THE PERSPECTIVE OF FREE TIME MOVEMENT IN PERSONS WITH MOTOR DISABILITY

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Abstract: *This research aimed at investigating the ways of spending leisure time in terms of gender and age, for people with motor disabilities (N - 93 subjects). It has been noticed that both men and women prefer to practice hobby activities at leisure, read, listen to music or collect stamps or watch television. Activities that do not appeal to both men and women are the same: to practice a hobby, such as walking, going for excursions, practicing a sport. For women there is added activity that does not please them: going out with friends with the city. For those with motor disabilities, younger ages (under 40) are associated with active leisure activities (going out in town with friends, going to recovery activities and practicing a hobby: walking, excursions, practicing a sport etc.), while older (over 40 years) are associated with passive activities (sleeping, watching TV, I have a hobby like: reading, listening to music, collecting stamps, etc.).*

Keywords: *motor deficiencies; free time; perspectives of: gender; graduate studies.*

Introduction

Free time can be seen as "rest, recreation" (*Collins Australian Pocket English Dictionary*) or "time at your own command" (*Webster's Third New International Dictionary).* The literature cites several ways in which leisure time is defined: as activity, as play, as recreation (Godbey, 1994), as a state of mind, quality of life (Harper, 1997; Isao-Ahola, Mannell, 2004; Roberts, 2006). Free time is described in several functions: rest, fun, personality development (Dumazedier, 1974), educative - to learn about an active, healthy lifestyle, learn about values moral (Veal, 1992; Siegenthaler, Gonzalez, 1997; Henderson, Bialeschki, 2007; Shaw, Dawson, 2010). Americans spend less than 50% of their lives in self-care activities, while more than half of their lives are engaged in productive and recreational activities, 19% and 35%, respectively (Reed, Sanderson, 1992). This equilibrium of occupations is an

important concept in assessing the quality of time consumption, quality of life and health (Hammell, 1995).

The free time feeling, from an ontogenetic perspective, has different valuations. During childhood, playing, the main activity during childhood, can be regarded as a social activity. Analysis of the impact of disability on the use of objects and gaming activities is essential in childhood. What the environment provides to the child influences the way they behave in relation to the environment. The analysis discusses how different deficiencies have an impact on the development of the child's self-esteem and social identity through the interaction with their colleagues. Often, it will be necessary to create activities to support the development of the child, active social participation, in which the deficient child can explore itself as an agent that contributes uniquely to social life. The emphasis will be on supporting the child in exploring the physical and social properties of the world (Bøttcher, Dammeyer, 2016). The motor experience gained through prehension and locomotion plays a very important role in the cognitive development of children. Children with motor disabilities cannot independently explore the environment and cannot manipulate objects, so their motor deficiencies limit their possibilities to develop adequate cognitive and social skills. Assistive technologies can provide means for children with disabilities to interact independently with the physical and social environment (Alvarez, 2013). For the kid, toys are not just to play. Toys are types of gameplay that help children develop social consciousness, imagination, motor, visual, and thought processes. Since many toys are important learning tools, children should have easy access to the right toys to explore and choose those who care about it. Parents need a place where they can consult with someone about what toys are suitable for their child's development. Toy shops and toy libraries offer this service (Stone, 1983). Children need activities in which to take various risks appropriate to their age in different environments, so also in the open air. Exploring the surrounding world begins from childhood and is an important part of a childhood that includes experiences rich in nature. In this context, adults often enable children's risk-playing opportunities, or, as well, restricting such experiences. Even if there are dangers inherent in exploring nature, it is natural for children to be attracted to these experiences, regardless of the parents' safety concerns modern (McFarland, Gull Laird, 2018; Carver, Timperio, Crawford, 2008; Lancioni et al., 2020).

