



SELECTED PERSONALITY CORRELATES OF BEHAVIORS ASSOCIATED WITH INTERNET "PIRACY"

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Introduction: The aim of the study was to determine the relationship between selected personality traits as well as behaviors associated with the so called internet "piracy". The theoretical framework of the research was Rotter's Theory of Locus of Control, and Spielberger's Theory of State/Trait Anxiety.

Methods: Two questionnaires were used. Namely, Rotter's Locus of Control (LoC) questionnaire, and Spielberger's STAI questionnaire. Moreover, a survey regarding downloading of online content was administered. The study was performed in two groups of students (N=96), aged 18-35 years (75% female, 25% male)

Results: People with an external locus of control (externalists) manifest internet "piracy" behaviors more often than people with an internal locus of control (internalists). Lack of correlation between trait-anxiety and behaviors associated with illegal downloading and using online content. Moreover, students of economy download, copy, and share files online more often than students of humanities. Illegal downloading of files from the Internet is more prevalent in the age group of 18-25 years.

Discussion: Discussion was based on Rotter's Theory of Locus of Control and Spielberger's STAI Concept.

Conclusions: There is a correlation between LOC and anxiety, and a tendency to illegally download files from the Internet, type of studies, and age of Internet users.

Keywords: computer crime, copyright, Internet piracy, Locus of Control, Trait Anxiety

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INTRODUCTION

Internet is an interesting technological tool, which at the turn of the 21st century became a phenomenon facilitating social activities in all aspects starting from economy, through planning of technological infrastructure, integration of social groups, to criminal activity [28]. The multiple aspects of this phenomenon led researchers from different fields, including psychologists, to analyze the influence of the Internet on the wellbeing of a modern man. Some of the first authors who reviewed studies originating from the field of social sciences were, i.e., P. Wallace [24], Castells [5], Kowalski, Limber [8], and Szmigielska [21]. These authors looked at the behavior of Internet users with respect to illegal downloading and use of online content in relation to personality characteristics.

INTERNET CULTURE

Internet came into existence in the 1960s, in the USA, with the intent to create a military communications network. With time, a uniform international electronic mailing system (email) was implemented. The cornerstones of the Internet as we know it today were the creation of Milinet in 1983 (a network connecting the scientific ARPAnet and military DCA computers) for military purposes as well as the creation of NSFnet (National Science Foundation) in 1986 that interconnected five super-computers from academic centers. In 1991, Tim Berners-Lee from the Swiss CERN created the first ever internet browser that enabled its users to view documents within the WWW (World Wide Web) through hyperlinks. In 1998, the Internet was a near complete, standardized network – users had at their disposal browsers with a graphical interface, and websites included not only texts but also images, animations, and banners. The era of dotcoms (internet companies) had begun [5].

The basic psychological reason for using the Internet is the possibility of communicating with other people as well as an unlimited access to information. Virtual relationships with other users create a sense of community, which can have its effect in the real world (flash mobs, sites associating victims, e.g. stopmbank.pl, support groups, e.g. niepelnosprawni.pl). The Internet, although virtual in nature, is the source of real emotions [24].

The Internet allows one to communicate with several people at one time. An online environment established by Internet users is MUDs (*multi-user dungeon*). This term was coined by Wallace, and referred to players of the *Dungeons and Dragons* computer game. Another online environment is

formed by people who exchange files (multimedia, music, books etc.). In recent years, we have seen a quickly growing number of e-commerce businesses, auction sites, polls, price comparators, etc. [10]. Among Internet users there is a code of conduct that in the literature on the subject matter is referred to as the Internet culture. The Internet culture encompasses such fields as technical competence culture, hacker culture, virtual communications culture, and entrepreneurial culture. The common ground for all of the above-mentioned cultures is the notion of freedom, that can be however differently interpreted [5].

