Original research article

RELATIONS BETWEEN KINESIOLOGICAL ENGAGEMENT, PSYCHOLOGICAL CHARACTERISTICS AND TYPES OF MOBILE PHONE AND COMPUTER USE IN ADOLESCENTS

UDC 364.796.37.015.3

Mirjana Milić, Boris Milavić, Zoran Grgantov

University of Split, Faculty of Kinesiology, Croatia

Abstract. *The aim of this study was to determine the relations between different ways of using mobile phones and computers and kinesiological activity, as well as certain psychological characteristics of adolescents. The participants in the research were 305 older elementary school children in Trogir, Kaštela and Solin. Variables of kinesiological activity, passive preoccupation with sport, perceived sports competence and self-esteem were measured. A new scale of mobile phone use was constructed. A taxonomic analysis was used to determine three types of mobile phone and computer use, yielding low, medium and high activity mobile phone and computer users. Male and female elementary school children significantly differ in the degree of mobile phone and computer use for different purposes, but they do not differ in the frequency of belonging to a certain type of mobile phone and computer users. Low activity mobile phone and computer users had a significantly higher degree of perceived personal health image and general self-esteem than the other two types. High activity mobile phone and computer users had a significantly higher degree of passive sport preoccupation, and the male elementary school child had somewhat highly pronounced perceived sport competence and kinesiological engagement.*

Key words: *activity, perceived sport competence, self-esteem, mobile phone and computer use, pupils.*

INTRODUCTION

Body exercise is defined as organized or non-organized kinesiological activity, and the number of studies on the importance of sport involvement and kinesiological activity among the young in general has significantly increased. The research is supported by a positive impact of kinesiological engagement and sport involvement on psychological

development (Bidlle, Gorely & Stensel, 2004), and a positive relation between kinesiological engagement and body health has been confirmed. It was determined that the kinesiological engagement of young people decreases as they get older. The most significant causes of the continuous decrease in the kinesiological activity of young people are the increasing technization and informatization of society (Kautiainen, Koivusilta, Lintonen, Virtanen & Rimpela, 2005), and the use of personal computers is an example of society informatization. Adolescents often use computers for fun (listening to music, watching movies, playing computer games, watching sports events etc.), attaining social contacts, gathering information on a certain subject, gaining certain knowledge or school tasks. Milačić (2008, in Miliša, Tolić & Vertovšek, 2009), based on their work involving a sample of older elementary school children, concluded that 65% of the participants used computers more than one hour a day, and 11% more than 5 hours a day. The female schoolchildren used the Internet more than their male colleagues did. Almost half of the schoolchildren (48%) spent less than one hour on the Internet, and as much as one quarter of the female schoolchildren (26%) spent 2 to 3 hours a day on the Internet. Therefore, although computers greatly enhance the life quality of adolescents, they are at the same time the cause of their sedentary lifestyle. Also, it is becoming obvious that mobile phone use, especially in smartphone version, is connected to the sedentary lifestyle of adolescents. A report on the research carried out by Madden, Lenhart, Duggan, Cortesi & Gasser (2013) listed a few facts on the mobile phone use of American adolescents aged 12 to 17: more than a third of teens (37%) are estimated to have a smartphone or Internet-enabled mobile device, and this is a significantly higher estimate than 23% in 2011; 78% own a cell phone, a figure that is largely unchanged compared to the 2011 survey data, while 45% of adolescents had a mobile phone in 2004; some 74% of teens access the Internet through mobile devices at least occasionally; girls are significantly more likely than boys to say they access the Internet mostly using their cell phone (29% vs. 20%); among older teen girls who are smartphone owners, 55% say they use the Internet mostly from their phone.

Perceived sport competence is opinion on personal sport abilities, based on the subjective experiences of an individual, and can be considered a part of their general self-esteem. Milavić, Guć & Miletić (2010) found no differences in competence evaluation on the *perceived sport competence (hereinafter PSC)* scale between older male and female elementary school children. A significant difference in the results of the *specific PSC* scale was found, where the boys had significantly higher results than the girls did. Milić, Milavić & Grgantov (2011) found significant differences between boys and girls in *passive sport preoccupation, kinesiological activity* and *specific PSC.* Boys showed significantly higher *passive sport preoccupation, kinesiological activity* and the degree of *specific perceived sport competence.* The passive involvement of girls was significantly lower than the active one. The boys used computers significantly more often than the girls. Different purposes and ways of using computers have been noted, especially in playing computer games.

