

INTERNET USE AND ABUSE: CONNECTION WITH INTERNET ADDICTION

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Highlights

- *The Internet is predominantly used as an individual rather than co-operative aid*
- *Males indicate a significantly higher tendency to Internet abuse*
- *Students with worse evaluation in Czech and Math indicate a significantly higher tendency to Internet abuse*
- *Every fifth respondent is moderately or highly above-average addicted to the Internet*

Abstract

Modern information and communication technologies have progressed quickly. Mobile technology, personal computers and the Internet have become closely linked to human life. However, all these devices and their use bring various pitfalls. Cheating of pupils and students in the school environment has been an interdisciplinary issue linked not only to pedagogy, but also to the whole range of sub-disciplines, like for example social pedagogy or etopedy. The latter disciplines have been significantly interfered by information and communication technologies that bring new forms of illegal school activities. Due to modern technologies we can also trace an increase of inattention of pupils and students and their tendency to distraction during lessons. Signs of Internet addiction among pupils and students can be observed more often. The paper deals with a research focusing on Internet use by secondary school youth and possible risks of using the Internet for them. Three aspects entering the educational process of adolescents are discussed there; Internet use, school cheating and Internet addictive behavior. In addition, a relation between possible risks of Internet use and educational strategies according the Learning Combination Inventory originated by Christine A. Johnston was examined within the research.

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Introduction

Possibilities of mobile learning and collaborative learning have been increased thanks to evolution of mobile technologies and its market penetration through smartphones and tablets, but also due to high acceptance of these technologies among young people. The end of the last century was marked by a rapid technological development and profound changes in many aspects of human activities. Such changes opened plenty of discussions on the role of education as well as the role of information and communication technologies (ICT) in teaching and learning in a new era, and obviously discussions on negative impacts of ICT especially on children and youth (cf. Huang et al., 2010; Ryu and Parsons, 2012; Berjón et al., 2015). With so many social media and communication channels that are used collectively, the Internet can cause various problems. Therefore, it is important to focus on an increasing number of negative aspects of social media that children, and not only them, encounter every day (Davison and Stein, 2014).

The authors of the paper aim at a research focusing on ICT usage by adolescents and its related possible user-risks (cf. Kalibova et al., 2016). The aim is to find out how secondary school students in the Czech Republic use the Internet as a study aid, and to study what are their inclinations to cheating as well as the prevalence of Internet addiction (cf. Kalibova and Milkova, 2016). Moreover, the relationship between educational strategies according the Learning Combination Inventory originated by Christine A. Johnston (Johnston, 1996) and Internet usage was examined within the research. Achieved results are described in the paper.

Adolescence

Adolescence is a period in human life that poses high demands on individuals and belongs to the most difficult periods. Suler (2005) defines four basic areas of needs that are characteristic of the adolescence period, and he describes ways provided by the virtual world to satisfy these needs. One of them is the need to explore one's own identity and experimenting with it. The virtual arena allows adolescents to answer questions about their own identity even with a high level of anonymity. The need of intimacy, desire to belong somewhere and fellowship are easily satisfiable on the Internet by way of searching and active participation in forming a community. The need of separation from a family is associated with feelings of anxiety and stress that the Internet can reduce or even eliminate. The need to release frustration is also easy in cyberspace.

School Cheating and Plagiarism

School cheating by Donat et al. (2014) is considered to be as one of specific forms of deviant behavior of adolescents. According to the authors, school cheating includes a broad range of activities, such as copying answers from another student's test, using cribs during an exam, plagiarism, obtaining tests before they are assigned and others.

Plagiarism represents a special chapter of school cheating. Mohan et al. (2015) classify plagiarism as follows:

- Copying of ideas, thoughts (this is a very difficult form of plagiarism to detect, but can cause serious consequences for the offender)
- Copying of texts, pictures, tables from all types of resources

- Copying of oneself (thus coping of one's own ideas from previous work)
- "Ghost Writing" (we talk about this form of plagiarism when the author does not list another member of the author's team)
- Mosaic plagiarism (it is a modification of several words in the text that are copied and subsequently published as one's own text).