Adolescents with low functioning motor skills have reduced the perception of their physical self and tend to avoid physical activity. Social media tools are vital to the lives of teenagers today. According to the Kaiser Family Foundation study, in 2010, American children aged 8-18 use these tools (Rideout, Foehr, Roberts, 2010) on average 7.5 hours a day, 7 days per day week. It is important that this media fascination for adolescents should be

understood and used to determine the best way to use these tools to engage students in education by parents and educators (Zhao, Qiu, 2011). In the last decades, technology has been seen as an essential tool for ensuring equal access and opportunities for students and adults with disabilities (Lee, HE, & Cho, J., 2018). As technology evolved, a new type of mobile device technology emerged in the late 2000s. iPads quickly gained attention and popularity in educational contexts. The potential benefits of using iPads as Assistive Technology (AT) to support people with disabilities has been demonstrated among professionals (Chuang, 2017; Contreras, Bauza, Santos, 2019).

When we talk about adults, we notice that postural and motor dysfunctions resulting from neurological disorders often cause secondary problems. In order to prevent these problems and to maximize functional capacity, people with these disorders need regular and consistent management, preferably embedded in daily routine activities (a management program that also includes the home environment) (Pope, 1997). Research has various ways of adapting to improve the quality of life, more specifically writing to people with motor disabilities. Here are some of these: the optical sensor, which together with a keyboard simulator allows motorized disabled users to click on the computer keys (Lancioni, 2007) and the mouse — (UFRGS) that is functional, useful and accessible to motorized persons (Wook, 2018).

The history of sport for people with disabilities cannot be fully understood without discussing the history of the rights of people with disabilities. A number of historical changes have taken place since the end of the 18th century, which has led to significant progress in recognizing and accepting the rights of people with disabilities. There was a coherent way that the movement evolved from recreation and childhood competition, to teamwork, and to elite completion to form the Special Paralympic Games (Scholz, 2017). Children and adolescents with physical disabilities have lower health levels than non-disabled children. The reduction in physical activity is associated with a high risk of developing cardiovascular disease and lower levels of cognitive and psychosocial functioning. In addition, these children participate less in recreational and competitive sports. In addition to problems related to the chronic condition itself, various personal and environmental factors play an important role in determining the extent to which they participate in sports or physical activities. Because of these barriers, sports participation in the immediate after-school hours seems to be a feasible solution for these children and adolescents to become more physically active. An after school sports program can improve the physicality levels (Zwinkels, 2015). An individually tailored exercise program in a supportive environment can lead to a lasting improvement in fitness performance for low-skilled teenagers (Chivers, Grace, McIntyre, 2017). Currently there are persons with motor disabilities

have athletic achievements in the field of sports. It is quite common for paraplegic athletes to complete marathons or practice tennis in the wheelchair. Mountaineering requires a repertoire of multiple movements, participants with all levels of expertise can be challenged functionally and cognitively. However, to date, only a few research projects have investigated the feasibility of climbing as a potential activity to enhance physical activity in children with motor disabilities. One piece of research tested the feasibility of an intensive three-week workout program for children with motor disabilities (cerebral palsy). The motor skills have been enhanced by training, increased synchronization between the cortex and the muscles, which has led to a more efficient activity of the motor unit (Christensen, 2017). Besides sports, music has been successful as a therapeutic intervention for people with physical disabilities. Movement and coordination can be enhanced by many musical experiences (Hatampour, Zadehmohammadi, Masoumzadeh, Sedighi, 2011). People with motor disabilities tend to be passive and isolated. One way to help them improve their social behavior involves using intervention packages that combine support technology with motivational strategies. Limited involvement in leisure activities has been recorded, especially for people with severe disabilities. But for people with less severe motor disabilities, things are changing. Despite the desire to explore, the possibilities of travel in hiking, the possibility of access to different areas is limited to people with motor disabilities. The physical difficulties and high costs of accessing these areas are real obstacles despite the great desire to visit the above mentioned areas (Lovelock, 2010). When there were people who offered leisure time in an indoor space, there was an increased commitment from motorized people to these activities (Wilson, Reid, Green, 2006). Frequency of participation in recreational activities for children and young people with physical disabilities is associated with a variety of variables: motor capacity, cognitive ability, communication skills, age, gender (Bult et al., 2011). Children with disabilities, and especially girls, have a more limited participation in recreational activities involving social interactions (Schreuer, Sachs, Rosenblum, 2014). Adults with physical disabilities often have limited opportunities to participate in leisure activities. Virtual reality technologies can serve to expand the repertoire of recreational activities, giving these activities accessibility to people with disabilities, all activities that have been perceived as pleasant and successful. They maintain a high level of interest and offer varied and motivating opportunities for timed activities (Yalon-Chamovitz, Weiss (Tamar), 2008).