Milavić, Milić, Grgantov, Elezović, Đapić-Caput & Sinovčić (2012) carried out a study on kinesiological engagement, psychological characteristics and types of computer users and described three different types of adolescent computer users; boys and girls differ in the frequency of belonging to a certain type of computer user, since a significantly higher percentage of girls belong to the type of *high activity* computer users. For the sample of boys, they determined that the type of computer users significantly differed in terms of the group of measured variables, and the type of *high activity* computer users had a significantly higher degree of *passive* and *active sport involvement, perceived sport*

competence, with a significantly lower degree of perceived *personal health image* than the other two types. They also recommended an introduction of mobile phone use measure, as well as computer use measure, into the typification of users of contemporary technical media for communication and fun.

The aim of this research was to construct a quality scale of mobile phone use that will, along with the existing computer use scales, define different types of adolescent users of technical means with improved quality. Also, this research will determine the relations between kinesiological activity engagement and psychological features (general and specific PSK, general self-esteem, body image, and own health image) of adolescents in relation to different types of computer and mobile phone users among older elementary school children.

The Method

The sample of participants consisted of 305 male and female schoolchildren, 7th and 8th graders in Trogir, Kaštela and Solin, with no expressed structural deformity that would limit their sport involvement. The sample consisted of 163 female and 142 male schoolchildren. The group of measured variables consisted of *kinesiological engagement* (KIN_ENG) and *passive sport involvement* (PAS_SI) (Milić et al., 2011), *general* (GEN_PSK) and *specific* (SPEC_PSK) *perceived sport competence* (Milavić et al., 2010), *general* (SELF_EST) and bodily (BODY_IMG) *self-esteem* (Samardžić et al., 2011). A seven-item scale was constructed for measuring *the school children`s personal health image* perception (HEAL_IMG), examining the frequency of health problems and injuries among the school children. Three scales with 13 items in total were used to determine the degree of computer use by Milavić et al. (2012): the *educational computer use* scale (R_EDU), *surfing and communication computer use* scale (R_SRFCOMM) and *fun and information computer use* scale (R_FUNINF). A new 4-item scale was constructed for determining the degree of mobile phone use, which measured different aspects of adolescent mobile phone use. Procedures for determining the basic metric characteristics of the new scale were used, as well as procedures for determining the differences between the groups of adolescents according to gender (t-test), the taxonomic analysis (*K-means clustering*) for determining the types of computer and mobile phone use, and discriminant analysis with the aim of determining differences between the measuring variables of kinesiological engagement and self-esteem between the different types of computer and mobile phone users. The results of all the scales were obtained by adding the results of all the items of a certain scale and dividing the result with the overall number of items of the same scale, so as to compare the results obtained on the scales with different numbers of items.

The Results

The constructed *mobile phone use* scale had satisfactory metric characteristics (reliability, homogeneity and sensitivity) for the conducted measuring. The reliability coefficient had a satisfactory value of 0.73, all the scale items were projected onto one latent component, explaining 55.11% of the overall variance, while the result distribution did not differ significantly from normal distribution. The items of the measure of adolescent behavior while using mobile phones scale were different than the usual

talking, and the texting measure (sending SMS and e-mail messages), listening to music and surfing the Internet. Adolescents most often listen to music on their mobile phones (3.72), somewhat less frequently surf the Internet and write SMS messages, and seldom use their mobile phones for sending e-mail messages (2.64).

Table 1 Mobile phone use (MOBILE) scale construction

Item	FS	M	SD
I often text people through my cell phone (SMS and MMS..)	0.79	3.05	1.50
I often send and receive e-mails through my cell phone.	0.79	2.64	1.45
I regularly use my cell phone to listen to music.	0.61	3.72	1.40
I regularly use my cell phone for surfing the Internet.	0.77	2.94	1.58
EIGEN		2.20	
OVERALL %		55.11	
ALPHA		0.73	
D * (K-S test)		0.069	

Legend: FS – factor saturation; M – mean; SD – standard deviation; EIGEN – inherent component variation; OVERALL% – overall percentage of the explained variance; ALPHA – reliability coefficient of Cronbach's alpha type; D* (K-S test) – Kolmogorov-Smirnov normality distribution test.

