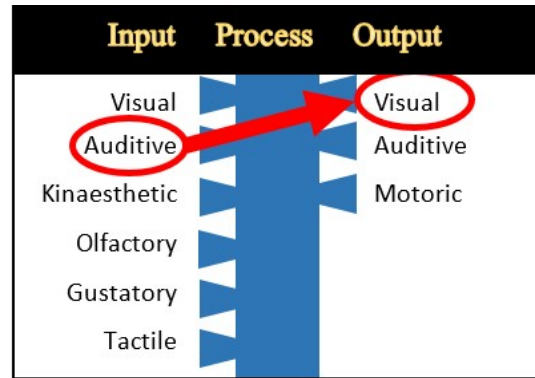


Figure 7: heterogeneous input/output (I/O) multimodality: (By the Authors)



Based on these, the instruction of the exercises consists of at least three elements in OxIPO ability development games (Table 3):

- Input component: the first part of instruction defines the input modality. For example, when using auditive input, this component can be something like "Listen to what I'm saying ..."
- Process component: the second part of instruction defines the cognitive (target)ability targeted during the process. For example, the previous example can be continued in case we focus on memory: "... and remember it, note it!"
- Output component: the third part of instruction describes the modality of output. Example of visual output: "Draw down what you remember!".

The organization component of the OxIPO model in development games. Regarding the organization of development games, the referee (= developer pedagogue) always has the task of:

1. Choice of location, design, accessibility, safety.
2. Scheduling the timing

4. Controlling the plot
5. Coordinating and directing the game
6. Designing financing

Future plans

In the future, we must prove with empirical studies, that this game collection is useable for testing and developing 90 independent cognitive abilities. On the other hand, we must prove that these cognitive abilities do really impact everyday life and school life and achievements.

For these aims, the authors worked out a new innovative measurement system of pupils' cognitive and non-cognitive characteristics (this innovation is a part of the EFOP-3.2.6-16-2016-00001 project of Hungarian University of Fine Arts; innovators are Ferenc Mező and Katalin Mező). Its main characteristics are:

- Name: S.M.ART (School, Measurement, and Art)
- It contains tests, questionnaires, observation lists, and semi-structured interviews

- (the full system contains 20 different diagnostic tools).
- These are in teacher's competence.
 - These can give information about pupils' cognitive and non-cognitive characteristics.
 - The pupils are not needed to read and write during the data collection of these measurements.
 - Its other features are a fast, group, cheap measurements that can be integrated (music, dance, literature and visual) art lessons (Mező és Mező, 2020a,b,c,d,e,f, Mező és tsai, 2020a,b).
- The S.M.ART test-system (with handbooks and tools) can be found on the webpage of Hungarian University of Fine Arts: <http://www.kiskepzo.hu/efop326/index.html>

Table 3: OxIPO auxiliary board for the design of ability development games, tasks and instructions (By the Authors)

1 st part of the instruction defines the modality of INPUT:	2 nd part of the instruction defines the modality of PROCESS:	3 rd part of the instruction defines the modality of OUTPUT:
<p>Visual: Look at... the color (s)! the form (s)! the picture(s)! the movement(s)! the sign (s)! the sign(s)! the writing (s)! the letter(s)! the word / words! the sentence (s)! the number (s)!</p> <p>Auditive: Hear to.../Listen to... the voice (s)! the rhythm (s)! the melody (ies)! the music (s)! the text (s)!</p> <p>Kinesthetic: Perceive your body's position (s)! your body part (s)! your movement!</p> <p>Olfactory: Smell the scent (s)!</p> <p>Gustatory: Taste the flavour (s)!</p> <p>Temperature: Feel the temperature (s)</p> <p>Tactile: Touch ... the subject (s)! the living creature (s)!</p> <p>Other sense: Tell me if you feel! Feel the...!</p>	<p>Perception: Recognize ...! Name it...! Notice the difference (s) See the similarity (s)!</p> <p>Attention: Look at the ...! Listen to the ... Concentrate on ... Focus on ...</p> <p>Memory: Remember...! Note...! Call me ... Store in your memory...! Memorize ...!</p> <p>Conceptual thinking: Define ...! Group by ...! Give me a name for the ... concept! Compare it ...! Look for subordinate, co-ordinate relationships...!</p> <p>Algorithmical thinking: Analyze ...! Break down into ...! Summarize / synthesize ...! Get the ... event line! Find the cause ...! What is the reason / consequence of ...? If ..., what happens? Conclude ...! Design the ... process!</p> <p>Creativity: Create ...! Find out ... Make ...! Produce ...! Discover it ...!</p>	<p>Visual: Color it ...! Draw it...! Paint it ...! Pull together ...! Mark with X ...! Underline it...! Circle it...! Write it down...!</p> <p>Auditive: Give ... sound! Cry ...! Whisper ...! Tel mel...! Tell...! Clap it ...! Hum the tune ...! Sing it ...! Play it ...!</p> <p>Motoric: Gesture ...! Dance away ... Run there ...! Jump up ...! Get down! Stay as ...! Lift up...! Put it there ...! Swing your arm ...! Climb up ...!</p>

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**A THEORETICAL PERSPECTIVE ON THE THERAPEUTIC ROLE
OF CHILDREN'S FOLK SONGS**

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Abstract

Starting from the idea that treating a problem is done more efficiently when we address the causes that generated it than when dealing with symptoms, respectively from theories that claim that most of the mental disorders have their roots in the mother-child relationship developed in the early childhood, through the paper entitled *A Theoretical Perspective on the Therapeutic Role of Children's Folk Songs* we intend to argue the more use of songs from children's folklore in music therapy. Thus, in the first part of the paper we bring to the attention of the main theories that demonstrate the importance of the mother-child relationship from the early childhood in order to a healthy evolution of the child from the point of view of its psychic development, with special emphasis on their expression through vocal singing. In the second part of the study we propose to approach the defense mechanisms from the perspective of the positive functions that it performs in the case of normal persons, as a defense mechanism and defense behavior. In the third part of the paper, we present an analysis of the repertoire of songs from the children's folklore from the perspective of the content of ideas, of the structure of the melodic line, of the specific rhythms, as a mirror of the relationships that children develop with themselves and with others, in particular with my mother. In the fourth part of the paper we argue the use of songs from children's folklore in music therapy in order to trigger certain memories from the first childhood, so that the traumas that have not been overcome are then treated properly. The paper concludes with some final considerations.

Keywords: music therapy, defensive mechanisms, children's folk songs

Discipline: pedagogy

Absztrakt

A GYERMEK NÉPDALOK TERÁPIÁS SZEREPÉNEK ELMÉLETI PERSPEKTÍVÁJA

A gyermek népdalok terápiás szerepének elméleti perspektívája című tanulmány kiindulópontjai: 1) egyetértünk azzal, hogy bármilyen probléma megoldásában hatékonyabb, ha annak az okát és nem csak a tüneteit kezeljük; 2) egyetértünk azon kötődésről szóló elméletekkel, amelyek azt állítják, hogy a legtöbb mentális rendellenesség a kora gyermekkorban kialakult anya-gyermek kapcsolatban gyökerezik; 3) nem utolsó sorban, úgy véljük, hogy a gyermekkori népdalok hatékonyan alkalmazhatók bizonyos rendellenességek kezelésében. Így tanulmányunk első részében azon kötődési elméletekre fókuszálunk, amelyek bizonyítják az anya-gyermek kapcsolat fontosságát a gyermek egészséges fejlődése – a pszichés fejlődés – szempontjából, különös hangsúlyt fektetve az éneklésen keresztüli kifejezésre. A tanulmány második részében azon védekező mechanizmusokat mutatjuk be (mint védekező mechanizmus és a védekező viselkedés) a pozitív hatás szempontjából, amelyek akár normál személyeknél is megjelennek. A tanulmány harmadik részében a gyermek népdalok repertoárjának rövid elemzését mutatjuk be a tartalom szempontjából, a dallamvonal felépítése szempontjából és a speciális ritmusokat tekintve mivel mindezek tükrözik a gyermekek kapcsolatát önmagukkal és másokkal, különösen az édesanyával. A tanulmány negyedik részében, a gyermek népdalok zeneterápiában való alkalmazása mellett érvelünk, mivel ezek kiválthatnak bizonyos emlékeket a kora gyermekorból úgy, hogy a leküzdetlen traumákat ezután megfelelően kezelik. A tanulmány néhány végső megfontolással zárul.

Kulcsszavak: zeneterápia, védekező mechanizmusok, gyermek népdalok

Diszciplínák: pszichológia, pedagógia

Introduction

The sonorous reality of the contemporary world is characterized by a complexity that is difficult to express in words. By its sometimes surprising and unusual, at times template, impersonal character, by its sometimes ancestral, other times futuristic sonorities, the music influences us all.

Present at every moment of human life, music manages to comfort the soul, to balance the mind, to restore harmony where needed, thus becoming a universal panacea and, at the same time, a foundation of music therapy.

As with other types of therapies, in melotherapy we look at the possibilities of applying attachment theories in terms of ensuring the conditions necessary for the patient to explore their own relation-

ships and attachment models, so that they can capitalize on them in their life experiences. From this perspective, as Bowlby argues (1988, p. 138), the therapist's activity is carried out on the following five coordinates:

- Providing a secure basis for exploring the painful or unhappy aspects of the past or present, which affect the balance of the patient's inner universe;
- Encourage and permanently assist the patient in the process of knowing and recognizing the way of relating with oneself and others;
- Building a relationship that allows the patient to identify and import perceptions, constructs, defining expectations to outline

certain behavioral patterns generated in relation to the type of attachment;

- To guide the patient in the often difficult and painful process of (re)discovering the situations experienced in childhood and / or adolescence, especially in relation to the parents, which could cause current behaviors;
- Facilitate the process of understanding and accepting the fact that the image about oneself, the behavioral patterns derived from previous experiences, or verbally induced by one of the parents repeating certain messages may or may not be useful in the present and future life. The therapist facilitates the understanding of old stereotypes and the process of remodeling the behavior by finding alternatives based on new models of thinking and action.