Internet as a subject of psychological research

Social psychology studies the Internet in terms of interpersonal communication, formation of virtual communities, and fulfillment of many psychological needs. As of today, the human behavior in the Internet is not explained by any coherent psychological theory. Psychological research is usually descriptive in nature, and tends to give hindsight explanations, which refer to already established psychosocial mechanisms. For instance, Kraut et al. [9] found that use of the Internet led to weak social bonding, reduced mental wellbeing, and a feeling of social isolation. These pessimistic interpretations suggest that the Internet competes with the physical space by substituting real-life relationships with virtual ones. This causes detrimental effects to the social environment of the user (friends, acquaintances, and family). Such results, termed *the Internet Paradox*, were not replicated by other studies [9]. Szmigielska et al. [21] point to more complex interpretations of behaviors of Internet users. They propose the following interpretation contexts: developmental and educational context (e.g. getting information from encyclopedias, dictionaries, web-based sources, e-learning, lack of educational goals and tasks), interpersonal relations context (e.g. blogs, social media, communicators, VIP tools, etc.), context of danger (including cybercrime, internet violence, addictions, etc.). Moreover, there is research describing factors that may differentially influence communication behaviors in the Internet as well as in real world, such as a sense of anonymity, a sense of impunity, reduced impact of first impressions in online communication, asynchronous communication allowing for unrestricted modification of posts, and use of audiovisual messages (images) [14]. Whether internet addiction has a clinical meaning, such as gambling addiction, sex addic-

tion, nicotine, alcohol or drug addiction, is still not clear among researchers [27].

Another field of psychological research deals with psychological violence in the Internet. It is postulated that the Internet allows for an uncontrolled propagation of violent and aggressive content, which through a global coverage and a domination of electronic media can cause a sense of "media shock" [12,13]. The violent nature of media content is characteristic not only for the Internet, but applies also to a great extent to other media such as press, television, and movies [17]. However, there are proponents of violent media content represented most typically by producers and authors who refer to the benefits of showing aggression in the media: the hypothesis of "catharsis" (based on psychoanalysis), the hypothesis of "substitution of reality" by the virtual world, the hypothesis of "sociocentricity" (brutality makes the perpetrator more socially attractive), the hypothesis of "adaptation" (preparation for a life in an increasingly digitalized real world) [16].

In the literature on the subject there is a prevalence of research that points to a negative influence of aggression in the media with regard to aggressive behaviors as well as to sensitivity towards aggression [25]. Another hypothesis referring to the negative influence of virtual aggression on real-world behaviors is the hypothesis of "social learning", according to which viewers of aggressive media content often identify with, and emulate such aggressive behaviors [22].

Cybercrimes that do not use aggression include cyber-trespass (acquiring unauthorized access to a computer or a network of computers), "snooping" (spying on another user and their electronic resources), cyber-theft (use of a computer or a network of computers in order to steal information, money, software, intellectual property). There are several kinds of cyber-theft such as corporate es-

pionage, plagiarism, piracy (unauthorized copying of music, software, movies, art, books, etc., without a prior consent from the copyright holder), identity theft, cyber-fraud, cyber-damage (e.g. hacking of computer networks, deleting files and software, hacking WWW servers, damaging websites, introducing viruses, bugs and other malware, blocking access to servers to authorized users, advertising and selling of prohibited goods, internet gambling, cyber-contraband – illegal transmission of prohibited software, for instance, cyphering software).

Internet "piracy" as a category of cybercrime

Internet piracy is a category of cybercrime [5]. Business Software Alliance [4], an organization associating commercial producers of propriety software, defines internet piracy as an "unauthorized use or illegal copying of software without consent from the copyright holder". Business Software Alliance, Association of Audi-Video Producers, and the Foundation of Protection of Audiovisual Authors created an Anti-Piracy Coalition, which informs users of the consequences of using illegal audio files, movies, and software as well as of the ways of protecting oneself from internet piracy.

However, whether downloading and using internet files is equal to crime remains unclear [23]. For instance, according to the Polish law, downloading video and audio files and e-books is allowed, provided it does not serve commercial purposes. Such legislation influences the statistics regarding the use of audio files in the Internet as well as the attitude towards internet piracy in Poland (Fig. 1).