Table 2 Descriptive statistics and significance of differences according to gender in kinesiological engagement, psychological features and computer use

Var	Overall		Boys		Girls		t-test	p
	M	SD	M	SD	M	SD		
GEN_PSC	3.42	0.90	3.59	0.90	3.28	0.88	3.12**	0.002
SPEC_PSC	3.19	0.87	3.38	0.89	3.03	0.83	3.55**	0.000
KIN_ENG	3.11	1.18	3.33	1.13	2.91	1.20	3.11**	0.002
PASSIV_SI	2.81	1.15	3.26	1.10	2.42	1.06	6.75**	0.000
SELF_EST	3.54	0.76	3.54	0.75	3.54	0.76	-0.01	0.99
BODY_IMG	3.83	0.90	3.97	0.78	3.71	0.98	2.54*	0.012
HEALTH_IMG	3.85	0.86	3.71	0.91	3.96	0.79	-2.54*	0.012
R_SRFCOMM	3.75	1.03	3.74	1.02	3.75	1.04	-0.15	0.88
R_FUNINF	2.86	1.04	3.09	1.12	2.67	0.93	3.61**	0.000
R_EDU	3.15	1.15	2.98	1.20	3.29	1.09	-2.40*	0.017
MOBILE PH	3.09	1.10	2.95	1.14	3.21	1.05	2.12*	0.035

Legend: M – mean; SD – standard deviation; t-test – t-test coefficient; p = t-test coefficient significance level; * – p<05 significance level; ** – p<01 significance level.

Mobile phone use is generally not very pronounced among older elementary school children (3.09), and in the overall number, elementary school children of both genders use mobile phones most often while listening to music (3.72). While they are listening to music, they surely cannot be kinesiologically active: listening to music on mobile phones interferes with the communication between pupils while they are involved in organized and group kinesiological activities, and also because of the fact that most mobile phones are not adapted for use during kinesiological activities. The participants of different gender differed in the results on the *mobile phone use* scale, where the girls used mobile phones significantly more often than the boys did. The insight into the average values of certain scale items shows the greatest differences between the boys and girls in their most

frequent mobile phone uses (listening to music, writing SMS messages, surfing the Internet). Furthermore, *mobile phone use* (3.09) was less pronounced than the *surf and communication computer use* (3.75). Also, it is noticeable that the average value of the *listening to music on a mobile phone* item (3.72) was significantly higher than the *fun and information computer use* (2.86), indicating the possibility that the mobile phone has become a primary adolescent instrument of listening to music.

Significant differences were found between the boys and girls in most of the measured variables except for the *general self-esteem* and *surf and communication computer use.* The boys had significantly higher *general* and *specific perceived sport competence*, higher *kinesiological engagement* and *passive involvement in sport*, a higher estimation of their *body image*, and lower evaluation of their *own health perception* than the girls. The boys used computers for *fun and information* more often than the girls did, and less for their *educational needs*.

Table 3 Descriptive values of types of mobile phone and computer users among the male and female schoolchildren

Var	TIP 1 (N = 93)		TIP 2 (N = 110)		TIP 3 (N = 102)	
	M	SD	M	SD	M	SD
R_SRFCOMM	2.62	0.83	4.19	0.62	4.29	0.68
R_FUNINF	1.91	0.59	3.06	0.86	3.52	0.90
R_EDU	2.54	1.08	2.57	0.70	4.32	0.56
MOBILE PH	2.01	0.73	3.40	0.86	3.74	0.87

Legend: M –mean; SD – standard deviation

Based on the four variables of *computer and mobile phone use,* a classification of the whole sample of participants was carried out, which divided the participants into three types (clusters) of computer and mobile phone users, so as to determine the differences between the boys and girls in terms of the frequency of belonging to a certain type of computer user. The *type 1* user is a type of *low activity* computer and mobile phone user, the *type 2* user is a type of *medium activity* computer and mobile phone user, who most often uses the computer for surfing the Internet and communication. The *type 3* user is a type of *high activity* computer and mobile phone user, who uses computer mainly for educational needs (4.32), surfing the Internet and communication (4.29), and uses the mobile phone more than the other types. The analysis of variance determined significant differences in the degree of computer and mobile phone use between these *types of computer users.*

Table 4 The frequency of computer and mobile phone users among the boys and girls

Group	Girls		Boys		Overall	Differences of
	Frequency	%	Frequency	%	Frequency	frequencies
Low activity	49	30.06	44	30.99	93	U = 10751
Medium activity	55	33.74	55	38.73	110	Z = 1.07
High activity	59	36.20	43	30.28	102	P = .28

Legend: U = – Mann-Whitney U test coefficient; Z = – z-distribution value; P = – level of significance of the Mann-Whitney U test.