The issue of plagiarism is especially up-to-date in connection with so-called "copy-paste" plagiarism, or with a possibility to buy readymade works by other authors.

School Disruption - Cyberloafing

The newly described phenomenon is based on the deliberate use of Internet access for private purposes during work time or lectures that are described in foreign literature as cyberloafing or cyberslacking. In their work Akbulut et al. (2016) include into cyberloafing activities of sending or receiving emails and text messages, browsing on web sites, communication in chat rooms or via social networks, other activities on social networks, online shopping, downloading or playing games for private purposes other than work related.

Yilmaz et al. (2015) says that cyberloafing was originally described only in the context of work environment as counterproductive work behavior. However, with the increasing cases of school disruption due to ICT use, we start speaking about this phenomenon also in the school classroom environment.

According to Griffin (2014) there are principal factors playing an important role within school disruption. These are inability of a student to concentrate on a teacher's interpretation, the desire for fun, too much demand on a student imposed by a teacher or digital technologies addiction.

Internet Addiction

Already in 1998 Young (1998) stated that Internet addiction becomes a new clinical disease and a phenomenon of postmodern society, and worked with eight criteria of this syndrome:

- Internet use as a means to control mood
- Time spent on the Internet increases in order to achieve the same level of satisfaction
- Repeated effort to cut down Internet use
- Emergence of irritability, depression or frustration in the absence of Internet connection
- Internet connection takes longer than the user perceives
- A user lies to his/her surrounding about the time spent in cyberspace
- A user prefers the Internet to other activities
- Strong commitment to the Internet

Subsequently Young claims that Internet addiction is diagnosed when at least five out of the eight above-mentioned criteria are experienced by an individual.

According to Chou et al. (2015) Internet addiction is mainly characterized by an inability to control Internet use. He claims that the international prevalence scale of Internet addiction varies between 8% to 13% for university students and 1.4% to 17.9% for adolescents.

Internet addiction is influenced by so-called Internet use for entertainment related use. Jeong et al. (2016) states that the entertaining content such as video, music, social networks and games can cause addiction regardless the media type. In this context let us state that the occurrence of Internet addiction is gender-bound. Alpaslan (2015) states a higher incidence in males, mainly due to a higher engagement in playing games

online, in cybersex field, in tracking cyberporn materials and online gambling.

Interested readers can find much more information devoted to Internet addiction topic in the paper Kalibova and Milkova, 2016.

Learning Styles

There are various definitions and many typologies of learning styles. Let us introduce at least the following two definitions introduced recently. Hedayati and Foomani (2015) define learning styles as cognitive, affective and psychological characteristics that are relatively stable indicators of how learners perceive, interact and react in a learning environment. Balakrishnan and Lay (2016) consider a teaching style as a preferred method of learning an individual that is often associated with their individual performances and may indicate academic success or failure of this individual; it is therefore imperative for teachers to understand students' learning styles, especially in connection with coming of social media as a potential educational tool.

For the purposes of our research we chose the Learning Combination Inventory originated by Christine A. Johnston (Johnston, 1996), see thereafter. Her Learning Combination Inventory

differs from other learning style questionnaires (such as Kolb, Honey and Mumford, 1982) by focusing primarily on the learning process (what and how is the student's learning will influenced, as well as how to achieve optimal student's intellectual development) rather than simply on the learning results (Šimonová and Poullová, 2012).

Materials and Methods

The study carried out in 2015 - 2017 was focused on a long-term research concerning Internet use and abuse including the issue of Internet addiction in education of secondary school youth and its educational strategies according to the Learning Combination Inventory (see Kalibova, 2017).