Methodology

The ***research aimed to*** investigate the leisure time by people with motor disabilities from the point of view of gender, age and studies completed.

Research assumptions were: (1) we anticipate that people with motor-based disabilities engage in more outdoor leisure activities; (2) we anticipate that the age of subjects with motor disabilities influences how people choose to spend their free time.

The survey was ***the main method*** used in research. The research tool was built on the analysis of the results of a qualitative approach. There were two focus groups, one with experts in the medical, kinetotherapeutic and psychoeducational field, and the second one with people with motor disabilities and their dependents. The questionnaire is designed to have two dimensions: leisure and attitude towards the world and life. The questionnaire was developed and validated specifically for this research (Alpha Cronbach = 0.802). The first dimension, how time is spent was investigated for this research. It followed: frequency out countries in their city, ease of integration into new groups, those who support them. Varieties of leisure — watching television, sleeping and practicing a hobby, for example: reading, listening to music, collecting stamps, going to town with friends, going to recovery activities and practicing said hobbies: I walk, go on trips, basically a sport etc. The results of the second dimension, the attitude towards the world and life are the subject of another research. The data was collected from May to June 2020. Informed consent was made prior to the application of the instrument, the subjects were explained the purpose of the research, the research methods and tools, the associated risks, and the rights as a research subject. Participants were assured of data confidentiality. On average, completing the questionnaire lasted a maximum of 5 minutes for the participant.

The group of participants consisted of 93 subjects **of research** with motor disabilities: finger amputations (e) 5.5% (5 subjects), arthrogryposis artogripoză 4.4% (4 subjects), diplegia diplegie 14.3% (13 subjects), dislocation of the hip 2.2% (2 subjects), 2.2% (2 subjects), 23.1% hemiparesis (21 subjects), 12.1% hemiplegia (11 subjects), 2.2% muscle hypotension (2 subjects), myopathy 2.2% (2 subjects), 6.6% poliomyelitis polio norovirus (6 subjects), 2.2% (2 subjects), 4.4% (4 subjects), 5.5% paresis (2 subjects), 2.2% (2 subjects), 2.2% (2 subjects), 2.2% (2 subjects), 5.6% tetraparase (6 subjects), virosis which affect muscle muscular virosis 2.2% (2 subjects). Of the subjects participating in the research, 34.4% (32 subjects) stated that the deficiency was innate, the remaining 65.6% (61 subjects) that the deficiency was acquired tetraplegie, 5.5% (5 subjects), arthrogryposis 4.4% (4 subjects), dipleria 14.3% (13 subjects), hip dislocation 2.2% (2 subjects) dyspraxia 2.2% (2 subjects), hemiparesis 23.1% (21 subjects), hemiplegia 12.1% (11 subjects) 2.2% (2 subjects) 2.2% (2 subjects) 6.6% (6 subjects), chronic osteoporosis 2.2% (2 subjects), paraparase 4.4% (4 subjects), paresis 5.5% (5 subjects), lower amputee 2.2 (2 subjects), 2.2% (2 subjects), 2.2% (2 subjects), 6.2%

tetraparase (6 subjects), 2.2% (2.2%), and 2 (2 subjects) juvenile rheumatoid arthritis.
Of these, 60.2% (56 subjects) were male, the remaining 39.8% (37 subjects) being female. Depending on the country of origin, there were 73 subjects (78.5%) from an urban area, and the remaining 20 subjects (21.5%) living in rural areas. If we look at the age group, we have 14 subjects (15.05%) aged up to 20 years; 29 subjects (31.18%) aged 21-30 years; 17 subjects (18.27%) aged 31-40; 18 subjects (19.35%) aged 41-50 years; and 15 subjects (16.12%) aged over 50 years. Another criterion for differentiation was the level of education of the subjects: 16 subjects (17.2%) had graduated from the general school, 41 subjects (44.1%) graduated from the high school, 22 subjects (23.7%) graduated from the school post-secondary and 14 subjects (15.1%) who graduated from higher education (faculty). Engagement was another aspect of the batch characterization, so only 26 subjects (28%) were employed, the remaining 67 subjects (72%). If we look at the subjects from the point of view of the nature of the deficiency, we have 32 subjects (34.4%) with inherited deficiency and 61 subjects (65.6%) who have acquired the deficiency during their lifetime.