Unlike the research of Milavić et al. (2012), this research showed that there were no statistically significant differences between the boys and girls in the frequency of belonging to a certain type of mobile phone and computer user. By adding the new *mobile phone use* variable into the group of variables for the taxonomic analysis, the gender differences of belonging to different types of *computer users* have been "annulled". Approximately one third of the boys and one third of the girls belonged to each type of mobile phone and computer user.

Table 5 Discriminant analysis of the types of computer users among the girls and boys

Sample	λ	Rc	Wilks' lambda	χ^2	DF	p
Girls	0.22	0.42	0.79	37.52***	14	0.001
Boys	0.35	0.51	0.70	48.67***	14	0.000

Var	Matrix structure	
	Girls	Boys
GEN_PSC	0.19	0.43
SPEC_PSC	0.11	0.53
KIN_ENG	0.24	0.33
PASSIV_SI	0.63	0.73
SELF_EST	-0.66	-0.38
BODY_IMG	-0.21	-0.09
HEALTH_IMG	-0.57	-0.59

VAR	Group centroids	
	Girls	Boys
Low activity	-0.49	-0.79
Medium activity	-0.21	0.09
High activity	0.60	0.69

Legend: λ – inherent discriminant function value; Rc – coefficient of canonical correlation; Wilks` lambda – Wilks' lambda coefficient (Wλ) of discriminant function; χ^2 – discriminant function significance test – χ^2 test; *** - p<.001 DF significance level; DF – degrees of freedom: P= – level of DF statistical significance (χ^2-test).

Only the results of the first discriminant functions are shown because in both analyses, conducted separately for each gender of the participants, the second discriminant function was not statistically significant. The results of the discriminant analysis in the area of types of mobile phone and computer users among both girls and boys showed that there were significant differences in the first discriminant function between different types of computer users. Among the girls, the group of *high activity* mobile phone and computer users significantly differed from the two groups of *medium* and *low activity* users. *High activity* users were characterized by a high degree of *passive sport involvement*. On the other hand, *low activity* users were characterized by a high degree of *general self-esteem* and *health image*. Among the boys, the discriminate analysis "singled out" the group of *low activity* mobile phone and computer users from the two groups of *high* and *medium activity* users. *Low activity* users were characterized by a higher degree of *personal health perception* and somewhat higher *general self-esteem*. *High activity* users were characterized by a high degree of *passive sport involvement*, high *specific and general perceived sport competence* and higher *kinesiological engagement*.

DISCUSSION

The *mobile phone use* construct scale showed a metric quality, in its basic metric characteristics, and its pragmatic validity, because it significantly differentiated the boys from the girls. The girls used mobile phones more often than the boys did, and used it more often for listening to music, communication through text messages, and surfing the Internet. This finding is congruent with the findings of Madden et al. (2013), stating that girls are significantly more likely than boys to say they access the Internet mostly using their cell phone. The means of the overall results indicated that the older elementary school children showed a medium degree of mobile phone use, but they usually used it for listening to music. By the application of this *mobile phone use* scale and the *computer use scale,* it was not possible to precisely determine the absolute amount of time of mobile phone and computer use, but it was possible to determine the relative relations of different purposes of their use. The differences between the boys and girls have been determined in the measures of computer use. The boys used computers for fun and information more often than the girls, and the girls used computers for educational purposes more often than the boys. These findings were not congruent with those of Milić et al. (2011), about the non-existing differences in the degree of computer use among boys and girls, and were more in agreement with the findings of Milačić (2008), who found that girls used computers more than boys did. However, the differences between these findings should be attributed primarily to the expressed quality of the measuring instruments used in this research, because in the research by Milić et al. (2011) the highest significant difference was found in the *playing computer games* item. Also, the sample in this research consisted of adolescents from smaller towns, and the adolescents participating in the research by Milić et al. (2011) lived in big cities, and it is possible that smaller towns offered fewer opportunities for organized sport activities, so the girls from smaller towns used computers more often than those from the big cities. Furthermore, it can be noticed that the boys preferred using computers for fun (mostly listening to music) and information, while the girls preferred using mobile phones. Generally, adolescents used mobile phones and computers for fun (mostly listening to music) and communication purposes (texting and using social networks). Some of the adolescents replaced listening to music and using other fun contents on the computer with listening to music on their mobile phones.