In the present work, we intend to present a theoretical perspective on the importance of songs from children's folklore in melotherapy, in order to construct defense mechanisms and behaviors with adjusting function for the human psyche. The approach of attachment theories comes to complement this idea insofar as we consider relevant the emotional relationship, which is established between the mother and the newborn, through the mother's vocal singing and through the specific repertoire.

Attachment theories

One of the starting points of this paper is the theories that, in general terms speaking, claim that the form of attachment to the first person providing care for a newborn is defining for the subsequent evolution of the individual. The connection between the mother and the newborn child is, according to theorists, the premise for developing the capacity of intra and interpersonal knowledge, re-

flected in the level of human relationships founded and maintained in adulthood.

As Winnicott (1964, p. 88) states, "if you set out to describe a baby, you will find you are describing a baby and someone. A baby cannot exist alone, but is essentially part of a relationship." The newborn comes to the world with a series of needs such as being protected, cared for, loved, and the mother is the one who can provide him/ her with safety, care, and love. The attachment relationship that develops between the two implies a particular communication and behavior, based on experiences and emotions specific to the period in which they are.

Bowlby defined attachment as a "lasting psychological connectedness between human beings." (1969, p. 194) Thus, the type of attachment becomes defining for the direction in which the individual evolves in the light of his ability to interact with other people.

Regarding the conditions and the way of establishing harmonious relationships between individuals, Bowlby (1988, p. 130), argues that "each must be aware of the other's point-of-view, his goals, feelings, and intentions, and each must so adjust his own behavior that some alignment of goals is negotiated. This requires that each should have reasonably accurate models of self and other which are regularly up-dated by free communication between them."

Regression – a defense mechanism and defense behavior

According to Freudian theories, defense mechanisms are defined in relation to human psychopathological manifestations. Vaillant (1993) takes a different position, arguing that "the presence of defenses is not, in itself, a proof of the disease. No matter how disorganized, unreasonable or condemnable the defenses may seem in the eyes of an

external observer, they are nothing more than an adaptive response." (Approx. quote) (Ionescu, Jacquet, & Lhote, 2002, p. 29)

In the context of the present paper, we propose to approach the defense mechanisms from the perspective of the positive functions that it performs in the case of normal persons. Authors of numerous publications such as: Lampl - de Grot, 1957; Bibring et al., 1961; Valenstein, in Plumpian-Mindlin, 1967 and Wallerstein, 1967; Lazarus, 1983; Roth and Cohen, 1986 and Van Der Leeuw, 1971, agree that defense mechanisms are indispensable for the proper functioning of the human psyche, performing an adaptive function.

Laplanche and Pontalis (1973) defined defense mechanisms as "different types of operations through which defense may be given specific expressions. Which of these mechanisms predominate in a given case depends upon the type of illness under consideration, upon the developmental stage reached, upon the extent to which the defensive conflict has been worked out, and so on.

It is generally agreed that the ego puts the defense mechanisms to use, but the theoretical question of whether their mobilization always presupposes the existence of an organized ego capable of sustaining them is an open one." (Bond, 1992, p. 127)

For Widlöcher, "defense is the set of operations whose purpose is to reduce intrapsychic conflict, making one of its elements inaccessible to conscious experience." (Ionescu, Jacquet, & Lhote, 2002, p. 32)

The defense mechanism, as defined by Braconnier in Doron & Parot (2006, p. 78), "encompasses all the means by which the self relies to control, control and channel internal and external dangers."

According to Vaillant (1993), certain defenses may be adaptive. They have the following characteristics:

- they are part of a temporal perspective, being rather long term oriented;

- their mode of operation concerns the processing rather than the anesthesia (in the case of the affection);
- they are specific;
- they conduct feelings in a precise direction instead of block them;
- facilitates the acceptance by others, making the person enjoyable, appealing (Ionescu, Jacquet, & Lhote, 2002, p. 29).

Analyzing, comparing and synthesizing different definitions in the literature, Ionescu, Jacquet, & Lhote, (2002, p. 35), formulate their own definition which shows that "defense mechanisms are unconscious psychic processes aimed at reducing or canceling unpleasant effects of real or imaginary dangers, reshaping the internal and / or external reality and whose manifestations - behaviors, ideas have affects - can be conscious or unconscious." From the inventory of defense mechanisms made by researchers such as A. Freud, Valenstein, Laplanche and Pontalis, Bergeret, Vaillant, Plutchik and others so far, in the context of this paper we propose to detail some aspects of regression. The choice is given by the relation we can establish between the songs in the children's folklore, the theories of attachment and the permanent need of the psychic to regulate human behavior in order to find balance and harmony with oneself and with others. Regression is a defense mechanism defined by Ionescu, Jacquet, & Lhote (2002, p. 275) as "a return - more or less organized and transient - to earlier modes of expression of thought, to objections or object relations, in front of an internal or external danger that may cause an excess of anxiety or frustration."

Regression is a defense mechanism that, according to Spitz, quoted by Ionescu, Jacquet, & Lhote (2002, p. 67), has the prototype of sleep, as a return "to satiation when breastfeeding". Spitz believes that there is an extremely close relationship between the nature of mother-child relationships

and the defense mechanisms that the individual will build over time to model and structure his or her character. He also argues that this relationship "drives the child's psychological development toward the use, in defense, of a particular prototype, preferred to all others."

Plutchik (1995) considers that each defense mechanism (unconscious, rigid and with limited adaptive value) corresponds to a coping method (conscious, flexible and adaptive), exemplifying that regression corresponds to seeking help. (Conte & Plutchik, 1995, pp. 26-27)

As human aid is not always possible, the individual may resort to substitutes, alternatives such as music or other art forms. In the case of our study, we propose to build a conscious, flexible and adaptable defense behavior based on the songs from the children's folklore, which the mother sang to the individual during the first childhood. The idea is supported by the following statement attributed to Freud: "There is a return path that leads from fantasy to reality: ART."

Children`s folk songs

In this study, we explore the universe of songs in children's folklore based on the idea that "The brain is the organ we use for every imaginable cognitive task, including the perception of sound as music. Before this can happen, the incoming sound wave must be analyzed for its musically relevant properties, particularly amplitude and frequency." (Tan, Pfordresher, & Harré, 2010, p. 51)

We therefore propose a brief analysis of the songs in the children's folklore from the perspective of the specific melodic-rhythmic structures, the content of ideas, respectively of the relation with the game and the movement, without referring to the characteristic repertoire of any ethno-folkloric zone.

Regardless of the folklore we are talking about, it is well known that the children's repertoire is struc-

tured at small intervals, which they can easily sing. Very often, the vocal singing begins with the melody of the third soil, which is added to the ground to the bi-tone, and then to the ground, gradually reaching the pentatonic structure of the ground. Since ancient times, musical intervals have been assigned certain specific expressive functions. In a recent study, Costa, Bitti, & Bonfiglioli (2000, p. 8) show that the third minor interval (e.g. Sol-mi) is associated with melancholy, sadness, and the third major (e.g. Do- mi) with stability, joy, power, purity, brilliance and tranquility. Thus, a correlation can be established between the basic core of children's folklore songs and the universe of emotions that children explore at an early age. It is interesting to note that the minor second interval (e.g. mi-fa), associated with the affect, the discouragement appears to a lesser extent in the songs in the children's folklore. The sound constructions based on consonance, on intervals with expressive functions predominantly in the area of stability, joy, balance are in full agreement with the specific rhythms of children's folklore, with the content of ideas of the songs and with the universe of emotions experienced at the age of childhood.

From a rhythmic point of view, children's songs are simple, built on succession of quarter notes and eighth notes, which gives them stability and a framework suitable for movement and play.

In an analysis of the movements suggested by the text of songs in children's folklore, Benkő & Prezsmer (2015, p. 49) states that „the essence of the action: continuous happening...In most cases, the game ends with a snap: a sudden change of motion, a change of role, a prompt, a question, etc.”

The movements associated with children's songs are simple. These movements are meant to introduce children to adult culture, to teach children how to walk in rhythm, so that later they learn dance steps specific to adult folklore. From the point of view of the content of ideas, the songs in

the children's folklore can be closely related to the events they accompany (different holidays - Christmas, Easter, Pentecost, etc.) or they can illustrate the children's concerns in close relation with the universe they discover.

The texts of the songs in the children's folklore contain both regionalisms; archaisms that attest their authenticity, as well as words modified in meaning or form. The latter are the result of repeated transformations caused by the misunderstanding of words, the change of place names, and the desire to update the song or the spontaneous, varied interpretations of children.

Children`s folk songs in music therapy

Behaviors and activities, which occur spontaneously in childhood, can be defined by the aging of these behaviors, by adults, but also by innovative methods of music education and / or therapy. As Bowlby (1988, p. 122) states, "The presence of an attachment control system and its linkage to the working models of self and attachment figure(s) that are built in the mind during childhood are held to be central features of personality functioning throughout life." One of the expressions of attachment still less explored is the song. Articulated or not, accurate and aesthetic or not, this is the communication channel on which the mother-child relationship is built during the preverbal period of the child.

Singing creates unseen bonds between the persons, brings them into a shared space of happy exploration and expression. Even a simple breathing exercise, the prolonged sound can be transformed into a game, a musical dialogue, a journey together to what we call a safety zone.

Singing means prolonged emotional contact, interaction in which the germs of verbal communication are found, and on the other hand the nucleus of future musical and social relationships. Trevarthen & Malloch (2000) observe not only the ef-

fects of articulated singing, but also of the natural, intuitive modulation of the voice of the mother during her reaction with the child, during the swing, asleep, and crying. (Beer & Birnbaum, 2019, p. 121)

Equally, the crying, cooing, murmuring of the child is the sound expression of his needs and emotional states. They are modulated on a scale of sounds known, recognized and interpreted by the mother who reacts accordingly. Gradually, music becomes the exponent of the individual's inner emotions and experiences, dressing them in aesthetic forms accepted and validated by others.

Music, more precisely the children's folklore songs sung at first by the mother, and later by the child, sung at adulthood even with the inner voice, can contribute to shaping adaptive defense mechanisms and behaviors. In regression, for example, the return through the songs from children's folklore during the period when the individual felt safe, was worry free, enjoyed the innocence of the age, can be an important factor in restoring the inner balance. Adaptation, psychic self-regulation through children's songs is within reach of anyone, anywhere, anytime. The effect is beneficial on the one hand because it awakens the memory of attachment relationships from early childhood, and on the other hand, because, the development of certain musical intervals with specific expressive functions (big third, small third, etc.) ordered rhythmically and in a slow tempo, induces particular emotional states.