Results

For the first hypothesis of research we anticipate that of people with motor disabilities, males engage in more outdoor leisure activities. To test the validity of the hypothesis we calculated the average values for six of the questionnaire items, looking at from the gender perspective. Half of these items relate to passive ways of spending leisure time (watching television, sleeping and practicing a hobby: reading, listening to music, stamp collecting, etc.) and the other half of the items are about active ways of spending leisure time (out on town with friends, and moving to recovery activities and hobbies: walking, going on trips, sports, etc.). Males recorded an higher average value across all six items compared to females. If we look at the results for outdoor activities, we see how the item *going out with friends,* the average for men is 2.57 (with a standard deviation of 1.21), while for women it is only 1.86 (with a standard deviation of 0 , 92). Men say *I'm going to recovery* with the mean value of 3.00 (with a standard deviation of 1.35) to the underside of women who places all of the mean value C of less than 2.78 (with a standard deviation of 1.27). The same trend is maintained for the item *practicing a hobby: walking, practicing a sport,* etc. respectively, the average for men entering a value of 2.52 (with a standard deviation of 1.35), while the average value of the women is only 2.05 (with a standard deviation of 1.13). And on items considered as a passive *hobby: reading, listening to music, collecting stamps, etc.*), the average value for men was higher than that of women (3.46 with a standard deviation of 1.17 for men, versus 3.35 with a standard deviation of

1.25 for women, but for static activities, the values were found to be inversely correlated, that is, higher for women than for men, so the item women *watch TV* averaged 3.51 (with a standard deviation of 0.961), while the mean value for men is 3.45 (with a standard deviation of 1.06). Women also like *to sleep* more than men (mean value of 3.00 with a standard deviation of 0.88, compared to 2.84 the mean value for men with a standard deviation of 0.93). Following these results we can say that men prefer to be involved in outdoor activities in their spare time (Table 1).

Table 1. Values of the average scores for size breakthrough time

		Scores average	The standard deviation
How do you spend your free time? - I watch TV			
	Men	3.45	1.060
	Women	3.51	0.961
How do you spend your free time? - I'm sleeping			
	Men	2.84	0.930
	Women	3.00	0.882
How do you spend your free time? - I'm out in town and friends			
	Men	2.57	1.204
	Women	1.86	0.918
How do you spend your free time? - Participate in recovery activities .			
	Men	3.00	1.335
	Women	2.78	1.272
How do you spend your free time ? - I have a hobby (reading, listening to music , collecting stamps etc.)			
	Men	3.46	1.175
	Women	3.35	1.252

How do you spend your free time? I am a hobby: I walk, go on trips, basically a sport			
	Men	2.52	1.348
	Women	2.05	1.129

We can conclude, for the first hypothesis, that both men and women prefer to practice in their leisure time, hobby activities like, to read, listen to music or collect stamps or watch television. Activities that less liked are for both categories of people the same: to practice a hobby, such as walking, going on excursions, practicing a sport. Perhaps limiting the possibilities of movement makes them have this option. Interestingly, women dislike going out with friends with the city. The value of the independent t test was calculated. Statistical significance with a p - 0.03 was recorded for the item: *How do you spend your free time? - He's in town with friends.* The value of t is 3.033 (89.04) for a Levene test, F = 5.129. It is the item that confirms that men with motor disabilities are more active than women with the same type of disability when it comes to getting out of the city. The results are also confirmed when applying the one-way ANOVA test. The value of F is 9.198 (91) at a p - 0.03 between gender and item: *How do you spend your free time? - I'm out in town with my friends.*