This research confirmed the findings of Milić et al. (2011) on the differences between boys and girls in their *specific PSC*, *kinesiological engagement* and *passive sport involvement*, but besides this, the differences in the degree of *general PSC, body image* and *own health image* have been determined for the first time. The boys showed significantly higher *passive sport involvement, kinesiological engagement, body image*, and a higher degree of *general and specific PSC*. The girls had higher results only in the *personal health image*. It is possible that higher kinesiological engagement caused more health problems among the boys (e.g. injuries or illnesses). The only psychological feature in which there were no differences between the boys and girls was *general self-esteem*.

The determined higher *kinesiological engagement* of the boys confirmed the findings of Samdala, Tynjala, Roberts, Sallis, Villbergand & Wold (2006). Grgantov, Milić &Milavić (2013) found no differences between male and female school children regarding frequency of involvement in *organized kinesiological engagement*: 52 % of the male sample and the female sample were constantly active, while 39 % of the female school children and 34 % of the male school children have dropped out of *organized kinesiological engagement*. If

this finding is compared to the findings in the current research, it can be assumed that the boys are significantly more engaged in unorganized, free kinesiological activities. This assumption is partially confirmed by the finding of the highly expressed degree of mobile phone use in girls. However, mobile phone and computer use disenables parallel and immediate involvement in any kinesiological activity.

The results obtained in the *mobile phone and computer use* scales enable a high quality typological classification of mobile phone and computer users that significantly differ in their degree of use, and it is possible to use them to determine the degree and frequency of mobile phone and computer use for different purposes. The first type of users were the *low activity type* of mobile phone and computer users, and the second type were the *medium activity type* of mobile phone and computer users. The third type of users were the *high activity type* of mobile phone and computer users who mostly used computers for their own educational needs, surfing the Internet and communication, and used mobile phones more than the other two types. About one third of the boys and girls belong to each type of mobile phone and computer users, and there were differences determined in belonging to a certain type between the boys and girls. Furthermore, this finding was contrary to the one of Milavić et al. (2012), who found significant differences in the typology of computer users of different gender, where the highest number of girls belonged to the *high activity* computer users, and the highest number of boys belonged to the *medium activity* computer users. However, the divergence of these findings justifies the recommendation of Milavić et al. (2012) about introducing the new scale of *mobile phone use* into the group of variables applied for the typification of boys and girls, according to the mode and frequency of use of the available technical means (mobile phones and computers). The introduction of the new mobile phone use measure resulted in new, qualitatively different typification of mobile phone and computer users among the boys and girls. Such typification did not show any differences between the boys and girls in terms of the frequency of belonging to a certain type of user. The mobile phone and computer user type structure was very similar between the boys and girls, although significant differences in the degree and mode of the use were determined.

The discriminant analysis showed the most pronounced differences between the groups of *low* and *high activity* mobile phone and computer users were determined for the girls. The *low activity* users had a high degree of *general self-esteem* and *own health image*, while *high activity* users had a high degree of *passive sport involvement*. These findings were in contrast with the findings of Milavić et al. (2012), who claimed that there were no significant differences in the degree of psychological features expression and kinesiological engagement in different types of female computer users. Therefore, by adding the *mobile phone use* variable to the group of variables for typification of mobile phone and computer users, significant differences were "discovered" in the psychological features and kinesiological engagement between the different types (groups) of mobile phone and computer users within the sample of the girls. The tendency expressed in a study by Milavić et al. (2012) was fully confirmed in the current research. Also, this finding was partially confirmed by the findings of Milić et al. (2011) who established that *high activity* computer users had a significantly lower degree of *self-esteem*. The discriminant analysis determined that the groups of *low* and *high activity* mobile phone and computer users among the boys mostly differed in their kinesiological engagement and psychological characteristics. *High activity* users had high *passive sport involvement, specific* and *general perceived sport competence* and higher *kinesiological engagement*, while *low activity* users had a higher perception of *personal health* and *general self-esteem*. These findings confirmed the