In music therapy, songs from children's folklore can be used from different perspectives, as a solution for countless situations. In the context of the present study, we aim to bring to the fore the idea that they can be successfully used in active therapy to construct adaptive (defense) behaviors. Singing and improvising on specific topics in children's folk songs, evoking memories, emotions transmitted through children's folk songs, can generate a space of mental comfort in which the person takes

refuge in certain situations of anxiety, depression, or over-stress. In an optimistic scenario, we consider that building defense mechanisms based on children's songs can even lead to artistic performance, can even change the perspective about life.

Conclusions

In the continuous adaptation of the individual to living conditions, he/ she frequently uses internal working models, crystallized over time. Whereas, according to Bowlby (1969), “the child’s attachment relationship with their primary caregiver leads to the development of an internal working model” it is important that this relationship is a complex, resource-rich one. Singing represents a particular element of connection between mother and newborn, which can be nonverbal and non-articulated in a first stage, and gradually outlined, through a specific repertoire of songs from the children's folklore (lullabies, games, songs, etc.), in the next stages of life.

The valorization of singing from the earliest age in order to build a relationship with oneself and with others comes to complement the idea that “The internal working model is a cognitive framework comprising mental representations for understanding the world, self, and others. A person’s interaction with others is guided by memories and expectations from their internal model which influence and help evaluate their contact with others.” (Bretherton, & Munholland, 1999).

Children’s folk songs represent the quintessence of the human identity, they are deeply rooted in the mind and soul, and they are the first songs with which the man comes into contact when his mother sings. In music therapy, these songs represent a real spur healing.

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**DIDACTIC GAMES TO DEVELOP MATHEMATICAL CONCEPTS FOR CHILDREN
WITH SPECIAL NEEDS IN KINDERGARTEN**

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Abstract

Children with developmental disorders do not acquire the same way as do children with an age appropriate intellectual level, so it needs to be carefully chosen what kind of methods to use and in what way to teach the children. For preschool children the most efficient and simplest method of teaching mathematics is a playful approach to learning activities.

The purpose of this work was to create a set of materials to support the teaching and learning of mathematical concepts for preschool age children with special needs. There were created learning materials such as *Train*, *Shelves*, *Long and short*, *Butterflies and cars*, *Wide and narrow road* and board game *Owls*. All the learning materials, including board game, are laminated and most of them are provided with velcro strips to stick different parts. All the learning materials are tested on preschool age children and asked specialist and teachers, who work with children with special needs, to give their expert evaluation.

Learning materials support teaching mathematical concepts for preschool age children with special needs.

Keywords: special education, special needs in kindergarten, math in kindergarten

Discipline: pedagogy

Absztrakt

DIDAKTIKAI JÁTÉKOK A MATEMATIKAI FOGALMAK FEJLESZTÉSÉRE AZ ÓVODÁSKORÚ, SAJÁTOS NEVELÉSI IGÉNYŰ GYERMEKEK SZÁMÁRA

A fejlődési rendellenességekkel élő gyermekek nem ugyanazt az utat járják, mint az életkoruknak megfelelő intellektuális szintű gyermekek, ezért gondosan meg kell választani, hogy milyen módszerekkel és milyen módon tanítják őket. Az óvodáskorú gyermekek számára a matematika tanításának leghatékonyabb és legegyszerűbb módszere a játékos megközelítésű tanulási tevékenység.

E munka célja egy anyagkészlet létrehozása, amely elősegíti az óvodáskorú, sajátos nevelési igényű gyermekek számára a matematikai fogalmak tanítását és tanulását. Olyan tananyagokat készítettek, mint például a vonat, a polcok, a hosszú és a rövid, a pillangók és az autók, a széles és keskeny út - és a Baglyok társasjáték. Az összes tananyag (beleértve a társasjátékot is), laminált és a legtöbb tépőzáras szalaggal van ellátva a különböző részek ragasztásához. Az összes tananyagot óvodáskorú gyermekeken tesztelték és sajátos nevelési igényű gyermekekkel dolgozó szakembereket és tanárokat kértek fel a tananyag szakértői értékelésére.

A tananyagok támogatják a matematikai fogalmak tanítását az óvodáskorú, sajátos igényű gyermekek számára.

Kulcsszavak: speciális oktatás, speciális igények az óvodában, matematika az óvodában

Diszciplína: pedagógia

Supporting studying mathematics through the game

Mathematics play an important role both in a child's life as well as in every adult's. We use it to compare everyday subjects, to orientate in our home, on our body as well as on the streets when remembering the house numbers or phone numbers. It has been found that early knowledge of arithmetics helps to achieve goals in mathematics as well as any other area of life. (Claessens & Engel, 2013). A person understands the world through mathematics in a very early age and uses it to understand differences and similarities, to create connections and to justify.

Sousa (2001) has brought out that around 6% of preschool aged children have issues with mathe-

matics. As Math play an important role in the development of a child it is important to pay full attention on the difficulties of studying as a child in order to avoid issues that might occur in school when they take the subject more into depth.

Math is studied in the kindergarten integrated with every other exercise and everyday action. A child explores, compares, counts, sorts, explains, finds differences and similarities. Math can be learned through different senses: seeing, hearing, touch and when possible also through smell and tasting (Sikka, 2009). It is very important that teachers use multisensational approach (Clayton, 2003).

Mathematics play an important role in a child's everyday life in the kindergarten. A young child

my have a hard time understanding symbolic concepts and therefore there are specific aids that are used in teaching: the children can count or hold something in their hand that is a symbol. By having something in their hand that can be manipulated a child learns to create a bridge between the physical world, symbols and abstract concepts (James, 2016). The mathematics of a kindergarten is based on the so called getting the world in order so that the child can orientate in the surroundings and in the world of items and situations (Sikka, 2009a)

From a cognitive development point of view it is important that the child understands the shapes, sizes, patterns and positions of different figures (McCartney & Philips, 2006). The development of mathematical skills is based on the development of all senses and specially the visual-spatial sense. This helps the preschool aged children to divide and name items according to their features, to compare them, to assemble the similar items and to operate with them practically. The perception of the ratio of amount and shape creates a base for understanding the bases of mathematics and numbers (Martinson, 2010).

It is important to associate the mathematical concepts with everyday exercises, to focus on action and playing. The math in a kindergarten is highly related to acquiring the verbal concepts. It is superficial for children to understand the mathematical concepts early in their development. For example they understand when „here's more than there“. They understand if „you take from here there's going to be less“. Many of this kind of skills develop even before they can speak (Bowman, 2001).

For children with special developmental need it is important in the process of learning to create a purposeful thinking method. The actions created on the purposeful thinking help the children to see the connection between objects as well as they will orient better in the purpose of their actions and in achieving them. As a result their actions become

meaningful: they become to foresee the events and understand the relations between when and why (Strebeleva, 2010a).

The developmental needs of children with special needs depend on with the primary need as well the secondary which results from it. When planning an action for the children one must consider their individual specialities as they might need more directing from the teachers compared to their mates to ensure they learn the material.

The acquiring of general knowledge happens effectively though didactic games directed by an adult. To fully support the learning of a child and to offer necessary support the adult needs to detect the actual level of development meaning to find out what exactly the child can do without any help and what the child can achieve with the help of an adult. Solving an exercise independently shows the actual level of development while solving the same exercise in optimal circumstances with the guidance of an adult shows potential level of development.

The difference between these two conditions was called by Lev Vögotzki (1896-1934) the zone of proximal development (Krull, 2000).

It is extremely important to understand the zone of proximal development when it comes to teaching children with special needs. In order to create a learning plan for them it has to be taken into account that these children acquire knowledge slower however forget fast - this is why it is recommended to use different methods and techniques that help to activate the audible, visual and kinetic senses. The actual learning only occurs when it is slightly ahead of the actual development of the child.

The skill to sense the objects, to analyse, compare and generalise does not come automatically when doing something - it takes teaching and directing to study and analyse the qualities of objects. Didactic games where the goal is to generalise and rhythm the emotions are of great help in order to specify the images, sizes, the spatial relations and to sepa-

rate and acquire the sounds (Sakulina & Poddjakov, 1973).

In order to teach math to a child with special needs it has been found that a playful approach gives the best results as this is the favourable activity for them. It is a great way to lure the child into doing things that normally they might not enjoy. Motor skills for example can also be taught through playing. It is often found that the child gets so carried away by the activity that they do not even grasp that they are learning. This sort of activity however helps to remember things (Reinart, Klemmer & Vaas, 2009).

The formation of mathematical concepts for a child

The concept of size, amount, numbers, colors and spatial relations is used in various games *Size* is relative. The same object can be larger or smaller in compared to other objects. Size can be described by height, length and width and therefore in addition to the parameters 'large-small' there are also terms like 'long-short', 'high-low' and 'wide-narrow' in use. A 3 year old child should only be able to distinguish only by size 2-3 objects by showing which one is bigger or smaller (Kuusik, 2007). A 3-4 year old uses terms like bigger-smaller, longer-shorter, wider-narrower to describe the objects. A 4-5 year old child can put 3 objects in order by size, length, width or height and can use the terms 'higher-lower' while a 5-6 year old child can put up to 5 objects in order by size and can visually confirm which one is 'bigger-smaller or same size' and will check the results by comparing. It is important to develop the visual measuring skills of a child (Sikka, 2009b)

To combine objects into *a quantum* means to classify them according to their features. At first only one feature is used for classification, then two and then more than that. Counting is the corner stone

of teaching numbers and this is also an everyday activity of any adult. A 2-3 year old child can combine objects by one mutual feature by finding 'the similar' or 'the one'. They can count up to three and can answer the question 'how many'. A 3-4 year old child is able to define if the object belongs to the quantum. By creating pairs the child will find out if there is the same amount of objects in the quantum or not. The child knows the numbers and can count up to five. A 4-5 year old child will combine the objects or creatures by two features (for example boy or girl), will compare the pairs and only then decides if there is more one or the other. 5-6 year olds know the numbers and can count up to twelve. A 6-7 year old knows the numbers up to twelve, knows their order and will confirm the amount of objects by counting them (Sikka, 2009b).