Second hypothesis: we anticipate that the age of subjects with motor disabilities influences leisure options. In order to test the validity of the hypothesis, we calculated the average values for six of the questionnaire items, viewed from the terms of size, and the age of the subjects. We will work with the same types of activity: passive activities (watching TV, sleeping and practicing a hobby: reading, listening to music, collecting stamps, etc.), and active activities (going out with friends, going to recovery activities and practicing a hobby: I walk, go on trips, basically a sport etc.). The youngest (under 40) is more involved in active activities. Thus, in the case of *going out with friends*, the highest averages are recorded by people aged 31-40 (2.81), then 21-30 (2.63) and 41-50 years (2.22). If, for over 50 years, we can find explanations for the reduced environments, we are surprised by the under-20s, which we find only in the fourth position (2,14).Instead, under the age of 20, we find ourselves in the first position when we talk about *participating in recovery activities* (average - 3.86). Also active are those aged 31-40 years (average - 3.62), respectively those between 21-30 years (average - 2.90). With the aging, over 40 years, participation in recovery activities is gradually decreases, reaching an average of 1.75 in the elderly, between 61-70 years. Persons between 31-40 years, again, have the first position, averaging 3.06 *m* variant: *of a hobby: I walk, go on trips, practice a sport*: followed by the very young (average - 2 .71) and those aged 21-30 years (mean - 2.50). We can

conclude: the most active are those between 31-40 years of age, followed by those aged 21-30 and then those under the age of 20. Those aged over 40 are more involved in passive activities . Thus, in the variant: *sleeping* people aged 51-60 report the highest average value (3.29), followed by those between 41-50 years (3.11). I'm surprised by the very young, under 20's, who also place themselves in the first position (average - 3.29) in this static activity. For the variant: *I watch TV,* people over 50 are holders of the highest values of the media: 4.29 (those between 51-60 years), respect variant v 4.25 (those between 61-70 years) . Also, with large averages, we find those under the age of 20 (average - 3.86). In the: *I have a hobby (read, listening to music, collecting stamps etc)*, those aged between 31-40 years old have the highest average value, 3.88. The same people placed in the first position when it was an active hobby (walking, excursions, practicing sports). Returning to the passive hobby (reading, listening to music, collecting stamps, etc.), for those aged 31-40, we find it very close to the average of 51-60 years old (average 3.86), then those between 61-70 years (average - 3.50). We conclude by saying that older age is associated with passive activities (sleep, watch TV, have a type hobby: listening to music, collecting stamps etc.). It captures the positioning between the top three media values, static activities for young people under the age of 20. Perhaps sickness, impotence, comparing with covariates make young people more passive (Table 2).

Table 2. Values of spare time items for people with motor disabilities from the perspective of the age of the subjects

How do you spend your free time?	**under 20 years of age**	**21-30 years**	**31-40 years 1**	**41-50 years**	**51-60 years**	**61-70 years**
I am watching TV	3.86	3.20	3.06	3.33	4.29	4.25
	.663	.761	1.428	1.085	.448	.463
I'm sleeping	3.29	2.80	2.56	3.11	3.29	2.50
	.726	.961	1.094	.900	.488	.535
Get out in town with friends	2.14	2.63	2.81	2.22	1.00	1.50
	1.027	.999	1.377	1.060	.000	.926
Participate in recovery activities	3.86	2.90	3.62	2.33	2.29	1.75
	.663	1.494	1.025	1.188	.488	.886

I have a hobby (reading, listening to music, collecting stamps etc.)	3.00	3.30	3.88	3.33	3.86	3.50
	1.240	1.291	1.310	1.188	.900	.535
I have a hobby: I walk, go on trips, basically a sport	2.71	2.50	3.06	1.78	1.00	2.00
	1.541	1.253	1.181	.808	0.00	1.309

We wanted to see if the age levels of people with motor disabilities would give differences in leisure time for people with motor disabilities. We can see of Table no. 2 that all the variants analyzed had a significant significance threshold statistically ($p < 0.000$) with average correlations of the Phi coefficient ($\varphi = 0.55$, $\varphi = 0.64$, $\varphi = 0.66$), respectively ($\varphi = 0.79$, $\varphi = 0.75$, $\varphi = 0.74$). These results validate the second hypothesis, so variants of leisure time by people with motor disabilities are influenced by the age of the subjects (Table 3).