This phenomenon is reflected by the fact that 76% of Polish Internet users support piracy, whereas only 24% support the fight against piracy. One can ponder the reasons behind such a state of af-

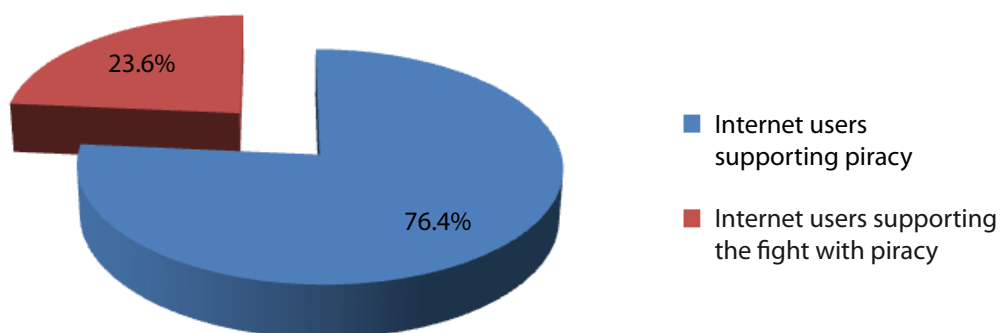


Fig. 1. Supporting of Internet piracy by Internet users.

Source: Raport Antypiracki 2011

fairs. With respect to Poland, an emphasis is put on a low material wealth of the society or a generally low level of culture in the Polish Internet.

METHODS

Theoretical framework of the study

Theory of Locus of Control

The theory of Locus of Control (LoC) by Rotter [18] assumes that people expect similar consequences of their actions in the future as in the case of consequences of past actions. The expectations of the consequences of future actions are both general, taking into account all past associations between behavior and reinforcement in the form of need fulfillment, and specific, regarding the fulfillment of a specific social role. Because of that, the expectation of the consequences of behaviors is a net outcome of generalized expectations as well as present reinforcements. People with an internal locus of control (internalists) attribute the outcomes of their actions to their abilities, competence, work, or engagement. People with an external locus of control (externalists) attribute the outcomes of their actions to external factors such as bad luck, other people, chance, etc. Situations that are either dependent on or independent of an individual can be placed on a continuum with situations that can be fully controlled through the capabilities of an individual on the one hand (a belief in internal control), and situations that are completely controlled by external factors (chance, people, events, and others) on the other hand (a belief in external control). There is research suggesting that people tend to overestimate the influence of either type of situation [6].

The theory of state-anxiety and trait-anxiety by Spielberger [20] differentiates between anxiety defined as a temporary state determined by situational factors, and anxiety as a relatively stable trait of personality reflecting past experiences with fear, and causing an individual to perceive objectively safe situations as threatening, and hence eliciting fear. States of anxiety are characterized by symptoms of activation, autonomic nervous system hyperactivity, and are highly variable [26].

Research

Research on the relationship between LoC and anxiety in Internet users suggests that people with an external locus of control are vulnerable to the development of uncontrolled use of the Internet. This may lead to the development of a sense of addiction as such people do not have adequate

control over their fate, and are more susceptible to contents available on the Internet. People with an internal locus of control are more critical of the contents found online, and distance themselves from them. Consequently, they less frequently tend to use the Internet excessively [6,15,19]. For instance, Chak and Leong [6], who studied the predictive role of shyness and locus of control in Internet addiction, found that the more shy people were, the less faith they had in their control over their fate, and were more susceptible to the development of Internet addiction. Mehroof and Griffiths [15] studied the relationship between online computer game addiction, sensation seeking, self-control, neuroticism, aggression, state-anxiety, and trait-anxiety. They found an association between the addiction to computer games and high scores in the scale of state and trait anxiety. Moreover, state-anxiety had a higher correlation than trait-anxiety. Researchers assume that excessive use of computer games by people with high levels of anxiety might be a way of reducing tension, and constitutes a strategy of coping with stress. Scealy, Phillips, and Stevenson [19] found correlations between shyness, trait-anxiety, and different online activities such as email, chats, learning, entertainment, downloading, shopping, internet banking, and paying bills. They did not find any relationship between trait-anxiety and an increased use of the Internet, which was contrary to the results of other studies.

The main aim of this research was to study the relationship between the locus of control, anxiety level, and behaviors associated with illegal downloading and using of online content.