The *perception of colour* cannot be verified by trial and error, only visual sense can be used. At first the learning of colours will happen by trying and comparing however at the same time the child might not be able to confirm the colour and can only find the similarity or difference. It is difficult to determine the similarities or differences for children with developmental issues. Once a child can determine the colours they will proceed to choosing by a sample and nominating them. The perception of colour is the foundation of sensing colours (Strebeleva, 2010b). A 3 year old child with normal development should be able to name and use 3-4 main colours (Kuusik, 2007),

When speaking of *sense of space* then usually it is about the objects and their parts located on top, below, on the right, on the left, in front and behind of each other. To orientate in space means to position the object or person from the location of oneself; to position oneself from other objects or people; to position objects from each other (Sikka, 2009b). The space can be divided into closer and farther space. For children with developmental issues the positioning on closer space is easier and

happens earlier than in farther space. Even for a preschool aged child with normal development it can be difficult to position oneself in space (Strebeleva, 2010b). Therefore it is most important to intervene in supporting the children with developmental issues.

Didactic games is a way of teaching that is lead by an adult and the goal is to acquire the knowledge of the curriculum through play - individually or in a group. Certain conditions are created in didactic games where a child can operate independently in a certain situation with specific objects by gaining a cognitive experience. It is specially important for children with developmental issues as their material actions are weak, not generalised and their attention is not focused on the action (Strebeleva 2010b).

Methodology of research

The goal of this research was to prepare a set of learning equipment to support the teaching of mathematical terms for preschool aged children with special needs.

Siret Maaring's Master's thesis was to study the development and to prepare learning games to acquire mathematics in the kindergarten - she was supervised by Tiiu Tammemäe, lecturer of special education (Maaring, 2017; Tammemäe & Maaring, 2019). The games and their applicability was tested on children with special developmental needs. The finished games were tested in kindergartens on children aged 3-7. The sample was a total of 11 children who suffered from attention and activity disorders and backwardness of intellect.

Four specialists were provided the games in to be used and studied and to provide expertise. The specialists were teachers and support specialists who worked with children.

All the games in this article are created in a way where the teacher can change the level of difficulty

depending in the specific near development zone of the child. The applicability of the games was also tested on children with special developmental needs. All the pieces of the games are laminated in order to ensure the durability in repeated use.

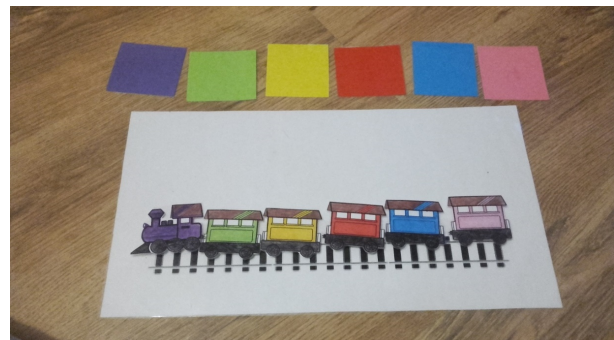
It is important to define the specific developmental age of a child with special needs - therefore the biological age or the 'suited for ages' is not relevant for these developmental games. The instructions and specific questions have been added to the games however the content of each mathmetacially developing exercise depends on the child's characteristics and the creativity of the teacher.

Games to support the learning of mathematical terms

Game 1: the train

A strip of velcro is fixed on the base board with rails - the player uses the velcro to attach wagons to it as guided by the teacher (Figure 1). The wagons are lined up after each other however the child needs to rearrange them as instructed. This develops attention, thinking and fine motor skills. The child needs to understand that in order to place a wagon they need to rearrange the ones already in place.

Figure 1. The Train (By the Authors)



The aim of the game

- The child knows the terms *in front / behind, before / after, in the center / in the middle*
- The child knows the ordinal numbers and the terms *the first / the last*
- The child knows the colours purple, green, yellow, pink, blue and red.

The tools: The board, 5 different coloured wagons, a train, 6 colour cards

The game play:

Option 1. The teacher introduces the player the tools and explains the game. The train is placed on the board together with the teacher. The player then starts to place the wagons after the train as instructed.

- Take the purple wagon and place it on the rails at the very front
- Take the yellow wagon and place it behind the train
- Take the green wagon and place it between the yellow one and the train
- Take the blue wagon and place it behind the yellow one
- Take the red wagon and place it behind the blue one
- Take the pink wagon and place it behind the blue one
- The already placed wagons can be rearranged as instructed. Afterwards the teacher can ask additional questions from the player.
- What colour is the first wagon?
- That colour is the wagon behind the blue one?
- What colour is the wagon between the blue and the yellow one?
- What colour is the last wagon?
- That colour is the third wagon?

Option 2.: The teacher places the colour cards on the table that the player will use to start placing the wagons on the board. The same questions can be asked as were used for the first option.

Game 2: Balls in line

The aim of the game (Figure 2):

- The child knows the patterns *dotted* and *striped*
- The child knows and uses the colours red, pink, green, purple and yellow
- The child knows and uses the ordinal numbers *first, second, third, fourth*
- The child knows and uses the terms *in the middle, the first, at the top, above, below, on top*
- The child can compare objects by their size

The tools: 8 different coloured and patterned balls, the board with Velcro

Figure 2. Balls in line (By the Authors)



The game play

The player starts placing the balls on the board as instructed.

Put:

- The yellow ball in the last box on the top
- The purple ball in the box below the yellow ball

- The green ball in the second box of the bottom line
- The small purple ball to the right from the green ball
- The yellow striped ball in the box above the green ball
- The red ball in the first box of the top line
- The red dotted ball in the third box of the top line
- The pink ball in the first box of the bottom line

Once the balls are in place the teacher can ask several additional questions (How many balls are in the top/bottom line? How many balls are there in total? What shape are the balls?)

What colour is the ball...

- The first one in the bottom line?
- Between the yellow and the striped one?
- The third one in the top line?
- Between the green and the big purple one?
- Below the striped one?
- Next to the dotted one?
- To the left from the blue one?
- How many balls in the top line?

Game 3: The shelf

The aim of the game (Figure 3):

- The child understands and uses the terms *right/left, top/bottom*
- The child understand and uses the ordinal number *first* and *second*
- The child can combine by mutual features/general terms (toys, fruit, vegetables, tools)
- The child can feel tactilely different materials: *rough, hairy*

The tools: the board with velcro (the picture with 2 shelves), different fruit, vegetables, toys, tools. Models of the right and left hands of different tactile materials.

Figure 3: *The Shelf* (By the Authors)



The teacher introduces the models of the hands to the player. The own hands are also studied and which one is right and left is determined. The different surface of the models is felt (rough, hairy)

The game play

The player will start placing the object in the shelves as instructed by the teacher so that similar objects are combined together (fruit, vegetables, toys, stationary). Once the objects are in the shelves they can be compared with additional questions: *which shelf has more/less objects, which objects are in the shelf, which groups have been combined, how many objects are in the shelf* etc.

Take...

- ...the ball. Place it on the bottom shelf on the right.
- ...the books. Place them on the top shelf on the left
- ...the cabbage. Place it on the top shelf on the right
- ...the duck. Place it on the bottom shelf on the right
- ...the tangerine. Place it on the bottom shelf on the left
- ...the tomato. Place it on the top shelf on the right
- ...the cherry. Place it on the bottom shelf on the left

- ...the pencils. Place them next to the books.
- ...the apple. Place it next to the cherry.
- ...the doll. Place it on the bottom shelf on the right
- ...the bear. Place it next to the doll.
- ...the carrot. Place it on the top shelf on the right
- ...the pear. Place it next to the apple.

Additional questions:

- What is on the right side of the top shelf? (general term)
- What is on the bottom shelf on the left?
- What is on the top shelf on the left?
- What is on the bottom shelf on the right?
- How many things are on the top shelf on the right?
- How many things are on the bottom shelf on the right?
- How many things are on the shelf on the left?
- Which shelf has the most objects?

Game 4 and 5: Butterflies and Cars

The aim of the game (Figure 4 and 5):

- The child understands the terms big/small and the superlative the biggest/smallest
- The child can compare the objects by their size
- The child understands and uses correctly the colours green, pink, red, blue, yellow, brown, purple
- The child can use mathematical equations to calculate up to 5 by using additional tools.

Tools: Board with velcro for cars and butterflies, 5 different sized butterflies and cars.

The game play

The child will start to place the butterflies/cars according to the size as instructed by the teacher.

Figure 4. Butterflies (By the Authors)



Figure 5. Cars (By the Authors)



Fore example: *take the biggest butterfly and place it as the first.* The child can also place the butterflies/cars on the board by size without providing instructions. Afterwards you can check together with the player if the pictures are in correct order. In addition the colours of the butterflies/cars can be mentioned, the objects can be counted, their place in line can be determined, their position in front/ behind/between other objects can be found.

The butterflies:

- Which colour butterfly is the biggest?
- Which one is bigger: the blue or the yellow butterfly?
- Which one is bigger: the pink or the red butterfly?

- Which one is smaller: the green or the blue butterfly?
- Which one is smaller: the red or the yellow butterfly?
- What colour is the butterfly next to the yellow one?
- What colour is the butterfly between the pink and the blue one?
- How many butterflies are there in total?
- How many butterflies will be left after 2 fly away?
- How many butterflies will there be if one more arrives?

Cars:

- What colour car is the biggest?
- What colour car is the smallest?
- Which one is bigger: the blue or the green car?
- Which one is bigger: the brown or the purple car?
- Which one is smaller: the green or the blue car?
- Which one is smaller: the red or the blue car?
- What colour is the car in front of the blue one?
- What colour car is between the purple and blue cars?
- How many cars are there in total?
- How many cars will there be left if one drives away?
- How many cars will there be if one more arrives?

Game 6: the wide and the narrow road

The aim of the game (Figure 6.)

- The child understands the terms *wide/narrow* and knows how to use them

- The child understands the positions on *top*, *above*, *next to* and knows how to use them
- The child compares quantities
- The child can count up to 10

Figure 6: *The wide and the narrow road* (By the Authors)



Tools: Boards, different objects to be placed (flowers, plane, house, tree, cars etc.)