findings of Milavić et al. (2012) about the determined significant differences in the degree of psychological feature expression (*perceived sport competence*) and kinesiological engagement between different types of computer users. The only noticeable difference caused by adding the *mobile phone use* variable into the group of variables for user typification was the "discovery" of the significant contribution of the *general self-esteem* measure to the differentiation of types of computer and mobile phone users. The significance of the determined discriminant variable function among the boys showed the biggest differences in two types of *low* and *high activity* computer and mobile phone users. The schoolchildren who spent the least amount of time at their computers and mobile phones were characterized by a better *personal health* image. *High activity* computer and mobile phone users had very high *passive sport involvement*, expressed *general* and *specific perceived sport competence* and finally were more *kinesiologically engaged*. This confirmed the finding that was previously determined by the result difference between the adolescents of different genders, on how lower kinesiological engagement was "followed" by fewer injuries and illnesses. It is possible that the boys who are more active kinesiologically and on their computer/mobile phone used open, disorganized courts for their unorganized and uncontrolled sport activities, so they suffered from injuries more often. It is recommended that future studies determine the relation of the kinesiological engagement of the boys and the occurrence of their health problems and injuries. These research results cannot simply be compared to the similar results obtained by Milić et al. (2011) because this research used only univariate procedures for determining differences between certain types of computer users. In the end, the application of a discriminant analysis on the samples of boys and girls determined different results of *high activity* computers and mobile phone user characterization. In this group, the boys and girls were characterized by the "mutual" *passive sport involvement*, while the boys only had high *perceived sport competence* and were *highly kinesiologically engaged*. In the group of boys, those who were highly kinesiologically active were also highly active in the use of computers and mobile phones, showing a supplementary relation of sedentary and kinesiological activities In the group of girls, this relation was completely different, higher sedentary activity did not necessarily imply higher kinesiological activity.

However, the characterization of the low activity computer and mobile phone users group was very similar in both samples. The boys and girls who were not very active in using information-communication devices had similar features: highly pronounced perception of *personal health image*, and high *general self-esteem*. It is possible that their high self-esteem allows them to not have to use the IT-communication devices often in order to get attention or the social support of their peers. Although self-esteem was not directly connected to the kinesiological engagement of adolescents, these findings confirmed its important role in adolescents' social life in the higher grades of elementary school.

CONCLUSION

The overall sample of participants was subjected to a taxonomic analysis, where the application of four measures of computer and mobile phone use defined three types of computer and mobile phone users. The types of users significantly differed based on the degree and frequency of computer and mobile phone use, and girls and boys did not differ based on the frequency of belonging to a certain type. The types of computer and mobile phone users significantly differed in their kinesiological activity and other

psychological features (*general self-esteem, perceived sport competence* and *personal health image*). The findings of this research indicate the need for further research of computer and mobile phone usage frequency and mode, but also other available technical means, such as television or DVD/CD players among adolescents.

Sedentary behavior in the adolescents, such as computer and mobile phone use, were significantly related to their kinesiological engagement and psychological features. The technological development of the IT equipment is very fast. For example, the number of teenagers who owned a mobile phone: in 2004 45%, in 2012 78%, with about half of the number being smartphones (Madden et al., 2013). Therefore, it is necessary to follow the "development" and the frequency of new behavior patterns connected to their use. It is recommended to determine the relations of those types of behavior and of all other forms of sedentary behavior with kinesiological engagement and the psychological features of adolescent, so as to be able to prevent any possible negative consequence of those types of behavior.

REFERENCES

Biddle, S.J.H., Gorely, T., & Stensel, D.J. (2004). Health-enhancing physical activity and sedentary behaviour in children and adolescents. *Journal of Sports Sciences,* 22 (8), 679-701.

Cox, R. H. (2005). Psihologija sporta – koncepti i primjene (Sport psychology – concepts and applications). Jastrebarsko: Naklada Slap.

Grgantov, Z., Milić, M., & Milavić, B. (2013). Relations between sports motivation in physical education classes and dropping out of organized kinesiological engagement in adolescence. In D. Madić (Ed.), *Proceedings Book of 3rd International Scientific Conference "Exercise and Quality of Life"* (pp. 285-291). Novi Sad: Faculty of Sport and Physical Education, University of Novi Sad, Serbia.