The main objective was to find out

- how secondary school students Internet usage in lessons and when doing homework;
- how strong is secondary school students' tendency toward misusing Internet;
- what is the level of Internet addiction among contemporary adolescents by using selected criteria;

Furthermore, we were interested whether there is any connection (relationship) between a student's attitude to learning and his/her tendency to Internet abuse and to Internet-related addictive behavior, i.e. we wanted to detect to what extent a concrete student's preferred learning style might affect a student's tendency to the mentioned potential risks.

Research sample and its characteristics

For the research purpose we chose secondary schools in the Czech Republic. There were 1542 student respondents from the age group of 15 to 23 year olds (average age = 16.99, standard deviation = 4.28), 647 boys and 895 girls.

According to the long-term psychological and pedagogical experience confirming that a mark is highly correlated with the mental capacity of an individual we also examined the respondent's classification in two key subjects - Czech mother tongue as a representative of humanities, and mathematics as a representative of science subjects (see Table 1 and Table 2).

Evaluation	Number of students	%
1 (excellent)	299	19.39
2 (very good)	607	39.96
3 (good)	544	35.28
4 (satisfactory)	88	5.71
5 (fail)	4	0.26

Table 1: Czech language subject evaluation, 2015-2017
(source: own calculation)

Achieved results according to Table 1 are:

Mean = 2.28, Standard deviation = 0.85, whereas $M_{\text{boys}} = 2.46$ and $M_{\text{girls}} = 2.14$.

Evaluation	Number of students	%
1 (excellent)	289	18.74
2 (very good)	509	33.01
3 (good)	532	34.50
4 (satisfactory)	206	13.36
5 (fail)	6	0.39

Table 2: Mathematics subject evaluation, 2015-2017
(source: own calculation)

Achieved results according to Table 2 are:

Mean = 2.44, Standard deviation = 0.95, whereas $M_{\text{boys}} = 2.50$ and $M_{\text{girls}} = 2.38$.

Research methodology

The Learning Combination Inventory (LCI) originated by Johnston (1996) and the Internet Risks Questionnaire were distributed to students. The survey was anonymous (both questionnaires filled in by a respondent were designated with an identification number of a respondent).

Learning Combination Inventory

Using the Learning Combination Inventory (LCI) we determined into what extent is the particular learning pattern – Sequential Processor, Precise Processor, Technical Processor and Confluent Processor characteristic of a respondent. There are 28 items in the LCI questionnaire (see Table 4 thereafter) indicated as numbers 1, 2, ..., 28 (Johnston, 1996).

The patterns can be characterized as follows. (Remark: Next to each pattern there are LCI number indicators corresponding with the given pattern, and the word description of the pattern.) *The Sequential Processor* learning pattern student (2, 5, 10, 13, 18, 21, 27) can be characterized as a student who needs clearly formulated instructions, likes verifying theory in practice, works step by step, memorizes correct answers, makes lists, organizes activities, makes plans first of all and then practises.

The Precise Processor learning pattern student (4, 7, 9, 14, 19, 24, 25) requires correct, precise and detailed information, analyzes, asks questions, concentrates on searching his own sources of information and verifies the information. If he explains something, he explains it in details and looks for additional information in books to make himself sure that he is right.

The Technical Processor learning pattern student (1, 6, 11, 15, 17, 22, 26) has a strong and developed logical thinking, considers practical application of information, eliminates unvalued information, uses technical devices. He prefers individual work and oral performance.

The Confluent Processor learning pattern student (3, 8, 12, 16, 20, 23, 28) is able to apply his own ideas, concepts and theories, likes cooperating with creative people, works without stress, likes doing things in new and unusual ways and is often an artistic person. He likes trying new things, starts working first, only then thinks about the method.