The game play

The teacher introduces the game and the boards to the player that are then compared. The child will start placing objects on the board with the wide and narrow road as instructed.

- Take the house. The house is by the wide road.
- Take the flowers. The flowers grow by the narrow road.
- Take the sun. The sun shines in the sky above the narrow road.
- Take the clouds. The clouds lay in the sky above the wide road.
- Take the plane. The plane flies in the sky above the wide road.
- Take the rabbit. The rabbit is next to the narrow road.
- Take the red car. The red car drives on the narrow road.

- Take the blue car. The blue car drives on the wide road.
- Take the tree. The tree grows next to the wide road.

After the objects are placed they can be counted as per how many were placed on one board or the other. Where is *more* / *less* objects?

Additional questions

- Name the objects that you placed on the board with the narrow road.
- Name the objects that you placed on the board with the wide road
- How many objects did you place on the board with the narrow road?
- How many objects did you place on the board with the wide road?
- Which board has more objects?
- Which board has less objects?
- Name the objects that you placed next to the narrow road
- Name the objects that you placed next to the wide road

Game 7: Owls

The aim of the game (Figure 7)

- The child knows and understands the main colours
- The child knows and uses the ordinal numbers
- The child knows and implements the positional terms *in front, behind, in the middle, the first, the last, the top, the bottom*
- The child compares objects by size and length
- The child groups the objects by mutual features

Tools: The board (tree with owls), blue and red function cards, game pieces (4 owls), dice.

Figure 7. Owls (By the Authors)



The game play

The board game is meant for 2-4 players.

All pieces are placed on the 'start' area of the board. The first player is determined by draw. The player takes steps according to the roll of the dice. When the player ends up on the red or on the blue field, a function card is drawn, it is read out loud and the question needs to be answered. If the answer is right, the player gets to stay on the same place, if the answer is wrong the player needs to take one step back.

Figure 8. Owls extra cards (By the Authors)



The questions on the function cards are about counting, grouping, positioning, ordinal numbers, comparing, colours and sizes. For example:

- Who is taller? The boy or the girl?
- What colour is the third owl?
- What is on the picture, name it with one word (general term!)
- Show me which owl is the biggest
- Show me who is the shortest
- What colour is the first owl?
- What colour are the owls in the bottom line?

The player who rolls the exact amount of steps on the dice wins the game.

The summary

Mathematics is all around us and is necessary throughout our lives. Mathematical knowledge and skills are one of the bases to develop other skills and knowledge. Early knowledge of mathematics help children to develop both mathematical and other life skills as they grow up (Claessens & Engel, 2013). It is important to support children who struggle with mathematics as early as possible. Playing has an important role in the development of a child therefore it is recommended to approach teaching mathematics through playing as is suggested in the examples of this article.

It can be concluded by the expertise and experience in teaching that the games here support the curriculum and the mathematical learning purposes in the kindergarten. The experts also concluded that the games help to diversify the learning activities, the instructions are clear and the aims of the games are achievable.

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THE ISSUE OF FAILURE OF ROMA STUDENTS AT SCHOOL

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Abstract

The phenomenon can be encountered day by day that at primary schools there are just few Roma children among well-performing students, while among students who fail in fulfilling the requirements there are a great amount of Roma pupils. The question may come to the surface intuitively: What are the reasons behind that? The paper aims to discover and explain this problem relying on the relevant literature.

Keywords: roma students, school failure

Disciplines: pedagogy

Absztrakt

CIGÁNY TANULÓK ISKOLAI SIKERTELENSÉGÉNEK PROBLEMATIKÁJA.

A tanulmány abból a feltevésből indul ki, miszerint a cigány származású tanulók iskolai teljesítménye kudarcokkal teli. Ezt figyelembe véve a jelen írás arra vállalkozik, hogy olyan okokra reflektáljon a cigány tanulók iskolai kudarcaival kapcsolatban, amelyek a szűkebb-tágabb közvélemény számára is ismertek, sőt bizonyos esetekben, némileg negatív konnotációval, közhelyekké váltak. Célunk, hogy e tényezőket a tudományos diskurzus szemszögéből vizsgáljuk meg.

Kulcsszavak: roma tanulók, iskolai sikertelenség

Diszciplína: pedagógia

Introduction

The study is based on the assumption that the school performance of Roma students is full of failure. With this in mind, this paper attempts to reflect on the causes of Roma students' school failures that are known to the larger or smaller public, and in some cases have become cliché with somewhat negative connotations.

The difficulties and problems with the school and the education system of Roma students have been examined for decades by experts in various fields of science, using the tool of sociology as a case study, other times they approach the problem from the perspective of cultural anthropologists (Forray and Hegedűs, 1999).

We have divergent knowledge about the specific causes of this failure, including the scientific work of Zita Réger, Anna Csongor, Ilona Liskó, Gábor Kertesi or Péter Radó. Therefore, the question may be rightly raised as to whether the above-mentioned problem being repeatedly investigated is justified.

In my opinion, it makes sense to occasionally focus on issues related to Gypsies in scientific research, because each point of view presents the discourse from a different light. This is especially true when it comes to educating Roma students. The related explanations, are generally very partial, in a sense incomplete, and contextual. This has the consequence that only certain aspects of reality are examined.

Re-visiting the problem has relevance in many other respects. It is true that the problem of the education of students of Roma origin requires a different interpretation in the context of radically changed social circumstances (Kemény, 1996). For example, in recent years, the legal, content regulation and financing of public education has undergone major changes and amendments. Another important factor is that the minority legal system has been formed and minority self-governments have been established (Cserti Csapó, 2004).

The relevance mentioned above is also confirmed by the increasing number of educational policy initiatives that are truly a reality and can actually be evaluated in accordance with each educational experiment.

Theoretical frameworks

Before elaborating on the reasons for the failure of Roma students at school, I briefly summarize the prevailing views in the literature on this issue. In recent decades, studies on the teaching of Roma education have identified two decisive approaches to the causes of the failure of Roma students.

- According to one, the failure is mainly due to the poor school maturity of Roma students, or the inadequacy of family socialization. This explanation can be found in the studies of Peter Farkas and János Jakab (Farkas and Jakab, 1995) or in the reports of Gábor Kertesi and Gábor Kézdi (Kertesi and Kézdi, 1996).
- In contrast, Zita Réger, Péter Radó, Ilona Liskó and Katalin Oppelt attribute the same or greater role to the school than they are not prepared for the education of Roma students. (Oppelt, 1996)

In the conceptual system of Péter Farkas and János Jakab, Gypsies can be defined as a social marginal group. In their opinion: „The reasons that determine the school failure rate of the entire population accumulate in Roma families. (Poverty, unemployment, irregular lifestyle, rejection of school norms.)” (Farkas and Jakab, 1996, p. 57) According to Kertesi and Kézdi „the reasons for the failure of Roma students to reach schools are not the disadvantages of the settlement and the lower quality indicators of their schools, but for the shortcomings of their family socialization and school maturity before school”. (Kertesi and Kézdi 1996, p. 27)

The same theory can also be observed in international literature. James Samuel Coleman, for example, points out that the socio-economic status of parents in particular has a decisive impact on children's performance at school, but no significant impact on school performance can be detected (Coleman, 1966). In any event, Coleman's views must be criticized in the light of the Hungarian context, especially if we consider the socially highly selective nature of the Hungarian school system.

Gábor Kertesi and Gábor Kézdi came to the above conclusions during a mathematical analysis of school statistics published by the then Ministry of Education and Culture.

Their main aim was to develop a variable that describes the quality of the school by combining different statistical variables. They were of the opinion that the variable created would explain the failure of Roma students at school to a much lesser extent than other researchers had predicted. The 'school quality' variable contained the following content elements: ratio of classes with more than 30 pupils, ratio of classes combined, ratio of specialized teacher hours, ratio of emergency classrooms, and ratio of unqualified teachers. (Kertesi and Kézdi, 1996)

Kertesi and Kézdi's theory was not unanimously accepted by the scientific public. Eszter Harsányi and Péter Radó, for example, were of the opinion that the authors had made misleading statements. There are two specific reasons for their criticism. (Harsányi and Radó, 1997) One of the critical elements is primarily methodological and relates to the limitations of the sociological usability of school statistics. In this respect, it is firstly stated that the "quality of the school" variable is not valid in several respects.

They emphasize that the procedure used by Gábor Kertesi and Gábor Kézdi is a statistically good approach to determine the efficiency and quality of the school, but strictly only when it comes to educating non-Roma students, the pro-

gram will be supplemented with an evaluation of the pedagogical methods used and the measurement of the students' level of knowledge.

According to Harsányi and Radó, because of the complexity of the problem, many other aspects need to be taken into account by researchers in connection with the education Roma students. An important factor is the teachers' special skills (for example, in romology), the degree of segregation, the linguistic background of Roma pupils, and the degree of prejudice towards Roma pupils within the school is also a significant factor.

The factors listed above cannot be obtained from school statistics. According to Harsányi and Radó, however, it is these aspects that are most capable of explaining failures at school (Harsányi and Radó, 1997).

The other critical element is due to a difference in approach. This is mainly due to that Gábor Kertesi and Gábor Kézdi's studies can be interpreted as, students from other ethnic backgrounds must unconditionally adapt to the expectations and requirements of the school, while going through acculturation. In this regard, Eszter Harsányi and Péter Radó point out that the school's task is to ensure the successful educational progress of students of Roma origin without assimilation expectations.

Theoretical aspects of the causes of failure at school

The fact that the failure of Roma pupils at school cannot be traced back to one specific problem requires no particular scientific explanation. The various problems are causally related in a way of a cause and effect relationship (Liskó, 1996). However, Spanish-born romologist José Eugenio Abajo Alcalde points out that there are some theories that try to explain the failure of Roma children to school by a specific factor.

The starting point for these theories is that they represent a one-dimensional, deterministic point of

view. They believe that, for Roma children, school failure can be assumed because they have a socio-economic status that prevents their social mobility.