Kautiainen, S., Koivusilta, L., Lintonen, T., Virtanen, S.M., & Rimpela, A. (2005). Use of information and communication technology and prevalence of overweight and obesity among finnish adolescent. *International journal of obesity,* 29 (8), 925-933.

Madden, M., Lenhart A., Duggan M., Cortesi S., & Gasser U. (2013). *Teens and Technology 2013 – report.* Pew Research Center, Internet & American Life Project - The Berkman Center for Internet and Society at Harvard University. Accessed at: http://www.pewInternet.org/Reports/2013/Teens-and-Tech.aspx on 15 May 2013.

Milavić, B., Guć, D., & Miletić, Đ. (2010). The Relations Between Types of Motivation and Perceived Sport Competence. *Facta Univesitatis series, Physical Education and Sport*, 8 (1), 59-69.

Milavić, B., Milić, M., Grgantov, Z., Elezović, J., Đapić-Caput, P., & Sinovčić, P. (2012). Relations between kinesiological engagement, psychological characteristics and types of computer use in adolescents. In: Miletić Đ., Krstulović S., Grgantov Z., Bavčević T., & Kezić A. (Eds.): *Proceedings Book of 4th International Scientific Conference "Contemporary Kinesiology",* (pp 696-704). Split: Faculty of Kinesiology, University of Split, Croatia.

Milić, M., Milavić, B., & Grgantov, Z. (2011). Relations between sport involvement, self-esteem, sport motivation and types of computer usage in adolescents. In *Proceedings of 3rd International Scientific Congress "Anthropological Aspects of Sport, Physical Education and Recreation".* Banja Luka, Bosnia and Herzegovina (*in press*).

Miliša, Z., Tolić, M., & Vertovšek, N. (2009). Mediji i mladi – Priručnik za prevenciju ovisnosti o medijima (The young and the *media- prevention* of *media* manipulation *addiction).* Zagreb: Sveučilišna knjižara.

Samardžić, M., Bego, J., & Milavić, B. (2011). Psihološke razlike adolescenata ustrajnih u sportu i onih koji su odustali od organiziranog bavljenja sportom (Psychological differences between adolescents who persevere is sport and those who dropped out of organized sport involvement). In: Skender N., & Čikeš N. (Eds.) - *Proceedings of 2nd International Symposium "Sport, Tourism and Health".* 14-16 October 2011. Bihać, Bosnia and Herzegovina.

Samdal, O., Tynjala, J., Roberts, C., Sallis, J.F., Villberg, J., & Wold, B. (2006). Trends in vigorous physical activity and TV watching of adolescents from 1986 to 2002 in seven European Countries. *European Journal of Public Health*, 17 (3), 242-248.

ODNOS IZMEĐU FIZIČKE AKTIVNOSTI, PSIHOLOŠKIH KARAKTERISTIKA I VRSTA UPOTREBE MOBILNIH TELEFONA I KOMPJUTERA MEĐU ADOLESCENTIMA

Cilj ovog istraživanja je utvrditi relacije tipova korisnika mobilnih telefona i računara s fizičkom aktivnošću i nekim psihološkim karakteristikama adolescenata. Učesnici su bili 305 učenika završnih razreda osnovnih škola gradova Trogira, Kaštela i Solina. Merene su varijable fizičkog aktiviteta, pasivne zaokupljenosti sportom, percipirane sportske kompetencije i samopoimanja. Konstruisana je nova skala za korišćenje mobilnih telefona. Taksonomskom analizom određena su tri tipa korisnika mobilnih telefona i računara. Učenice i učenici se značajno razlikuju po stepenu korišćenja mobilnih telefona i računara u različite svrhe, ali se ne razlikuju po frekvenciji pripadnosti pojedinom tipu korisnika. Tipovi nisko aktivnih korisnika imaju značajno viši stepen percipirane slike o svom zdravlju i općeg samopoimanja od ostalih tipova. Tip visoko aktivnih korisnika ima značajno viši stepen pasivne zaokupljenosti sportom od ostalih, a kod učenika taj tip ima još nešto više izraženu percipiranu sportsku kompetenciju i fizičku aktivnost.

Ključne reči: *aktivitet, percipirana sportska kompetencija, samopoimanje, korišćenje mobilnih telefona i računara, učenici.*