Calculating values according to the Lickert scale (1 = never ever,

2 = almost never, 3 = sometimes, 4 = almost always, 5 = always), which was used by a respondent and which was matching a given learning pattern, we could determine a student's preference to the relevant pattern. The minimum determination of each learning pattern is 7, maximum is 35. Determination between 7 – 17 corresponds to "I avoid this scheme", determination between 25 – 35 corresponds to "I use this scheme first", and determination in the residual range corresponds to "I use this as needed". (Johnston, 1996)

Internet Risks Questionnaire

The Internet Risks Questionnaire (IRQ) itself originated in the course of the author's PhD study (Kalibova, 2017). Using this questionnaire, we can find out into what extent a respondent uses/abuses the Internet, and how much a respondent is dependent on the Internet. The questionnaire was designed in the form of 43 statements from which a respondent's answers were analyzed according to the Lickert scale (see above).

Obtained data were subjected to a factor analysis. Program Varimax orthogonal (NCSS) was used and according to Cronbach's Alpha (0.86), a critical value |0.30| was selected. Three factors were generated that we marked as F1 Tendencies to Internet addiction, F2 Internet – study aid and F3 Internet abuse. Factor F1 contains 15 statements, F2 contains 13 statements and F3 contains 12 statements (cf. Table 7, Table 8 and Table 9). Three statements, namely "Teachers encourage us to obtain information from the Internet." "The longer I am online the worse mood I find myself in." "I feel that time spent on the Internet is a waste of time", were excluded from previous 43 items since there was no correlation with any of the factors F1, F2, and F3 found.

Statistical survey

Based on D'Agostino Kurtosis test it was determined that all monitored data have a standard distribution, and thus we could use F tests for statistical survey of mutual dependence of individual factors.

Results

In this section let us present the results of both questionnaires and analyze and discuss their individual items. Abbreviations M for arithmetic mean and SD for deviation are used.

Learning Combination Inventory

Processor	M	SD	Median	Min – Max
Sequential Processor	24.59	4.16	25	7 – 35
Precise Processor	21.68	3.46	22	7 – 35
Technical Processor	22.20	4.35	22	7 – 35
Confluent Processor	21.07	4.09	21	7 – 35

Table 3: Results of LCI, 2015-2017 (source: own calculation)

A higher tendency towards the Sequential Processor (see Table 3) corresponds to the fact that traditional forms of learning still prevails in Czech education. This is also apparent from answers shown in Table 4 where the first three places are occupied by responses referring to this learning pattern.

Table 4 represents LCI statements that are put in order according to arithmetic mean M (level of agreement with the statement). In front of each of the statements there is a number corresponding to the LCI item number.

Statement	M	SD
18. I become frustrated if directions are changed while I am working on an assignment.	4.33	0.92
13. I need to have a complete understanding of the directions before I feel comfortable doing an assignment.	3.91	0.91
2. I need clear directions that tell me what the teacher expects before I begin an assignment.	3.88	0.92
28. I like to make up my own way of doing things.	3.80	0.89
5. I feel better about an assignment when I double-check my answers.	3.56	1.16
17. I prefer to build things by myself without anyone's guidance.	3.47	0.99
26. I like to figure out how things work.	3.37	1.00
9. I prefer to take a paper and pencil test to show what I know.	3.34	1.08
21. I clean up my work area and put things back where they belong without being told to do so.	3.32	1.17
19. I keep detailed notes so I have the right answers for tests.	3.30	1.06
3. I just enjoy generating lots of unique or creative ideas.	3.30	0.97
10. I keep a neat notebook, desk, or work area.	3.29	1.20
7. I am interested in knowing detailed information about whatever I am studying.	3.27	0.96
1. I would rather build a project than read or write about a subject.	3.23	0.81
14. I find that researching information is my favorite way to learn a subject.	3.21	0.99
4. I memorize lots of facts and details when I study for a test.	3.15	0.98
6. I like to take things apart to see how they work.	3.05	0.92
11. I like to work with hand tools, power tools, and gadgets.	3.03	1.10
22. I enjoy the challenge of fixing or building something.	3.03	1.18
15. I like hands-on assignments where I get to use mechanical/technical instruments.	3.02	1.16
20. I don't like having to do my work in the way the teacher says, especially when I have a better idea I would like to try.	2.94	1.00
12. I am willing to risk offering new ideas even in the face of discouragement.	2.87	1.05
16. I become frustrated when I have to wait for the teacher to finish giving directions.	2.84	0.99
25. I ask more questions than most people because I just enjoy knowing things.	2.76	1.07
8. I like to come up with a totally new and different way of doing an assignment instead of doing the same way as everybody else.	2.67	1.02
23. I react quickly to assignments and questions without thinking through my answers.	2.66	0.91
24. I enjoy researching and writing factual reports.	2.66	0.96
27. I am told by others that I am very organized.	2.31	1.15