Hypotheses

H1: There is a positive relationship between an external locus of control and behaviors associated with illegal downloading and using of online content. People with an external locus of control (externalists) will manifest internet "piracy"-related behaviors more frequently than people with an internal locus of control (internalists).

H2: There is a negative relationship between the level of anxiety and behaviors associated with illegal downloading and using of online content. People with a low level of trait-anxiety will manifest internet "piracy"-related behaviors.

Study participants

Ninety-six students of economy (44.8%) and psychology (52.1%), aged 18-35 years ($M=26.5$; $SD=8.5$), including 75% women and 25% men, took part in the study.

Tab. 1. Survey on behaviors associated with downloading and using online content

1.	How often do you download files such as music files, movies, software, books, television series, and photos?
2.	How often do you pay for downloaded files?
3.	How often do you use websites or software dedicated to downloading files (for instance, e-mule, torrents, discussion forums, etc.)?
4.	How often do you download files from file-sharing websites (for instance, RapidShare.com, Chomikuj.pl, Megaupload.com)?
5.	How often do you use websites that provide multimedia (for instance, wrzuta.pl, youtube.pl, etc.)?
6.	How often do you borrow/copy files that have been downloaded by your friends (movies, music, etc.)?
7.	How often do files downloaded by you come from an illegal source?
8.	How often do you share your own files online?
9.	How often do files downloaded by you come from pay sites?
10.	How often do you use downloaded content (parts of articles, books, reviews, etc.) for your own work without disclosing their source?
11.	How often do you use downloaded online content (photos, graphs, multimedia, etc.) in your presentations
12.	Do you have a feeling that when downloading and using online files or materials you fully comply with the law?

State/Trait Anxiety Inventory (STAI)

State/Trait Anxiety Inventory (STAI) by Spielberger in the Polish adaption by Strealu, Tysarczyk, and Wrzesniewski. The inventory is comprised of two subscales: the X-1 scale measuring state-anxiety, and the X-2 scale measuring trait-anxiety. High scores in both scales indicate a high level of anxiety.

DELTA Questionnaire

In order to measure the locus of control the DELTA Questionnaire in the adaption by Drwal was employed. This tool consists of 24 items, of which 14 measure the locus of control, whereas the remaining 10 constitute a control lie scale. A high score on the scale of locus of control indicates an external locus of control. A high score on the lie scale indicates that a responder leans towards an overly positive self-presentation.

Survey on behaviors associated with downloading of online content

A self-made survey was applied to study behaviors associated with illegal downloading and using online content. The survey was anonymous and aimed to acquire information on behaviors regarded as internet "piracy". It was comprised of 12 diagnostic items, which are presented in Tab. 1.

As presented in Tab. 1. and the questions ask how often people download files, pay for them, use applications or file-sharing websites, share their own files online, and use legal sources for downloading files. One question asked whether people borrow/copy files that have been downloaded by their friends. Two questions asked whether people use online content for their own purposes without disclosing their source or asking author's permission. One question asked whether people had a feeling of compliance with the law when downloading files. All 12 questions could be answered on a Likert scale

from *Never* through *Very rarely*, *Rarely*, *Sometimes*, *Very often* to *Always*.

Cronbach's alpha was 0.79, which indicates a satisfactory reliability of the tool. In order to reduce the number of items, we carried out factor analysis with a Varimax rotation with Max Kaiser's normalization (Tab. 2.). (KMO = 0.775; χ^2 (df=66) = 561.434; $p < 0.001$) that yielded 3 factors accounting for 64% of the variance.

Factor 1: Downloading, copying, and sharing files ($\alpha=0.90$) (Survey items 1, 3-8, referring to general behaviors associated with the frequency of downloading, using dedicated websites and applications, exchanging files with friends, sharing files online);

Factor 2: Downloading files from pay websites ($\alpha=0.83$) (Survey items 2, 9, referring to the frequency of downloading files from pay websites and paying for files);

Tab. 2. Factor loadings for exploratory factor analysis with varimax rotation with Max Kaiser's normalization of survey on behaviors associated with downloading and using online content.