In the following, I present the univariate interpretation models collected by José Eugenio (José Eugenio, 2008). The basic concept of the first such model is blaming ethnicity and family. The essence of this is that it sets the Roma ethnicity, the main characteristic of which is that the children of the families fall behind in their school studies compared to non-Roma students. Roma parents make no effort to solve their school failure, but rather stop their children from attending school. So it can be seen that this concept defines the failure of students of Roma origin as a family problem, a problem that is specific to Gypsies, since theory assumes that all people of Roma descent, simply because they are Roma, are characterized by "something," which makes it harder to reach school than their acquaintances of other ethnicities.

The second model is psychologizing behaviour. This view no longer views family failures of Roma pupils as a family problem, but as an individual problem. The concept is primarily to blame and hold Roma children accountable for their underachievement in school. This is rooted in the fact that the school problems of children of this ethnic group are in fact a consequence of their inherent characteristics.

José Eugenio considers the following elements to be most important in relation to psychologizing behaviour:

- „They are deemed to have a low intellectual level, less motivation or less developed skills, or they may be very different, for example: They only have practical intelligence.” (José, 2008, p.33)
- „They are considered to be malicious, non-adaptive, aggressive, unbalanced or prone to criminal activities” (José, 2008, p.33)

The third model is sociological determinism. The essence of this theory is based on that the main role of the educational system, including the school, is to reproduce and legitimize the hierarchical social system (José, 2008). Thus, the sociological determinism model assumes that students' school performance is highly dependent on the social class and family in which the individual is born. By way of example, for a child from a higher social class, primary socialization already creates the direct or indirect conditions that significantly facilitate later prosperity. In contrast, children whose family circumstances are unsatisfactory and their environment is not able to function as an intellectual environment for them are almost doomed to school failure. This phenomenon is clearly detectable among the Roma ethnic group. In this connection, José Eugenio lists a number of factors that greatly influence students' school performance, depending on the social group they belong to. These elements are: housing, nutrition, financial conditions, hygiene and health conditions, books, newspapers, language used in their social environment, parents' education, private lessons and travel, or parents' expectations of their children's studies.

Sociological determinism is similar to the model of psychologizing behaviour in that both approaches are based on that children from certain ethnic minorities are doomed to failure because of their origin. However, sociological determinism also emphasizes that educational reforms cannot solve the situation because they do not begin to work out possible alternatives at the root of the problem.

The fourth model can be defined as intercultural conflict, which basically approaches the problem from an essentialist point of view. The main idea of this is to solve or even consolidate the failure of Roma students in segregation (José, 2008.) The concept is primarily due to the fact that there is such a gap between the Roma ethnicity and the culture of the majority society that it is almost impos-

sible to bridge in the foreseeable future. The different cultural milieu, of course, induces the Roma students to be educated and educated according to different principles, which the co-educated school cannot provide. However, the intercultural model of conflict also formulates other sanctimonies, which often provoke sharp discourse in scientific discourse. Such an approach, for example, is that the school was not designed for the Gypsies, as it is difficult to fit into their specific culture, and thus forcing it violently is a meaningless task.

Furthermore, the culture of the Roma ethnic is "oriental and spiritualist" and as such difficult to reconcile with the "rationalizing materialism in capitalist society and schools" (José, 2008). At the same time, the idea is emerging that if Gypsies build an even closer relationship with the majority society, they risk losing their existence as an independent nation. In effect, this means that integration, so much mentioned, in which many see the key to the advancement of Gypsies, is a counter-productive process, because integration efforts endanger the identity and culture of the Gypsies.

The nature of failure at school

In the previous chapter, following the Spanish researcher José Eugenio, I tried to look at the theoretical problem of Roma school failure at school from a theoretical point of view, with some philosophical boundaries. In the following, we present the most practical factors that appear most prominently in scientific discourses.

Early socialization

A lot of theories look at the failure of Roma children at school because of inadequate family socialization. There is a cultural and mental discrepancy between Roma ethnicity and majority society, the consequences of which are manifested in different educational principles (Radó, 1995). The problem with this begins with the school being unable to

cope with the disadvantages that result from it. In this connection, Katalin Oppelt takes the view that early family socialization raises two fundamental problems for the school. One is the difference in personality development and the other is the difficulty of having low learning motivation. Against this background, he sees the main factors of early family socialization as: (Oppelt, 1996)

a) The lives of Roma families are unstructured. This has the consequence that the time experience and the concept of time are not, or only to a very limited extent, formed in these families. In practical terms, this means that their daily activities are not time-limited, and this kind of flexible time management is difficult to reconcile with the traditional time constraints of the school. I would also like to emphasize this because my own research confirms that in many cases the absences of Roma students at school can be attributed to time constraints (Tóth, 2018).

b) The next essential element of early family socialization is that one of the fundamental principles of Roma parents' education is to strive unconditionally to fulfil the wishes of their children. According to Katalin Forray, this has the consequence that in children, the ability to delay and self-control is not, or only very slightly, developed (Forray and Hegedűs, 1999). But without these skills, successful school performance is very difficult.

c) The third important factor is that one of the characteristics of children of Roma origin is that they already function as a "reduced adult" at the age of 13-14. Adolescence is eliminated in their lives.

Although this paper does not attempt to address psychological issues, I consider it necessary to mention that the low learning motivation of Roma children is not independent of the three factors listed above. And the situation is further complicated by considering the message of the family that the knowledge that can be acquired at school does not play a major role in survival strategies.

The language disadvantage

The first real test of the above-mentioned problems, especially those stemming from family socialization, is to decide in kindergarten whether or not children can begin primary school. One of the main criteria of school maturity is that the child's socialization on their mother tongue is at a level that ensures trouble-free and active participation in school work. They shall interpret the teacher's explanation and instructions seamlessly, ask questions, and collaborate with others (Radó, 1992).

The disadvantages of students of Roma origin can already be detected here without actually entering the education system. The disadvantage of language at school is mainly due to differences in the use of language at home and at school. In addition, the social and economic status of the family is closely linked to the development of the child's linguistic competence.

In lower-status families, abstract, more abstract thinking and its revelation and communication appear to some extent. Klein puts it in this relation as follows: „The less people talk or think in words about what they are experiencing, the less likely they are to be influenced by something that is not currently being given to their experience, the less likely it is that their actions are influenced by vague, general or abstract factors.” (Huszár, 2015, p. 282.).

The problem is exacerbated by the fact that education policy is not really aware of the problem, even though it would be a key factor to get Roma students into an educational language (Réger, 1995). From this point of view, it is a great responsibility for the kindergarten, but as few Roma children are regularly brought to kindergarten. In my opinion it is important to address the problem in the first two years of primary school in a purposeful manner, based on pre-defined pedagogical principles, even within the framework of an extra class / activity.

One of the milestones in the 1960s was the work of Basil Bernstein on school language disad-

vantages (Huszár, 2015). The curiosity of Bernstein's approach to the problem lies in the fact that it is not basically assumed that children starting school have certain language skills, which will affect their school performance. Rather, it focused on saying that families in the lower tier of the social ladder use language versions that greatly hinder the success of their children at school. The British sociologist called the aforementioned language version "restricted code". The terminology opposite is the "elaborated code", which means the language version used in the school.

Bernstein links the latter use of language to subculture: „A limited code is formed where the form of social relation is based on identification with one another, common expectations, a series of identical assumptions, where culture or subculture elevates what I have.” (Huszár, 2015, p. 283) And he links the "elaborate code" to high culture: „Wherever a culture or subculture emphasizes the self, in contrast to where the intent of the other person is not taken for granted, there is an elaborate code.” (Huszár, 2015, p. 283)

In conclusion, there has been no effective experimentation at the level of education policy to solve the problems caused by language problems at school. The only possible alternative was seen in segregation, that is, the Roma classes being launched. However, research by Zita Réger has repeatedly shown that the solution to language disadvantages is integrated education, not segregated education (Réger, 1995).

Segregation in school

Eszter Harsányi and Péter Radó distinguish between two main causes of school segregation. One can be explained by the fact that there is a kind of prejudice towards the Roma in the majority society. As a result, when a student of several Gypsies flows into a particular school, the parents of non-

Roma students take their children to another school (Harsányi and Radó, 1997).

The second factor is related to the migration of highly qualified people of non-Roma origin to regions with better living conditions, thus creating territorial islands within the country where Roma are over-represented. It is natural for schools in these areas to have a large number of students of Roma origin. In fact, segregated education becomes an automated process.

Gábor Kertesi and Gábor Kézdi, however, do not deal primarily with the causes of segregation but with their consequences. Their examination has a double perspective. On the one hand, attention is drawn to the impact of segregation on intergroup relations and, on the other hand, to what extent it plays a role in school performance (Kertesi and Kézdi, 2009).

In relation to segregation and intergroup relations, they emphasize that less contact is possible between students from different social groups. In the integrated context, individual students come from families with different social status. This has the positive effect that students of lower social status, including those of Roma origin, have the opportunity to make school friendships with their peers from a higher social class. In the future, this may be reduced to social capital.

Segregated education does not allow this network to be built. This can have several serious consequences. Kertesi and Kézdi list these factors on the basis of international literature (Kertesi and Kézdi, 2009). They primarily reflect on Allport's determination. The point is that people who do not meet people from other cultures in childhood will have a problem with living with other ethnicities in adulthood. They will be distrustful and prejudiced, and their thinking will be based on stereotypes.

According to Loury, the segregation of certain social groups implies that the political nation becomes fragmented. People do not experience, as a common experience, being citizens of a common

nation. Of course, it must also be emphasized that eliminating school segregation does not necessarily mean that all problems in intergroup relations can be overcome.

Gábor Kertesi and Gábor Kézdi also approach segregation from the aspect of school performance. According to them: „School segregation typically and systematically involves low-quality education. This is an even more serious social problem, as a multitude of research studies prove that high-quality education can best promote the performance of the most disadvantaged students” (Kertesi and Kézdi, 2009, p. 962).

At the same time, it is important to emphasize that segregated education of children with low social status also means that elements of the education system that require selection based on ability are also present. This is also a problem because, when a school system is characterized by strong selectivity, segregation in connection with ability becomes a key factor.