Table 4: LCI: Statements order according to mean M, 2015-2017 (source: own calculation)

Using statistical analysis, we acquire statistically significant differences (see Table 5 – Table 8) and hence we can claim:

- Males indicate a significantly higher tendency to the Technical and Confluent Processor, females show significantly higher tendency to the Sequential and Precise Processor.
- Individualized and riskier learning strategies are associated with a higher age.
- The higher tendency to the Sequential Processor, the better evaluation in Czech language (Mathematics resp.). Likewise, the higher tendency to the Precise Processor, the better evaluation in Czech language (Mathematics resp.).

Processor	F-test	M _{boys}	M _{girls}
Sequential Processor	75.95*	23.62	25.30
Precise Processor	16.59*	21.29	21.96
Technical Processor	202.16*	23.81	21.04
Confluent Processor	47.05*	21.84	20.52

Table 5: Interdependence of LCI and gender (*p < 0.05), 2015-2017 (source: own calculation)

Processor	Correlation coefficient
Technical Processor	0.077*
Confluent Processor	0.076*

Table 6: Interdependence of LCI and age (*p < 0.05), 2015-2017 (source: own calculation)

In Table 7 and Table 8 numbers 1, 2, 3, 4, 5 is shown evaluation in the Czech language (Mathematics resp.). This evaluation is normally used in Czech schools and corresponds to the evaluation in the foreign form of A, B, C, D, and F.

Processor	F-test	1	2	3	4	5
Sequential Processor	17.78*	25.37	24.74	24.12	23.52	18.27
Precise Processor	21.74*	22.46	21.81	21.26	21.01	14.83

Table 7: Interdependence of LCI and Czech language (*p < 0.05), 2015-2017 (source: own calculation)

Processor	F-test	1	2	3	4	5
Sequential Processor	10.29*	25.13	24.63	24.51	24.14	17.93
Precise Processor	10.17*	22.01	21.73	21.65	21.29	16.09

Table 8: Interdependence of LCI and Mathematics (*p < 0.05), 2015-2017 (source: own calculation)

Internet Risks Questionnaire

Factor	M	SD	Median	Min – Max
F1 Tendencies to Internet Addiction	39.12	10.04	39	15-75
F2 Internet – study aid	24.55	4.48	25	13-65
F3 Internet Abuse	24.98	7.83	24	12-60

Table 9: Results of IRQ, 2015-2017 (source: own calculation)

Analyzing interdependence of factors F1, F2, and F3 We obtained quite expected correlations (see Table 10):

- The more the Internet is used for study, the higher increase of possibility of Internet addiction and of Internet abuse is there.
- The more Internet abuse occurs, the higher tendency to Internet addiction occurs.

	F1	F2	F3
F1	-	0.30**	0.48**
F2		-	0.28**

Table 10: Interdependence of factors F1, F2, and F3 (p < 0.01), 2015-2017 (source: own calculation)**

Tables 11 to 13 represent questionnaire statements of relevant factors F1, F2 and F3 that are put in order according to arithmetic mean M (level of agreement with the statement).