Table 3 . Chi Square Test between variants of free time and age of subjects

Crosstabs between subject age and: leisure options:	No. of valid answers	Value x^2	df	Asymp. Sig	Phi value
1. I watch the television	93	58.33	20	0,000	0.792
2 . I'm sleeping	93	28.17	15	0,020	0.550
3. I have a hobby (reading, listening to music, collecting stamps, etc.)	93	39.18	20	0,000	0.649
4 . Participate in recovery activities	93	53,00	20	0,000	0.755
5 . I have a hobby (I walk, go on trips, practice a sport)	93	41.56	20	0,000	0.668
6 . Go out in town with friends	93	51.62	20	0,000	0.745

The following Spearman correlations were recorded. Weak negative — between *I watch TV* and *I go out in town with friends* - .305 ** (p - 0.01), between *I go in town with friends* and *Sleeping*: - .304 ** (p - 0.01), between *Sleeping* and *I have a hobby (walk, go on trips, basically a sport*): - .331 ** (p - 0.01); weak positive — between *I watch TV* and *Sleeping*: .276 ** (p - 0.01); between *Participating in recovery activities* and *I have a hobby (I walk, go on trips, basically a sport)*: .222 * (p - 0.05); and, positive positives: between Ies in town with friends and A m a hobby (I walk, go on trips, basically a sport): .499 ** (p - 0.01) .

Conclusions

Both men and women prefer to practice in their leisure time, hobby activities such as: to read, listen to music, collect stamps or watch TV. Activities that do not like are for both categories of people the same: to practice a hobby, such as: walking, going on excursions, practicing a sport. Perhaps limiting the possibilities of movement makes them have this option. For women there is added a new activity that is declined: going out with friends with the city. For those with motor disabilities, younger ages (under 40) are associated with active leisure activities (going out in town with friends, going to recovery activities and practicing a hobby: walking, excursions, practicing a sport etc.), while older people (over 40 years of age) associated with passive activities (sleep, watching TV, I have a hobby like: reading, listening to music, collecting stamps, etc.). They capture positions for very young people under the age of 20, whom we find are pleased to sleep, to watch television, but also to take part in recovery or hobby: walking, excursions, practicing a sport. Perhaps illness, helplessness, comparison with covariates make the very young more passive. The most active are people with motor disabilities aged 31-40, followed by those aged 21-30 and then those under the age of 20. People with motor disabilities aged over 40 are more involved in passive activities. We conclude by saying that older age is associated with passive activities (sleep, watch TV, have a hobby like: reading, listening to music, collecting stamps, etc.).

References:

Alvarez, L.; Rios, A.M.; Adams, K.; Encarnação, P.; Cook, A.M. (2013). The Role of Augmentative Manipulation Robotic Tools in Cognitive and Social Development for Children with Motor Disabilities. *Converging Clinical and Engineering Research on Neurorehabilitation*, Part of the *Biosystems & Biorobotics* book series (BIOSYSROB) *1,* 905-909.

Bøttcher, L.; Dammeyer, J. (2016). The Toddler and Preschool Child with Disabilities: Becoming a Social Agent. *Development and Learning of Young Children with Disabilities* 67-91.

Bult, M.K.; Verschuren, O.; Jongmans, M.J.; Lindeman, E.; Ketelaar, M. (2011). What influences participation in leisure activities of children and youth with physical disabilities? A systematic review. *Research in Developmental Disabilities.Volume 32*, (5), 1521-1529

Carver, A., Timperio, A., & Crawford, D. (2008). „Playing it safe: The influence of neighbourhood safety on children's physical activity - A review." In *Health & Place, 14(2),* 217-227.

Chivers, P.; Grace , T.; McIntyre, F. (2017). „Time for change: Fitness and strength can be improved and sustained in adolescents with low motor competence". *Research in Developmental Disabilities.* Available online 7 August 2018. https://www.sciencedirect.com/science/article/pii/S0891422218301781.

Christensen, M.S.; Jensen, T.; Voigt, C.B.; Nielsen, J.B.; Lorentze, J. (2017). „To be active through indoor-climbing: an exploratory feasibility study in a group of children with cerebral palsy and typically developing children". *BMC Neurology*, 17:112.