Summary

My study also shows that Roma pupils cannot really be taught through traditional pedagogical methods, as the causes of their under-achievement in school are extremely diverse and complex. In this field, education policy would have a lot to do, especially given that there are hardly any institutions within public education where intensive pedagogical-methodological experiments are focused on the education of Roma students. The problem is made more difficult by how sensitive the topic is that teachers are not culturally neutral. This means that the socio-cultural background of the teacher is very much influenced by the expectations of the teachers towards the students.

In many cases, the problem begins with the failure of communication between the teacher and the learner, since the "elaborate code" used by the educators is difficult to reconcile with the "limited

code" of students with lower social status. In these cases, communication between teachers and parents is usually a problem. Recognizing this would also be important because one of the prerequisites for the success of pupils at school is effective co-operation between the family and the school.

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**IMPLEMENTATION OF EDUCATIONAL SUPPORT FOR A PUPIL
WITH DEVELOPMENTAL DISORDER IN INDIVIDUAL EDUCATION PLAN**

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Abstract

The paper aims to propose a process of development of individual educational support based on the analysis of selected items taken from the individual education plans designed for students individually integrated within mainstream primary schools. We analysed personal files of 18 students diagnosed with developmental learning disorders and ADHD (Attention Deficit Hyperactivity Disorder). The results indicate general formulation of interventions in education settings.

Keywords: primary school, learning disorders, ADHD, individual education plan, educational support

Discipline: pedagogy

Absztrakt

FEJLŐDÉSI ZAVARRAL KÜZDŐ GYERMEKEK OKTATÁSI TÁMOGATÁSÁNAK MEGVALÓSÍTÁSA AZ EGYÉNI FEJLESZTÉSI TERVBEN

A tanulmány célja, hogy javaslatot tegyen a pedagógiai megsegítés előkészítésének folyamatára az általános iskolákba integrált tanulók számára kidolgozott egyéni fejlesztési tervekből kiválasztott elemek elemzése alapján. A tanulók (személyes = individuális) dokumentációjának elemzését 18 olyan tanulónál végezték el, akiknél diagnosztizáltak fejlődési tanulási rendellenességeket és ADHD-t (figyelemhiányos hiperaktivitási rendellenességeket). Az eredmények rámutatnak az általánosan megfogalmazott pedagógiai intervenciók alkalmazására az oktatási körülményekben.

Kulcsszavak: általános iskola, tanulási zavar, ADHD, egyéni fejlesztési terv, oktatási támogatás

Diszciplína: pedagógia

Individual education plan

Individual education plan (IEP) is a written document providing tools to support a student with special education needs in his or her education process. It forms an integral part of “A proposal for the education of a student with special education needs in kindergartens, primary schools, secondary schools and schools for children with special needs” (hereafter referred to as Proposal) (Article 11 (9) of the Act No. 245/2008 on Education and Upbringing and on amendments and supplements to some acts). Other documentation included in the Proposal contain: basic information about a student and his or her parents, student’s personal and social anamnesis, professional care provided before the commencement of student’s school attendance, justification for student’s individual inclusion within the school, reports from a special educator, psychologist and a doctor, written statement about the individual inclusion, a report on discussion about the inclusion proposal, a report on re-evaluation of the Proposal concerning a change of an education form, complex assessment of a student from previous school years, results of an initial observation and some appendices. The IEP is not internally structured.

The IEP’s “purity” allows the competent authority to define individual student’s support. On the other hand, it may tempt to design the IEP just for the sake of it, to keep to the letter of the law. We assume that a good planning and written elaboration of the IEP is a result of all actors in various positions working with an integrated student. Professional competencies of teaching and professional staff together with the parents’ role and the student’s needs are crucial in determining a content of the individual education plan (Žolnová In Hrebeňárová et al. 2015).

There are three phases of development and evaluation of the IEP:

- preliminary phase – identification of special educational needs, goal setting;

- the phase of IEP implementation – working towards the goals in an educational setting;
- final phase – annual evaluation.

In the preliminary phase, the support team meets for the first time and identifies the needs of a student with special educational needs. Important is to know a student’s history, his or her professional educational and medical diagnostics from information provided by parents and professionals from counselling centres. No less important is a study of personal and pedagogical documents and re-evaluation of the IEP from the previous school year. The first meeting should be, in our opinion, attended by a class teacher, another teacher, special education teacher, and a student’s parent. In the process of the IEP development, we set and define educational goals that a student should achieve using special and compensation aids, and methods of special education teaching. At the first meeting, the support team focuses on personnel and time management and on provision of certain conditions (spatial too) needed for successful education.

When developing supportive learning environment, it is important to address these questions: will the created support benefit the student, will his or her social interaction with peers improve, what budget is needed to create a support service (cf. Dubayová, Hrebeňárová 2011; Hrebeňárová 2015).

The implementation phase is a dynamic process in which tasks are performed in order to achieve set goals. The IEP is also a tool to record any new discovered facts, changes, and evaluations. Members of the support team must answer the following questions: Do I use the support resources effectively? Do I make progress in fulfilling the set goals? Do parents see the progress too? Does the progress have individual value for a particular student? Does his or her individual progress affect their peers? What short-term objective need to be addressed? What other assessment tools can we use?

All members of the support team should regularly discuss answers to these questions. The final phase is an annual evaluation of the IEP at the end of each school year. The support team summarizes the achieved results and analyses any risk factors. The outcomes are reported as developmental changes, stagnation, or regression of student's competencies. The IEP then serves as a foundation showing the history of development of student's competencies and any interventions or support given to him or her for the following school year (Doležal, Krátky, Cingl 2013; Žolnová 2014, 2015).

Description of selected items of the individual education plan

The IEP is a summary of goals and procedures compiled by professionals in cooperation with student's parents in order to help the student to achieve his or her educational goals. The goal setting is dependent on the educational process. The goals must be measurable and show the progress of an integrated student. "These are specific goals that define a level of educational competence and behaviour that a student must achieve" within a certain time frame. When defining them, we follow from taxonomies of educational, affective, and psychomotor objectives (Zelina 1996). Reaching a consensus on student-specific outcomes is a result of professional discussion among all members of his or her support team. Short-term and long-term goals are set.

The set goals need to be:

- consistent – short-term goals must be subordinate to long-term goals;
- adequate – align the goals with the student's abilities;
- expressed in the student's performance – describe the final state;
- clear – there is only one interpretation of the goal;

- measurable – accomplished results are compared with the set goals.

Operationalizing the goals means using active verbs. Active verbs can be either operationalized from the taxonomic concepts or they correspond with the final state. They are:

- verbal (respond, articulate, modify, convince, discuss, debate, explain, retell, repeat);
- contrast/compare (summarise, distinguish, determine, recognise, find relationship, exemplify, formulate, choose, resolve);
- musical (listen, interpret, play, amplify);
- intrapersonal approach (defend, modify, analyse, appraise, assess, contribute) (Turek 2008; Bahuand, Epp, Hall et al. 2010).

A long-term goal can be transformed into a different number of short-term goals. It is up to the support team to assess and justify the reasons for their choice.

Support of a student with developmental disorders

Inclusion is an educational system that respects the personality of the student. It allows students to attend regular school facilities. In inclusive schools, there is an individual approach for every child, and teachers pay attention to the involvement of parents as well in teaching and various projects, in order to teach children to communicate with other people. In such facilities, the difference between children is seen as an opportunity to develop respect for themselves and others. There are no two different groups of students, but children and adolescents with different needs only; many of these needs relate to the majority and create common educational and training needs. All students also have individual needs, including those whose if should be satisfied, it requires the use of special means and methods (Orieščíková, 2016).

School must meet certain requirements to provide favourable conditions for successful learning. The least restrictive environment is a key of successful inclusive education. Schools create for every student an environment, which provides him or her with possibilities to develop and is the least restrictive for that student (Mastropieri and Scruggs, 2007, In Hrebeňárová 2015). School management should provide professional staff and create a support team for the student integrated in a mainstream school setting. According to Act No. 317/2009 Coll. on Teaching and Professional Staff and on amendments and supplements to some acts, professional staff includes a school psychologist, a school speech therapist, a school special education teacher, therapeutic and social pedagogue. The support team comprises also other teaching staff who are actively involved in developing the IEP and participate in the education of an individually integrated pupil.

The school provides material resources for supportive education. The most common items include: paper, printer toner, special relief paper, markers, highlighters, and binders. Important is to provide a technical support for working with texts, such as screen readers, reading pens, computer assistive technology, communication wireless phone system, computer magnification program, voice synthesis scanner, voice controlled computer, computer dictation program, etc. Using special or alternative course books, workbooks, and exercise books and writing devices is also necessary. The teacher is a key actor in the education of a pupil with a developmental disorder. He or she must be able to plan and align educational goals with specific needs of an individual pupil. Teamwork in the development and evaluation of the IEPs is crucial. Teachers then develop their communication and diagnostic competencies and learn about special pedagogical interventions and professional psychological approach to a pupil. They learn about a va-

riety of professional approaches than can be used to the same educational reality.

Pasch, Garnier et al. (1998) propose to apply certain strategies to the teaching of all pupils, including those who are integrated. This way a teacher does not draw unnecessary attention to an individually integrated pupil. Instead, when assessing integrated pupils, teachers use criterion-referenced forms of evaluation; they do not compare these pupils with other children and certainly they should not jump to any hasty or unfounded conclusions about them. A teacher must recognise the strengths of every pupil and then use these strengths in group or individual activities corresponding with their educational needs.

Methodology

The analysis of selected content and formal aspect of the IEP's development aimed to answer the main research question: What particularities of selected aspects of supportive school environment are mentioned in the preliminary phase of the IEP's development? In the context of content analysis, we were mostly interested in identification of educational goals and proposed support educational services.

The main sample of pupils individually integrated in the mainstream primary school setting into the school years of 2016/2017 and 2017/2018 comprised 28 047 pupils with disabilities (Annual Report of the Statistical Office, 2019). We selected 18 pupils individually integrated in the mainstream education in the regions of Prešov, Košice, Žilina, and Bratislava (following consultations and recommendations of counselling centres).

All of the selected pupils attended the first level of primary education. The sample was comprised in cooperation with competent staff of individual primary schools who granted the permission to analyse the IEPs of these pupils. One of the pupils was a 1st grader, fourteen of them were 2nd graders while the remaining three pupils were 3rd graders.