Statement	M	SD
When I connect to the Internet and it is being loaded, I feel excited.	3.50	1.02
It happens to me that due to the Internet I miss something important (e.g. a meeting, keeping a promise).	3.09	1.09
It happens to me that I procrastinate learning for later due to the Internet.	2.83	1.14
At home I conceal the things I do on the Internet	2.69	1.2
When I am online, I lose the track of time.	2.68	1.15
Even though I have other responsibilities, I postpone them due to the Internet.	2.61	1.17
The computer is my true and intimate friend.	2.47	1.15
When I have a little time off, I automatically connect to the Internet.	2.42	1.3
Thanks to the Internet I get up early in the morning and get connected immediately.	2.39	1.12
When I ban myself to use the Internet just for one day, I cannot stand it and finally get connected.	2.32	1.01
I lie about the question how long I spent online.	2.23	1.02
Thanks to the Internet I have no time for hobbies.	2.03	1.00
I am fed up if I cannot get connected from anywhere.	1.78	0.93
I spend more time on the Internet than with a family or friends.	1.76	0.93
Thanks to the Internet I stay up late till night.	1.52	0.9

Table 11: IRQ: Statements order of factor F1, 2015-2017 (source: own calculation)

Statement	M	SD
I consider the Internet as a source of information which is necessary during secondary school studies.	3.91	0.97
I use electronic sources of information during self-study.	3.80	0.94
I cannot imagine my studies without Internet connection.	3.68	0.92
I also use social networks for learning.	3.44	1.06
I obtain information more often from the Internet than from paper-printed literature.	3.21	1.00
I verify information obtained on the Internet.	3.12	0.63
Information published or posted on the Internet is reliable.	3.11	1.01
We also use the Internet at school during lessons.	2.84	0.82
It is necessary to verify information obtained on the Internet (e.g. with the help of some other paper-printed literature).	2.83	1.05
I share information with classmates about lessons on social networks.	2.72	1.18
We share study materials on social networks.	2.48	1.09
Pedagogues provide us with study material that cannot be found in textbooks (e.g. in the form of freeware materials from the Internet).	2.24	1.09
I consider discussion/chatting with my classmates on social network also as learning.	1.32	0.91

Table 12: IRQ: Statements order of factor F2, 2015-2017 (source: own calculation)

Statement	M	SD
I tell my parents that I use the Internet for learning, but it is not true.	3.41	1.19
I use the Internet during writing a task in order to find out a correct answer.	3.31	1.09
During lessons I communicate on a social network.	3.00	0.99
I am inspired by work published on the Internet when doing my homework.	2.86	0.99
When doing homework or writing an essay “I borrow” a ready-made text from the Internet and I use it in my work.	2.79	1.18
I have downloaded work on the Internet and presented it as my own.	2.62	1.18
I surf on the Internet during lessons.	2.59	1.24
In order to pass my test, I take a photo of the text with my phone. Then I copy it out.	2.21	1.58
I cheat at school through information and communication technologies.	2.18	1.17
We share completed tests on social networks.	2.00	1.07
It has happened to me that someone did an assignment for me in exchange of sending a photo or a video of myself with sexual content.	1.92	1.09
I receive and send emails during lessons.	1.64	0.99

Table 13: IRQ: Statements order of factor F3, 2015-2017 (source: own calculation)

Using statistical analysis, we get the following statistically significant differences (see Table 14 – Table 17) and therefore we can say that:

- Males indicate a significantly higher tendency to Internet abuse as well as students with worse evaluation in Czech language (Mathematics resp.).
- The older the respondents are, the more addictive they become and the higher is the tendency to abuse Internet.

Factor	F-test	M _{boys}	M _{girls}
F1 Tendencies to Internet addiction	15.25*	40.19	38.34
F3 Internet abuse	32.64*	26.20	24.10

Table 14: Interdependence of IRQ and gender (*p < 0.05), 2015-2017 (source: own calculation)

Factor	Correlation coefficient
F1 Tendencies to Internet addiction	0.080**
F3 Internet abuse	0.082**

Table 15: Interdependence of IRQ and age (*p < 0.05), 2015-2017 (source: own calculation)

In Table 16 and Table 17 numbers 1, 2, 3, 4, 5 is shown evaluation in the Czech language (Mathematics resp.). This

evaluation is normally used in Czech schools and corresponds to the evaluation in the foreign form of A, B, C, D, and F.