Chuang, T-Y.; Kuo, M.S.; Fan, P.L.; Hsu, Y.-W. (2017). „A kinect-based motion-sensing game therapy to foster the learning of children with sensory integration dysfunction". *Educational Technology Research and Development, 65* (3), 699–717.

Contreras, M.I., Bauza, C.G., Santos, G. (2019). Videogame-based tool for learning in the motor, cognitive and socio-emotional domains for children with Intellectual Disability. *Entertainment Computing 30*, 100301.

Dusik, C.L.; Costi Santarosa, L.M. ()2016. „Mousekey Syllabic Virtual Keyboard: An Assistive Technology Tool for People with Physical Disabilities". *ICT in Education*, 171-197.

Hammell, K.W. (1995). „Living with a spinal cord injury: productivity, leisure and socialization". *Spinal Cord Injury Rehabilitation*, 246-287.

Lancioni, G.E.; Singh, N.N.; O'Reilly, M.F.; Sigafoos, J.; Chiapparino, C.; Stasolla, F. (2007). „Using an Optic Sensor and a Scanning Keyboard Emulator to Facilitate Writing by Persons with Pervasive Motor Disabilities". *Journal of Developmental and Physical Disabilities 19* (6), 593–603.

Lancioni, G.E., Singh, N.N., O'Reilly, M.F., Sigafoos, J., Alberti, G., Chiariello, V., Buono, S. (2020). Extended smartphone-aided program to sustain daily activities, communication and leisure in individuals with intellectual and sensory-motor disabilities. *Research in Developmental Disabilities 105*, 103722.

Law, M.; Petrenchik, T.; King, G.; Hurley, P. (2007). *Disabilities Archives of Physical Medicine and Rehabilitation*, *88* (12), 1636-1164.

Lee, HE & amp; Cho, J. (2018). Social Media Use and Well-Being in People with Physical Disabilities: Influence of SNS and Online Community Uses

on Social Support, Depression, and Psychological Disposition.*Health communication* , 1-10.

Lovelock, B.A. (2010). „Planes, trains and wheelchairs in the bush: Attitudes of people with mobility-disabilities to enhanced motorised access in remote natural settings". *Tourism Management 31* (3), 357-366.

McFarland, L.; Gull Laird, S. (2018). „She's Only Two": Parents and Educators as Gatekeepers of Children's Opportunities for Nature-Based Risky Play". *Research Handbook on Childhoodnature,* 1-24.

Pope, P. (1997). „Management of the Physical Condition in People with Chronic and Severe Neurological DisabilitiesLiving in the Community". *Physiotherapy 83* (3), 116-122.

Schreuer, N.; Sachs, D.; Rosenblum, S. (2014). „Participation in leisure activities: Differences between children with and without physical disabilities". *Research in Developmental Disabilities 35,* (1), 223-233.

Stone, M. (1983). „Toy libraries". *Day Care and Early Education. 11* (2), 19–21.

Veal, A.J.(1992). „Definitions of leisure and recreation". *Australian Journal of Leisure and Recreation*, 2(4), 44-52.

Wilson, P. G.; Reid, D. H.; Green, C. W. (2006). „Evaluating and increasing in-home leisure activity among adults with severe disabilities in supported independent living". *Research in Developmental Disabilities 27* (1), 93-107.

Wook Ok. M. (2018). „Use of iPads as Assistive Technology for Students with Disabilities". *TechTrends 62* (1) 95–102.

Yalon-Chamovitz, S.; Weiss (Tamar) P. L. (2008). „Virtual reality as a leisure activity for young adults with physical and intellectual disabilities". *Research in Developmental Disabilities 29* (3), 273-287.

Zhao, Y.; Qiu, W. (2011). „The Potential of Social Media for Students with Disabilities". *Breakthrough Teaching and Learning,* 71-86.

Zwinkels, M.; Verschuren, O.; Lankhorst, K.; van der Ende-Kastelijn, K.; de Groot, J.; Backx, F.; Visser-Meily, A.; Takke, T. (2015). „Sport-2-Stay-Fit study: Health effects of after-school sport participation in children and adolescents with a chronic disease or physical disability". *BMC Sports Science, Medicine and Rehabilitation,* 7-22.