The written records of professional examinations (provided by neurologists, special education teachers, psychologists) show comorbidity of primary developmental disorders such as ADHD (attention deficit hyperactivity disorder), ADD (attention deficit disorder), hyperkinetic disorder, learning disabilities (dyslexia, dyscalculia, dysgraphia, dyspraxia and dysorthography) or developmental language disorder (developmental dysphasia) in 17 respondents.

In one case, it was a comorbidity of ADHD and cerebral palsy. One respondent had communication difficulties – it was a speech difficulty, which was not specified and manifested itself as avoiding social communication with other classmates. Problem behaviour was analysed from the reports that described such behaviour based on observations in the classrooms. The problematic behaviour was classified as follows:

- interpersonal violent behaviour – aggression;
- behaviour towards primary school authorities – lack of interest in learning, refusing to write, no homework, truancy, breaking rules, rebellion (cf. Širůčková 2015).

These are unspecified manifestations of problem behaviour, which can be secondary symptoms of the primary disorder

Results of IEPs analysis

Table 1 shows the results of individually analysed items. The individual items are then described in more detail.

Analysis of the item: Educational goal setting and Educational goals for individual subjects

In ten out of eighteen IEPs there were no set goals at all. In eight IEPs the goals were defined very formally such as: “The educational goal is for a pupil with special educational needs to complete the grade.” In each of them, the particular grade of

a pupil’s schooling was mentioned. When individual subjects are concerned, the goals were set to address only teacher’s performance: “to give a pupil tasks he or she can manage to complete”, “to respect a pupil’s pace”, “to set short-term didactic objectives that a pupil is able to fulfil in a real time”, to provide positive models of behaviour”, “be patient and calm when working with a SEN pupil”.

Table 1: Results of analysed items of 18 IEPs. Source: own elaboration

Education goals which were to be achieved by a pupil	1	Goals were set to suit the individual pupil	0
	2	Formal statement of general goals	8
	3	Missing goals	10
Particular educational goals for individual subjects	1	Set to suit the individual pupil	0
	2	General	8
	3	Missing or unsuitable	10
Educational support	1	Concrete support, methods, principles were set	10
	2	General information	8
	3	Missing information	0
Assessment and grading	1	The manner of assessment and grading were specified	2
	2	General information	16
	3	Missing information	0
Material and technological support	1	Suitable given pupil’s special educational needs	16
	2	General	2
	3	Not given	0

Examples of how to set and implement concrete goals for a pupil with a developmental disorder (ADHD)

Current state: a pupil does not get his school supplies (course book, workbook, exercise book) ready for a class; when prompted by a teacher he takes out wrong items

Result: at the start of each class, the pupil takes out different items from his or her school bag, comments his or her activity inappropriately (uses profanities), and is loud (20 September 2018).

What we need to know before goal setting: What do we want to achieve? How will we measure goal attainment? Does the pupil know colours?

Goal (short-term): In a month (by 30 October 2018) the pupil is able to choose the right supplies for each subject according to colours and put them in his or her bag at the end of each class.

Strategy: To place the items needed for each subjects in individual folders of different colours. In cooperation with parents the pupils organize a colour scheme for his or her folders for individual subjects: Slovak language, Maths, Biology, etc. The class teacher (and a teaching assistant) will be informed about this strategy (in a contact diary). The activity in the classroom will be performed with a verbal support by the teacher/teaching assistant.

Goal (long-term): By the half term, the pupils will verbally describe how he or she takes out and puts away individual items for each class.

Analysis of the item: Educational support, Assessment and grading, Material and technological support

In all analysed IEPs, we found a grade and a curriculum according to which were the integrated pupils taught. In five IEPs, we found an exemption from the subject of Slovak language and literature. Thirteen IEPs informed about some changes in the curriculum: “The pupil follows an individual curriculum in accordance with the State Education Program and the School Education Program for the second (third) grade, which will be reviewed half-yearly and subsequently modified by individual teachers. The education program for pupils with ADHD for primary and lower secondary education. Approved by the Ministry of Education, Science, research and Sport of the Slovak Republic on

3 August 2017 under No.2017/10211-2:10G0, effective as of 1 September 2017”. According to one of the IEPs, the pupil did not need any reduction of curricular content given his diagnosis: “The pupil is able to advance together with non-integrated pupils at the same pace”. The organization of the education process was modified as: “education in a form of individual integration in a regular classroom”, “the pupil will be educated together with his class, except for two classes weekly (Tuesday and Thursday) when the pupils will be taught by special education teacher individually (outside of the classroom)”. The two classes were not specified in the IEP. 12 IEPs informed that the pupil would be educated in a form of school integration. The IEPs contained certain requirements that address specific needs of individual pupils: “allow a pupil to rest when tired and deconcentrated”, “assign a place which will not disrupt the pupil and distract attention”, “slow the pace when the child is tired”, “in case of increased excitement during the class (affective display of hot temper) let the pupil calm down and keep him/her occupied by a motivational activity, or an activity that is different from that of other classmates”. One of the IEPs stated: “To respect all recommendations of the Centre for Special Education Counselling”. Another IEP contained specific recommendations: “In all subjects – to take into account pupil’s special educational needs, individual approach (the extent of individual intervention is left to a particular teacher), repeat the instructions more often, make sure the pupil understood and made notes of important things, improve concentration by dividing the assignment into shorter time intervals, make sure that the pupil correctly understood the presented information, instructions and assignments, change activities more often, opt for short breaks, respect the pace, less tasks in written tests (even by half), short (5 min) tests are absolutely unsuitable, should be given the opportunity to redo the badly written test, examine at the beginning of a class is not recommended”.

The class teacher's support is based on certain principles, he or she were to follow during the classes: „thoughtful attitude with positive motivation”, alternating activities to attract attention”, “alternating tasks demanding increased attention with relaxing moments”, “assigning tasks that the pupils are able to complete”, “maintain intense eye contact”, “apply the ‘stop rule’”.

Three IEPs included a social support of a teaching assistant. Assessment and grading is a part of pupil's support and was mentioned in all 18 IEPs. Sixteen of them were rather formal in their proposed form of assessment and referred to current legislation. “Assessment and grading in accordance with the Article 55 (4) of the Act No. 245/2008 Coll., and the Methodological Guideline No. 22/2011 on Grading pupils in primary education, effective as of 1 May 2011, No. 2011-3121/12824:4-921, annex No.2 of the State Education Program for the second level of primary education in the Slovak Republic ISCED 2 – lower secondary education, education program for pupils with developmental learning disorders CD-2008-18550/39582-1:914 and the education program for pupils with ADHD CD2008-18550/39582-1:914“. Only in two IEPs was this information elaborated further and addressed concrete methods of assessment fostering pupil's success such as praise, positive appraisal of every even the smallest progress, positive comments about pupil's effort and diligence.

When material and technical support is concerned three IEPs contained using electronic aids: “considering the need, the pupil may use tablet”, “the pupil should use a computer in all subjects”, “the pupil should use a special educational program for Slovak and English language learning.” However, these programs were not named. The most represented was the support in a form of special education aids: a reading window, a reading chart for dyslexics, picture alphabet, hard and soft cubes, a buzzer to distinguish between a short and long

vowels, modification of curriculum with no further specification, a table of grammar rules, multiplication tables, a table of selected verbs, work sheets accommodating the individual needs of a pupil.

Examples of educational support implementation

Educational support for individually integrated pupils is aimed at the development of their individual needs, so that they can attain desired competencies. Managing the support can be directed towards adjusting the environment, knowledge attainment and assessment, learning styles, social functioning within a classroom, usage of support technologies and services. What follows are the examples of a teacher's support in the inclusive setting, adapted according to Dower (2005).

It is aimed at effective description of support in a teaching process, the learning style of the particular pupil, adaptation of educational setting, forms of instruction, working habits, exam preparation, participation of classmates in the learning process.

A general description of the support received by the pupil: adaptation of curriculum, special education, plan of behaviour/intervention, other than official state language, all subjects/individual subject, medical rehabilitation, etc.

Learning styles: visual, auditory, verbal, other.

Forms of instruction that have proven successful: working in a small group, cooperative learning, practice in real-life situations, individual work, working on computers, discussions, assistive technologies, working in a large group, lecture/practical lessons, field work, one on one tutoring, age heterogeneous group, practical training, other.

Tried and tested modifications of learning conditions: extended time, reading aloud, working with material in parallel, making notes, highlighting the text, shorter recordings, adapting tests, reminding homework, modification of material, jigsaws, games, oral exams, learning in advance, reduce

goals in the class, teaching assistants, use of computers, visual aids, parallel instructions, grading, verbal assessment, notebook notes, use of a calculator.

Classroom seating: further from a door, further from a friend, close to a friend, further from a window, close to a teacher.

Effective work habits: works best in a structured class, needs movement, easily distracted by sounds, needs encouragement, needs step-by-step instructions, needs help organizing, usually completes tasks, but needs more time.

Best learning setting: works alone with one classmate, works in a group, works with an adult, works in various settings.

Learning styles: learns from a blackboard, learns from a printed material, obtains information from a presentation, obtains information from videos and films, learns by demonstration, learn by verbal retelling, reads with comprehension, learns by discussions in the classroom, learns from graphs, pictures, learns from audio recordings, learns from practice, learns by experimenting, learns by arranging information into models, memorizes, a parent engages in learning, learns by writing, other ways of learning.

Information obtains from course books, explanations, demonstrations, worksheets, video recordings, practical experience, observations, lectures, discussions, experiments, audio recordings, and questioning and other sources of information.

Preparation before tests, exams: from notes, a course book, a workbook, worksheets, a handbook, and oral examinations.

Conclusion

The presented results of IEP's items analysis point to more or less formal approach of a support team in the preliminary phase of IEP development. Setting concrete short-term or long-term goals that the pupil should achieve is lacking significantly.

The results indicate the support by which the teachers want to eliminate learning difficulties arising from the developmental learning disorders and ADHD. They focused their attention on factors of supportive school environment, such as social, material, and technical support. A strategy of IEP development is a concept of individual support for a particular pupil, which was rather formal in all eighteen IEPs. Based on the assessed knowledge we propose the educational domains that should be considered when designing IEP to support a pupil with developmental disorder in inclusive classrooms

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