Factor	F-test	1	2	3	4	5
F1 Tendencies to Internet addiction	9.84*	37.09	38.76	40.07	42.44	40.89
F2 Internet – study aid	9.94*	25.13	24.30	24.73	23.51	18.63
F3 Internet abuse	17.44*	23.51	24.35	26.05	28.19	15.91

Table 16: Interdependence of IRQ and Czech language (*p < 0.05), 2015-2017 (source: own calculation)

Factor	F-test	1	2	3	4	5
F1 Tendencies to Internet addiction	2.39*	37.93	39.0	39.50	40.04	40.70
F2 Internet – study aid	6.40*	24.47	24.70	24.60	24.16	19.25
F3 Internet abuse	10.50*	23.71	24.48	25.39	27.11	19.43

Table 17: Interdependence of IRQ and Mathematics (*p < 0.05), 2015-2017 (source: own calculation)

LCI and IRQ interdependence

Table 18 presents found interdependence among IRQ and LCI.

Factor	Sequential Processor	Precise Processor	Technical Processor	Confluent Processor
F1 Tendencies to Internet addiction	- 0.15**	- 0.14**	0.8**	
F2 Internet – study aid	0.09**			0.13**
F3 Internet abuse	- 0.28**	- 0.19**		0.13**

Table 18: LCI and IRQ interdependence (p < 0.01), 2015-2017 (source: own calculation)**

Discussion

Let us discuss achieved results of both questionnaires, partly separately, partly in mutual relation.

Learning Combination Inventory

Acquired statistically significant differences

- Males indicate a significantly higher tendency to the Technical and Confluent Processor, females show significantly higher tendency to the Sequential and Precise Processor.
- Individualized and riskier learning strategies are associated with a higher age.
- The higher tendency to the Sequential Processor, the better evaluation in Czech language (Mathematics resp.). Likewise, the higher tendency to the Precise Processor, the better evaluation in Czech language (Mathematics resp.).

lead us to the following considerations.

Males are more likely to risk, innovate, and often reluctant to learn too much not only due to a low engagement and task-fulfilling orientation, but surely also due to deeper experience of self-realization emerging as a need of being original. As far as females are concerned, the results show the opposite, respectively, females in pursuit of getting and having good school results apply prevalent and learning methods.

With the adolescent age, individualization is rising. This can be caused by the reluctance to stick to established procedures, the decision to take the risks, sometimes even high ones, related to adolescent self-esteem and idealized self-image.

A-students in both subjects are perceived as excellent students who best meet the teacher’s idea of successful students, more often they choose the first two strategies based on traditional practices required by traditional schools and these practices bring them the best profit.

Internet Risks Questionnaire

Analyzing IRQ data according F1-Tendencies to Internet addiction we obtained a distressing findings: 20% respondents

show the arithmetic mean of the above 15 given statements higher than 3, which means that every fifth respondent is moderately or highly above-average addicted to the Internet.

The arithmetic mean of more than a half of statements of factor F2-Internet – study aid is above average. It is clear that the Internet has become a common aid in learning and studying. The lowest occurrence of the assertion is the statement “I consider discussion/chatting with my classmates on a social network also as learning.” This answer matches with the scale item “never”. Although the Internet is used as a learning aid, as shown above, it is predominantly used as an individual rather than co-operative aid. This is actually what the contemporary Czech school still prefers and peer learning is not much developed and supported form of teaching/learning in Czech education.

According to factor F3-Internet abuse statements listed in the Table 13 appear within the Likert scale between items “sometimes” - “often”. Respondents admit that they misuse the Internet, but we should mind the fact that the extent to which they do so can be greatly reduced by a respondent in order to minimize their guilt. Males indicate a significantly higher tendency to Internet abuse that is in accordance with Akbulut et al. (2016), see the section Materials and Methods – School Disruption, as well as students with worse evaluation in Czech language (Mathematics resp.).