Item	Component		
	Factor 1	Factor 2	Factor 3
A1	.871		
A2		.922	
A3	.849		
A4	.818		
A5	.753		
A6	.746		
A7	.843		
A8	.627		
A9		.911	
A10			.897
A11			.582
A12			.290

Factor 3: Illegal downloading and using online content ($\alpha=0.40$) (Survey items 10-12, referring to using online content without disclosing its source or asking author's permission as well as a feeling of compliance with the law when downloading files).

RESULTS

In order to confirm our hypotheses we looked at correlations between LoC, anxiety, and the distinguished factors of online behaviors. The results of these correlations are presented in Tab. 3.

Correlational analysis with the use of the Pearson's linear correlation coefficient showed a statistically significant, positive correlation between an external locus of control and factor 3 that referred to the legality of downloading and using online content. People with an external locus of control manifest behaviors regarded as internet "piracy" more frequently, which is in line with hypothesis 1. Hypothesis 2, which assumed that people with high

levels of trait-anxiety have higher scores in factor 3 – referring to illegal downloading and using online content, was not confirmed.

The correlations between LoC, anxiety and individual survey items, presented in Tab. 4, seem to be noteworthy.

As presented in Tab. 4, participants with high scores in the LoC scale, i.e. with an external locus of control, had high scores in item 10 – referring to the frequency of downloading online content (parts of article, books, reviews, etc.) for own work without disclosing its source. Moreover, they had low scores in trait-anxiety (X-2). From a psychological standpoint, it is noteworthy that participants with high scores in LoC, i.e. with an external locus of control, had a feeling of compliance with the law in spite of admitting to download and use online content without disclosing its source or asking author's permission (item 10). This may result either from false responses to item 12 or a low awareness regarding what constitutes internet "piracy" among participants with an external locus of control. If the former was true, then one shall expect a statistically significant correlation with the scale of lie as well as with a tendency towards an overly positive self-presentation. However, the expected correlation was not seen. Therefore, it may be assumed that the reason for high scores in item 12 of participants with an external locus of control is a sense of impunity (insufficient copyright protection) regarding behaviors associated with downloading and using online content. However, this requires further detailed studies, especially as Factor 3, due to a low reliability ($\alpha=0.40$), undermines the credibility of

Tab. 3. Pearson's correlation coefficient between LoC, anxiety, and survey factors.

	1	2	3	4	5	6
1. LoC	1					
2. Scale of lie	.089	1				
3. Trait-anxiety	.290**	-.099	1			
4. Factor 1	.101	-.004	.094	1		
5. Factor 2	-.001	.199	-.039	-.032	1	
6. Factor 3	.255*	-.118	.034	.254*	-.086	1

* correlation is significant at 0.05, ** correlation is significant at 0.01

Tab. 4. Correlational matrix of Spearman's rs coefficients between LoC, anxiety, and survey items.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01. LoC	1														
02. K-K	.09	1													
03. X-2	-.29**	-.01	1												
04. S01	.17	.15	.14	1											
05. S02	-.07	.22*	-.01	.00	1										
06. S03	.10	.12	.08	.77**	-.01	1									
07. S04	.17	.06	.11	.72**	.02	.76**	1								
08. S05	.08	-.06	.10	.65**	-.05	.55**	.57**	1							
09. S06	-.06	-.13	.05	.55**	-.21	.47**	.40**	.56**	1						
10. S07	.05	-.15	-.03	.65**	-.19	.68**	.68**	.52**	.60**	1					
11. S08	.05	-.00	.09	.45**	.04	.42**	.37**	.30**	.65**	.47**	1				
12. S09	.07	.14	-.06	.02	.70**	.07	.04	.00	-.05	-.06	.09	1			
13. S10	.21*	-.04	-.13	.04	-.14	.09	.07	-.05	.01	.15	.09	-.08	1		
14. S11	.08	-.06	.06	.37**	-.07	.45**	.34**	.35**	.34**	-.54**	.21*	.00	.37**	1	
15. S12	.20*	-.11	.08	-.09	-.10	-.02	-.12	.01	-.02	-.13	-.04	.04	.11	-.08	1

* correlation is significant at 0.05, ** correlation is significant at 0.01

our results, and explains a lack of the expected correlation between LoC and item 12 ("Do you have a feeling that when downloading and using online files or materials you fully comply with the law?").

DISCUSSION

Hypotheses assuming the existence of a relationship between the locus of control and anxiety with a tendency towards behaviors regarded as internet "piracy" were confirmed, but only partially. As only two personality dimensions were studied, conclusions drawn from this study do not pertain to the whole structure of personality. The locus of control is a personality variable that explains human behavior in different situations. People with an internal locus of control are characterized by a tendency to attribute the effects of their behaviors to themselves, whereas people with an external locus of control tend to view factors responsible for what happens to them in their lives as being beyond their control, or unrelated to their behavior. In line with theory of LoC, our results might be explained by the fact that people with an internal locus of control, who are characterized by a higher self-esteem, engage in behaviors associated with internet "piracy" with a greater awareness of the possible consequences, and therefore exercise caution towards risky behaviors. This is confirmed by Rotter's experiments [18], in which people with an internal locus of control placed bets only in low-risk situations, and preferred to lose little at the cost of a smaller prize. People with an external locus of control risked higher amounts in more risky bets. This is in line with our study, in which such behaviors were undertaken by people with an internal locus of control, because they take responsibility for their actions, and have a higher level of critical thinking [11]. This is also consistent with Argyle's interpretation [2] who suggests that people with an external locus of control are subject to social pressure, and are characterized by a higher conformism. This may explain more frequent behaviors associated with internet "piracy" in people with an external LoC, the more so because this phenomenon is vastly accepted by the users of the Internet [7].

Another thing that could explain our results is the differential perception of rewards and punishments as behavioral reinforcements by internalists and externalists. Internalists perceive adequate behaviors, which they attribute to their own decisions and see as the building blocks of their lives, as rewards. Behaviors that do not comply with generally accepted social norms might result in a punishment. Because of that, such behaviors (adequate,

socially acceptable) are reinforced in people with an internal locus of control, and at the same time they result in the avoidance of behaviors that are not socially acceptable. The contrary is true for externalists. The effect of self-reinforcement of own positive behaviors is missing, because people with an external locus of control perceive the results of their behaviors are controlled by external factors. Therefore, inadequate, socially unacceptable behaviors, such as illegal downloading and using online content, do not serve as a punishment as the blame is placed on external factors.

Obviously, the comparison of people who illegally download and use online content is not legitimate, as information regarding their motives (unconsciousness, conformism, etc.) and situational context is not available. However, for the purpose of scientific analysis, some similarities may be pointed out with respect to psychological mechanisms, without bringing the two groups to the same social level. A relationship between the locus of control and lawless behaviors might be pointed out. The theory of locus of control is the basis for such reasoning. External control is in this case exercised by environmental factors, i.e. social expectations as well as legal and moral regulations, and the consequences associated with breaching them [3]. In turn, internal control is the result of development and upbringing that is shaped through the process of socialization, which enables individuals to resist the external pressure, cope with difficult situations, and avoid taking risk.

Another personality dimension that was related to illegal downloading and using online content was trait-anxiety. Research suggesting that criminals with a dissocial personality type have a deficit in anxiety confirms that internet "piracy" in Poland is not closely related to abnormal personality, and has a social nature [23]. This is also confirmed by our research regarding the lack of correlation between trait-anxiety and behaviors associated with illegal downloading and using online content.

CONCLUSIONS

1. People with an external locus of control (externalists) manifest behaviors associated with internet "piracy" more frequently than people with an internal locus of control (internalists)
2. The existence of a statistically significant relationship between internet "piracy" and trait-anxiety was not found.

AUTHORS' DECLARATION:

Study Design: Krzysztof Marczak, Jan Feliks Terelak; **Data Collection:** Krzysztof Marczak, Jan Feliks Terelak; **Statistical Analysis:** Krzysztof Marczak, Jan Feliks Terelak; **Manuscript Preparation:** Krzysztof Marczak, Jan Feliks Terelak; **Funds Collection:** Krzysztof Marczak, Jan Feliks Terelak. The Authors declare that there is no conflict of interest.

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