Among the statements of factor F3 there are three statements focused on school disruption by means of Internet use: “During lessons I communicate on a social network”, “I surf on the Internet during lessons” and “I receive and send emails during lessons.” (cf. Griffin, 2014, section Materials and Methods – School Disruption). The nine other statements focus on cheating and plagiarism. Respondents mostly agreed with statements concerning drawing inspiration and copying work published on the Internet while writing their own work. They mostly draw inspiration on Internet portals sharing papers and assignments, and then from Wikipedia’s online encyclopedia. They often only copy a text without evaluating the information critically. Statistical results concerning interdependence of the three statements belonging to school disruption according to gender show that a significant difference can be seen only in the statement “I receive and send emails during lessons”, namely that females send and receive emails during lessons more often than males. Obviously, such a conclusion matches natural talkative women’s behavior (see Kalibova et al., 2016).

LCI and IRQ interdependence

Students who prefer the Sequential Processor learning pattern and students who prefer the Precise Processor learning pattern are students who favor clear instructions, precise and detailed information. They respect the traditional concept of teaching/learning at school in which it is the teacher who has a decisive and determining role. Students who prefer the Sequential Processor learning pattern, uses the Internet as a study aid. Students who prefer the Precise Processor learning pattern, prefer studying books. None of these students show a tendency to Internet addiction or Internet abuse.

Students who prefer the Technical Processor learning pattern have a strong logical thinking and eliminate inappropriate information. Such type of a student uses the Internet as a learning aid, does not abuse it, but tends to become Internet addicted.

Students who prefer the Confluent Processor learning pattern use the Internet as a learning aid, however, although there was no risk of becoming Internet addicted found, these students abuse the Internet at school.

Based on results gained in Table 18 let us describe in a simple well-arranged form a typology of students (see Table 19).

Student type	Learning type	Internet – study aid	Internet addiction	Internet abuse
A	Sequential Processor	✓	×	×
B	Precise Processor	×	×	×
C	Technical Processor	✓	✓	×
D	Confluent Processor	✓	×	✓

Table 19: Typology of a student

Conclusion

The paper deals with issues of selected types of Internet risk behavior in the context of using the Internet as an educational aid. The target group are secondary school students. The discussed topic responds to the rapid increase in implementation efforts in the use of information and communication technologies in education and describes also the mutual relation between the student’s educational strategy and the tendency to Internet abuse and to Internet addiction.

From the results of our research it can be concluded that contemporary secondary school youth in the Czech Republic does not significantly differ from their peers abroad. Statistical survey made for factors F1 and F3 according to a gender and two selected fundamental subjects show in all cases a statistically significant difference between monitored variables, namely that males indicate a significantly higher tendency to Internet addiction as well as a significantly higher tendency to Internet abuse. Moreover, students with worse evaluation indicate a significantly higher tendency to Internet addiction as well as a significantly higher tendency to Internet abuse.

The Internet provides a user with a broad and varied range of uses, one of which is undoubtedly the possibility of new types of communication. The role of women and men is represented in our culture by certain traits of behavior. Adolescents get acquainted with these traits, and in some sense they are also assumed to active communication with each other face to face. This seems to be more difficult for adolescent men than women, and the use of the Internet in communication (with all its features - such as anonymity) effectively reduces young men’s anxieties. Males indicate a significantly higher tendency to cheating and plagiarism, whereas tendency to school disruption is comparable with females. According to Mares (2007: 189) “Sex of pupils has nothing to do with cheating especially at the beginning of school attendance”. Gradually, these are the boys who prevail in cheating. This trend might be explained by the fact that girls tend to stick to the rules and are more aware of the possible consequences of breaking the rules.

Alarming results are in the field of Internet addiction, with almost 20% of respondents showing signs of already developed Internet addiction. It is obvious that it is high time to focus on effective prevention of the above-described types of risk behaviors on the Internet that adolescents encounter in the educational process. Primary prevention should be addressed to both parents of adolescents as well as schools and school facilities.

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